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Lay Theories about Whether Emotion Helps or Hinders Reasoning and Wellbeing

DISSERTATION

submitted in partial satisfaction of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

in Psychology and Social Behavior

by

Melissa M. Karnaze

Dissertation Committee:
Professor Linda Levine, Chair
Professor Belinda Campos
Professor Elizabeth Martin

2019

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I would like to thank all the people in my life who have helped me grow as a researcher and to complete this dissertation. First, I would like to thank my advisor and committee chair, Dr. Linda Levine. Since the beginning of my time at UCI, Linda has encouraged me to pursue research topics that I'm passionate about, while also learning how to focus on projects that are feasible and of interest to others. Through lab meetings and individual meetings, Linda modeled how important it is to be able to clearly express your ideas and consider alternative viewpoints about any research idea, interpretation of data, or research challenge. She instilled her meetings with wit, compassion and an appreciation for real world applications of any research finding. Over the years, Linda taught me how to write a scientific paper, and how writing is not just important for the reader, but also shapes and enhances how one thinks about a topic. She also taught me that research requires a balance of recognizing contributions alongside any limitations of a study. She gave me valuable advice not just for research, but for life.

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PUBLICATIONS

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Karnaze, M. M., Levine, L.J., & Schneider, M. (2017). Misremembering past affect predicts adolescents' future affective experience during exercise. *Research Quarterly for Exercise and Sport*, *88*, 316-328.

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2007-2008   **Program Assistant for Pacific Rim Undergraduate Experiences (PRIME), UC San Diego**
Compiled report of students' cultural experiences in PRIME internship abroad program; co-wrote press releases and technical reports on PRIME projects in cyberinfrastructure; created a PRIME Alumni Survey and Alumni Contact Database.

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ABSTRACT OF THE DISSERTATION

Lay Theories about Whether Emotion Helps or Hinders Reasoning and Wellbeing

By

Melissa M. Karnaze

Doctor of Philosophy in Psychology and Social Behavior

University of California, Irvine, 2019

Professor Linda J. Levine, Chair

This dissertation assessed the extent to which people endorse theories that emotion helps versus hinders reasoning and wellbeing and how these theories relate to analytical reasoning, physical health, emotion regulation and wellbeing. Study 1 examined the links between help and hinder theories, reasoning under stress, reappraisal and suppression use, and wellbeing. Help theory endorsement predicted better reasoning, more reappraisal and greater wellbeing, while hinder theory endorsement predicted more sick days in recent months and more suppression. In Study 2, a new measure of help and hinder theories (The Help and Hinder Theories Scale; HHTE) was developed which assessed the set of beliefs that form each theory. Study 3 demonstrated that the HHTE's factor structure replicated in a separate sample, and that the scale had adequate three-week test-retest reliability. Study 3 also showed evidence of convergent and divergent validity for the HHTE. Study 4 then tested causal relations between help and hinder theories and responses to a distressing event. Specifically, participants who were randomly assigned to a condition to encourage a help theory endorsed a help theory more and endorsed a hinder theory less than those in the control condition. Participants in the help theory condition reported more emotion acceptance of their emotional response to viewing a distressing film clip,

and showed faster emotional and physiological recovery. Together, these studies suggest that believing that emotion is helpful matters for emotional wellbeing and social relationships, and may motivate people to accept emotional experience and thus show faster physiological recovery after distressing events. In contrast, believing that emotion is a hindrance is linked to lower wellbeing, less social support, and less-effective emotion regulation strategies.

CHAPTER 1:

Introduction

Introduction

People can have feelings *about* their feelings. They can appreciate their emotional reactions or disdain them. Do people's views about emotion matter? This dissertation explored the extent to which people view emotion as helpful or a hindrance, and how these beliefs are related to reasoning, emotional experience, wellbeing, and emotion regulation. In the West, people have expressed both positive and negative views about emotion. Both views have long philosophical and psychological histories that are still reflected in contemporary culture. On one hand, philosophers and psychologists have claimed that emotion is maladaptive. For example, the Stoics argued for eradicating emotions. According to Seneca, emotions were irrational and ought to be replaced with rational responses (Kaster & Nussbaum, 2010). Breuer and Freud had patients recall traumatic experiences in order to expel repressed emotions which were viewed as destructive (Strachey, 1957). Lay people currently express the view that emotion prevents rational thinking, is dangerous, and indicates weakness and vulnerability, whereas being unemotional helps people be calm, rational, and have greater volition (Lutz, 1986; Parrott, 1995). The English language is replete with metaphors that depict emotion as an undesirable and destructive force, including notions that emotion is a force of nature ("He was flooded with emotion"), an opponent ("I wrestled my emotions"), and a wild animal ("She unleashed her emotions"; Kövecses, 1990; Lakoff & Kövecses, 1987).

On the other hand, philosophers and emotion theorists have argued that emotions are functional and adaptive. Descartes argued against the Stoics' stance on the passions, noting that they motivate the soul to pursue "the things nature decides are useful" (p. 51-52, Descartes, 1649/1989). He held that emotions are harmful only if they motivate more action than is appropriate in a situation. Darwin (1872/1965, p. 364) proposed that humans and other animals

evolved to outwardly express emotions in order to communicate important information and survive. Although contemporary psychological theories acknowledge that emotions can be dysfunctional when they are experienced too intensely or too frequently (Kring, 2008), many follow Darwin's approach and posit that emotions are functional because they efficiently motivate cognitions and behaviors that improve chances of survival and successful reproduction (e.g., Frijda, 1994; Simon, 1967; Gross & Barrett, 2011). Scholars have also identified lay beliefs that emotions signal life, vigor, and humanity, and that being unemotional shows that one is apathetic or estranged from the world (Lutz, 1986).

Lay Beliefs about the Functionality of Specific Types or Features of Emotions

Researchers have explored people's beliefs about the functions of specific types of emotions such as anger or sadness and specific features of emotion such as physiological arousal. People tend to agree that approach-oriented emotions (e.g., excitement) are useful for gaining rewards whereas avoidance-oriented emotions (e.g., fear) are useful for avoiding threats (Tamir, Gross, Chiu, 2007). People's beliefs about the functionality of emotions do not simply reflect how they usually feel or even how they want to feel (Chow & Berenbaum, 2012; Chow, Berenbaum, & Flores Jr., 2015), but culture may play a role in shaping such beliefs. For example, compared to European Americans, East Asians view positive feelings that are focused on others, such as humility, as more useful than self-focused positive feelings, such as pride (Chow & Berenbaum, 2012). Research suggests that people who value specific features of emotion (e.g., physiological arousal) or types of emotion (e.g., anger, anxiety) show better achievement, health, and greater wellbeing. In contrast, believing that specific features or types of emotion are dysfunctional has been linked to poor outcomes. However, people's theories about the function of emotion overall have remained unexamined.

Lay Beliefs about the Overall Functionality of Emotion

As described above, philosophers, psychologists, and lay people the functionality of emotion generally, not just about the functionality of particular feelings or features of emotion. This is not to say that anyone thinks emotions are always adaptive or always maladaptive, but that people may tend to view emotion, generally, as something that helps or hinders them. To the extent that emotion truly is informative and has adaptive functions (e.g., Frijda, 1994; Lench et al., 2015; Simon, 1967), including providing a primary channel for relating to others, the tendency to embrace or avoid one's emotional life should have important and lasting consequences. This thesis thus examined the extent to which lay people view emotion generally as helpful or as a hindrance, and how these views are related to their emotion experience and wellbeing, reasoning, and emotion regulation.

Emotional experience. One reason to examine lay theories about the functionality of emotion generally is that these theories may shape how people experience and appraise emotion, with implications for wellbeing and reasoning. Believing that emotion is dysfunctional and maladaptive implies that people should experience less emotion. When people experience emotion, those who view their reaction as dysfunctional are likely to feel badly about it, which may prolong unpleasant affective states, make it difficult to reason under stress, and lead to lower wellbeing over time. Believing that emotion helps, on the other hand, implies that people's emotional experiences are valid and valuable. People who hold this belief may allow themselves to experience their emotions more fully without regretting the experience. When under stress, they should be able to perform better because they are not distressed by their distress and recognize that their emotional response is natural and valid. People who believe that emotion helps should also be more accepting of how others feel, which can facilitate open communication about feelings in their close relationships such that their relationship partners feel more

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supported and in turn provide them with emotional support. People who value emotion should also harness whatever they feel to achieve their personal goals and may ultimately be more satisfied in life as a result. Researchers have not yet examined whether theories about the functionality of emotion shape emotional experience. Thus, this thesis included an experiment in which participants' beliefs about emotion were manipulated, and the effects on their emotional experience were assessed.

Emotion Regulation. A second reason to examine theories about the functionality of emotion generally is that these theories may guide the ways that people regulate their emotions, with important consequences. Emotions are brief reactions that may last less than a second; they can rapidly change when a person's attention shifts, the environment changes, or appraisals about the environment change (Gross, 2015). Emotion regulation is the process of consciously or unconsciously influencing the duration, intensity, or type of emotion one experiences (Gross, 2015). The strategies people use to regulate emotion have been shown to affect emotional experience. For instance, reappraisal, or thinking about an emotion-eliciting stimulus in a way that changes one's emotional response, is a relatively effective strategy for changing subjective emotion (Egloff et al., 2006; Ehring et al., 2010; Gross, 1998), without increasing physiological reactivity or impairing memory for the emotional event (Egloff et al., 2006; Richards & Gross, 2000). In contrast, suppressing the expression of emotion has been shown to increase physiological arousal and impair memory (Richards & Gross, 2000). People who reported being more accepting of their emotions reported having less intense emotional reactions to stressors, and in turn better wellbeing months later (Ford, Lam, John, & Mauss, 2018, study 3).

The vast majority of studies on emotion regulation have emphasized the outcomes of emotion regulation. Far fewer studies have examined what leads people to select specific emotion regulation strategies. Given that emotion regulation efforts have important implications

for emotion experience, physiology, memory, social interactions, and physical and mental health, it is important to understand, not just the consequences of using particular strategies, but also the factors that determine what strategies people engage in. Thus, understanding the antecedents of individual differences in the selection of and efficacy of emotion regulation strategies has been noted as an important research direction for the field (Gross, 2015).

Researchers have proposed that infant temperament, caregivers' regulation of infant distress, and environmental and family contexts shape individual differences in emotional reactivity and regulation (Calkins, 2004; Boyce & Ellis, 2005; Morris, Silk, Steinberg, Myers, & Robinson, 2007). People who label negative emotional experiences with more granularity engage in more efforts to regulate negative emotion (Barrett, Gross, Christensen, & Benvenuto, 2001). Researchers have also proposed that openness to emotional experience should lead to greater emotional knowledge, which makes it easier for people to be successful at regulating their emotions (Salovey, Detweiler, Detweiler-Bedell, & Mayer, 2008). Training people to accept their thoughts and feelings without judgment and to focus on the present moment may also increase reappraisal use over time (Troy, Shallcross, Davis, & Mauss, 2013). There are also group differences in emotion regulation reflecting social and cultural values. Masculinity norms place pressures on men to be less emotional (Jakupcak, Salters, & Gratz, 2003). People who endorse collectivist versus individualist values tend to value emotional control more (Mauss, Butler, Roberts, & Chu, 2010) and people with East Asian backgrounds are more likely than those with European American backgrounds to use expressive suppression (Gross & John, 2003).

People's theories about the functionality of emotion may also influence the emotion regulation strategies they select and their efficacy when they use different strategies. Viewing emotion as adaptive should motivate people to accept their affective states and learn from them. Over time, accepting how one feels should enable people to recognize how and why they react to

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certain events and ultimately learn how to better employ the emotion regulation strategies of selecting situations, modifying attention, and modifying expression in order to be more successful in pursuing personal goals (Gross, 2015). Accepting how one feels should also facilitate honest communication within close relationships, acceptance of how close relationship partners feel and thus empathy and the provision of emotional support, which can improve the quality of relationships.

In contrast, viewing emotion as maladaptive should motivate people to avoid emotional reactions and attempt to control or get rid of them. Avoiding how they feel may also prevent people from recognizing the types of situations and cognitive processes that result in pleasant or unpleasant feelings, ultimately rendering them less effective at employing the emotion regulation strategies of selecting situations, modifying attention, and modifying expression. Avoiding how one feels should also hinder honest communication within close relationships. This approach may lead people to discount or invalidate how close relationship partners feel, which can impair the quality of relationships, especially in cultural contexts where authentic expression of emotional experience is valued. We do not know if theories about whether emotion helps or hinders cause people to use certain emotion regulation strategies. So experimental work is needed where beliefs are manipulated, and emotion regulation is measured.

The Current Project

The current project had three goals. The first goal was to determine the extent to which lay people endorse the theory that emotion, overall, helps versus hinders reasoning and wellbeing, and to examine how these views related to reasoning and wellbeing outcomes. Specifically, Study 1 (Chapter 2 of the dissertation) used an online survey to examine the links between help and hinder theories and reasoning under stress, reappraisal and suppression use, and wellbeing.

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The second goal of the project was to develop a new scale of lay theories about the functionality of emotion, and to assess its psychometric properties. Specifically, in Study 2 (Chapter 3), new items were created for a measure of help and hinder theories (The Help and Hinder Theories Scale; HHTE) to assess the set of beliefs that form each theory. It was important to develop a new measure because Study 1 used items asking about beliefs about the overall functionality of emotion taken from two existing measures. A new measure was needed to capture the dimensions along which emotion is thought to be helpful or harmful, based on academic theories and lay beliefs about emotion: (1) the pursuit of goals; (2) decision-making; and (3) and general wellbeing. The goal was to create a succinct measure that was easy for researchers administer. Study 3 (Chapter 3) then assessed the psychometric properties of the HHTE and its associations with theoretically related constructs.

The third goal of the project was to contribute to our understanding of emotion regulation by examining whether help and hinder theories, as measured by the HHTE, would guide the emotion regulation strategies that people used when encountering distressing stimuli in the lab. Specifically, Study 4 (Chapter 4) attempted to experimentally induce help theory, hinder theory, or no lay theory (control condition) to examine the effects of a help and hinder theory on emotional and physiological reactivity to and recovery after a distressing event, as well as emotion regulation. Thus, Study 4 extended upon the results of Studies 1 and 3 to test the causal directions of the relationships between help and hinder theories and emotion regulation.

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CHAPTER 2:

DATA VERSUS SPOCK: LAY THEORIES ABOUT WHETHER EMOTION HELPS OR

HINDERS

Abstract

The android Data from *Star Trek* admired human emotion whereas Spock viewed emotion as irrational and maladaptive. The theory that emotions fulfill adaptive functions is widely accepted in academic psychology but little is known about laypeople's theories. The present study assessed the extent to which laypeople share Data's view of emotion as helpful or Spock's view of emotion as a hindrance. We also assessed how help and hinder theory endorsement were related to reasoning, emotion regulation, and wellbeing. Undergraduates ($N = 630$) completed a stressful timed reasoning task and questionnaires that assessed their theories of emotion, emotion regulation strategies, happiness, and social support. Overall, participants viewed emotion more as a help than a hindrance. The more they endorsed the view that emotion helps, the better their reasoning scores. Endorsing a help theory also predicted the use of reappraisal which, in turn, predicted greater happiness and social support. In contrast, endorsing the view that emotion hinders was associated with emotion suppression and less social support. Thus, people's theories about the functionality of emotion may have important implications for their reasoning and emotional wellbeing.

Data versus Spock: Lay Theories about Whether Emotion Helps or Hinders

In the West, emotion has both positive and negative connotations. Two now classic examples of these views come from the television series, *Star Trek.* Spock struggled with his half Human-half Vulcan nature and strove to be logical. He tried valiantly to suppress emotion while serving aboard the starship *Enterprise* and even engaged in a Vulcan ritual designed to purge himself of all emotion. His android successor, Data, was devoid of emotion by design. But instead of disdaining emotions, Data strove to experience them, installing an emotion chip in his quest to be more human. Spock and Data exemplify conflicting views of emotion as hindering versus helping reasoning and wellbeing. These views have long philosophical and psychological ancestries and both remain prominent in contemporary culture. The present study is the first to empirically examine the extent to which laypeople endorse these views.

The view that emotion is maladaptive has been prominent at least since the time of the Stoics. Seneca argued that emotion is irrational, compared it to a disease, and suggested that people supplant emotion with rational responses (Kaster & Nussbaum, 2010). Plato described the human soul as composed of three parts, and recommended that reasoning govern the emotional and appetitive parts (Knuutilla, 2004). Anecdotal accounts show that, to this day, laypeople express the view that emotion disrupts rational thinking, makes people lose control, and signals weakness and vulnerability whereas they idealize being unemotional as a sign of rationality, maturity, strength, and greater volition (Lutz, 1986; Parrott, 1995). The term "emotional" is often used to invalidate the concerns and experiences of groups such as women, minorities, children, and people of low socioeconomic status (Lutz, 1986; Shields, 2005).

While acknowledging that emotion can be problematic when experienced too intensely or frequently (e.g., Kring, 2008), philosophers and psychologists have also argued that emotion is functional and adaptive. Aristotle favored rational control over the passions but viewed socially

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appropriate emotion as necessary for leading a good life (Ostwald, *1999,* p. 43). Disputing the Stoics, Descartes noted that emotions motivate the soul to pursue "the things nature decides are useful," and cause harm simply because they sometimes motivate more action than appropriate in a situation (Voss, 1989, p. 51-52). Darwin proposed that expressions of emotion evolved to help humans and other animals respond adaptively to situations relevant to survival (1872/1965, p. 364). Many contemporary psychological theories such as appraisal theories build on Darwin's approach, defining emotions as responses composed of subjective feelings, physiological changes, and motivational tendencies that quickly and powerfully orient people toward stimuli that are relevant to their goals and prepare them to engage in adaptive action (e.g., Frijda, 1994; Lench, Bench, Darbor, & Moore, 2015; Levine & Edelstein, 2009; Moors, Ellsworth, Scherer, & Frijda, 2013; Simon, 1967). We concur with this definition. Some have even argued that emotions would be necessary for artificial intelligence (Picard, 2015), and that an embodied machine (such as Data) would need "affect programs" to survive in physical environments (Minsky, 2006). Laypeople also view emotion as a sign of life, vigor, and humanity, and being unemotional as a sign of apathy or estrangement from the world (Lutz, 1986).

Clearly, the view that emotion is maladaptive has a long history in philosophy and psychology. The view that emotion is adaptive has a similarly long history and is widely accepted in academic psychology today. People express both views in everyday talk about emotion and both are prevalent in popular culture. This research assessed the extent to which laypeople share Data's view of emotion as helpful or Spock's view of emotion as a hindrance.

Past Research on Lay Theories about Emotion

To the extent that emotion is indeed informative and adaptive, people's general tendency to embrace or avoid their emotional life should have important consequences for their achievement and wellbeing. Thus, the present research also assessed how endorsing a help or

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hinder theory was related to performance on a stressful reasoning task, happiness, perceived social support, and emotion regulation strategies. A few past studies have shown that beliefs about the functionality of emotion matter for achievement, wellbeing, or emotion regulation, but only for specific features or types of emotion. College students who were instructed to view physiological arousal as adaptive performed better than a control group on practice GRE math questions in the laboratory and on the actual GRE test months later (Jamieson, Mendes, Blackstock, & Schmader, 2010). Participants who were led to believe that feeling anger would improve their performance on an upcoming task showed greater preference for, and up-regulation of, anger (Tamir, Bigman, Rhodes, Salerno, & Schreier, 2015). The more people valued negative affective states (anger, nervousness, downcast), the less pronounced were the associations between their daily experiences of negative affect and mental health outcomes (Luong, Wrzus, Wagner, & Riediger, 2015). People who endorsed beliefs that feeling upset is "shameful and irrational" and "damaging" engaged in more dysregulatory behaviors, such as using alcohol or sexual encounters, to cope with strong feelings (Manser, Cooper, & Trefusis, 2012). Thus, links have been identified between valuing specific features of emotion (e.g., arousal) or types of emotion (e.g., anger), and achievement and wellbeing.

It is also important to examine people's overarching theories that emotion helps or hinders. Broad and conflicting views are evident in ancient Greek philosophical accounts and continue to pervade Western media and everyday discourse. To be clear, no one views emotion as always adaptive or always maladaptive, but people may have a greater or lesser tendency to view emotion, overall, as something that helps them or gets in their way. Moreover, people's overarching theories about the functionality of emotion should have important implications for their reasoning and wellbeing and help to address the important question of why people adopt one type of emotion regulation strategy rather than another (Gross, 2015).

Relation of Help and Hinder Theories to Reasoning and Wellbeing

Lay theories of emotion may impact people's reasoning. People often experience a stress response to challenging reasoning tasks. While these feelings are uncomfortable, they provide motivation to do well and help focus attention on the task at hand. If people view emotion as helpful, rather than as a hindrance to be overcome, they are less likely to be distracted or alarmed by their feelings, preserving the cognitive resources needed to perform well (Jamieson et al., 2010; Levine & Edelstein, 2009). People who view emotion as a hindrance are likely to appraise feelings of stress during a challenging reasoning task in a negative way. In addition to making them feel worse, preoccupation with emotion may squander valuable cognitive resources needed to succeed at the task.

Endorsing a help theory of emotion should also promote wellbeing more broadly. According to appraisal theories (e.g., Moors et al., 2013; Siemer, Mauss, & Gross, 2007), people's appraisals of events as facilitating or obstructing their goals shape their emotional responses. In addition to appraising events, people appraise their emotional reactions to events, and this contributes to their overall emotional experience (Tsai, 2007). Those who view emotion as generally helpful are likely appraise their positive and negative emotional responses to events as furthering, rather than obstructing, their goals, resulting in greater wellbeing. They should also be more accepting of their emotions and pay more attention to them, providing opportunities to gain skills such as the ability to discriminate clearly among feelings. Emotional acceptance and emotional clarity have been associated with fewer depressive symptoms and with feeling less distressed by laboratory and real-world stressors (Salovey, Mayer, Goldman, Turvey, & Palai, 1995; Weihs, Enright, & Simmens, 2008). In contrast, if people believe that emotion hinders, they may experience more distress about everyday emotional reactions to events, resulting in lower wellbeing. They may avoid and attend less to emotions, foregoing opportunities to gain skills

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such as the ability to clearly identify feelings. Emotional avoidance, and deficits in the ability to identify feelings, have been linked to depressive symptoms (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Honkalampi, Hintikka, Tanskanen, Lehtonen, & Viinamäki, 2000).

Implications of help and hinder theories may extend beyond the individual to relations with others. People who believe emotion helps should be more understanding and accepting of how family, friends, and colleagues feel, providing and in turn receiving more social support (Thoits, 1986). For instance, accuracy in understanding the feelings of others is a key predictor of closeness in adolescents' same-sex friendship dyads (Chow, Ruhl, & Buhrmester, 2013). People who view emotion as a hindrance may be less accepting of others' feelings, leading them to provide and in turn receive less social support. Thus, drawing on past research about appraisal theories, people's beliefs about specific features of emotion, and emotional clarity and acceptance, we hypothesized that endorsing a help theory of emotion would be associated with better reasoning and greater wellbeing and social support. We hypothesized that endorsing a hinder theory would be associated with poorer reasoning and less wellbeing and social support.

Relation of Help and Hinder Theories to Emotion Regulation

Lay theories about whether emotion helps or hinders should influence how accepting people are of their emotional responses. Nonetheless, people often need to alter their emotions, mustering enthusiasm to complete a necessary task, tamping down a sunny mood to listen sympathetically to a friend, or reigning in impatience with a child. People's views of emotion as helpful or hindering may influence the extent to which they use two common strategies to regulate emotion, reappraisal and suppression, in their daily lives. Reappraisal is an emotion regulation strategy which involves changing how a situation is viewed in order to alter the emotional response to it. This complex strategy depends critically on emotion-related knowledge and skills. People must be aware of their initial emotional response; understand that their goals

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and interpretations of a situation contribute to how they feel; understand that changing their goals or interpretations in specific ways will alter their feelings; be capable of generating appropriate alternative appraisals; and monitor the resulting shift in their feelings (McRae, Jacobs, Ray, John, & Gross, 2012). People who endorse a help theory of emotion should have greater opportunity to acquire the knowledge and skills needed to engage successfully in reappraisal. Viewing emotion as facilitating goals implies a basic understanding of the relation between emotions and goals. Paying attention to emotion and learning from emotional experience would provide opportunities to come to understand how interpretations of situations impact emotional responses. Reappraisal has been shown, both in the laboratory and in daily life, to promote enhanced wellbeing and better relationships (e.g., Gross & John, 2003). Thus, we hypothesized that, when people want to change how they feel, those who view emotion as helpful should engage in more frequent reappraisal which in turn should promote happiness and social support.

People who believe that emotions are generally undesirable are not likely to have acquired the knowledge and skills needed to engage successfully in reappraisal. Instead, they would be motivated to "get rid of" their emotions through suppression (much as Spock tried to do). Suppressing emotional expression is not universally maladaptive (Ford & Mauss, 2015), but has been linked to lower wellbeing (Gross & John, 2003), psychopathology (Aldao et al., 2010), and less social support (Srivastava, Tamir, McGonigal, John, & Gross, 2009). Thus, we hypothesized that people who view emotion as a hindrance should engage more frequently in emotion suppression which in turn should promote less happiness and less social support.

Investigating relations between theories about emotion and regulation strategies is important because these strategies have important implications for emotion experience, mental health, and social interactions (Gross, 2015). Research exploring what guides people to adopt one strategy versus another is in its infancy but some influences have been identified. Temperament

and family context have been shown to predict individual differences in emotion regulation (e.g., Morris, Silk, Steinberg, Myers, & Robinson, 2007). Culture also plays a role. People with East Asian backgrounds are more likely than those with European American backgrounds to use expressive suppression (Gross & John, 2003). Beliefs about emotion also contribute to strategy choice. Being accepting of feelings (Troy, Shallcross, Davis, & Mauss, 2013), believing that changing emotions is worthwhile (Veilleux et al., 2015), and believing that emotions can be changed (De Castella et al., 2013; Schroder, Dawood, Yalch, Donnellan, & Moser, 2015), are associated with more frequent use of reappraisal, though the directionality of these relationships is not clear (Kneeland, Nolen-Hoeksema, Dovidio, & Gruber, 2016). Believing that emotions narrow an individual's choices is associated with greater use of expressive suppression (Veilleux, Salomaa, Shaver, Zielinski, & Pollert, 2015). These beliefs may stem from people's broader theories about the functionality of emotion. Thus, more research is needed to understand what predisposes people to use reappraisal or suppression in daily life.

The Present Research

The present research assessed the extent to which laypeople view emotion as helpful or as a hindrance. We further examined whether people's help and hinder theories about emotion predicted their performance on a stressful reasoning task and their emotional wellbeing. Participants completed an online survey that included questions about emotion experience, regulation, wellbeing, and relationships. After a neutral filler task, they completed a timed reasoning task. We hypothesized that a more functionalist view of emotion (more help theory endorsement and less hinder theory endorsement) would be associated with better reasoning task performance, greater happiness, and more social support. We also expected endorsement of a functionalist view to predict use of reappraisal, which in turn would predict more happiness and social support. We hypothesized that a less functionalist view would predict poorer reasoning

performance, as well as use of emotion suppression which in turn would predict less happiness and social support. The extent to which people value emotional control depends in part on social roles and expectations (Mauss, Butler, Roberts, & Chu, 2010), thus we also explored whether endorsement of help and hinder theories differs by gender and cultural background.

Method

Participants

Undergraduates ($N = 630$) at a university in southern California completed an online survey for partial course credit. Start and stopping points for data collection were determined before the study began. We initiated data collection in the Fall academic term once IRB approval was received and concluded data collection at the end of the following term. Data were omitted from participants who failed an attention check ($n = 54$), did not complete the survey in one session ($n = 36$), or did not complete the reasoning task ($n = 29$). Participants whose responses on any measure were more than four standard deviations from the mean were excluded ($n = 12$). The mean age of participants was 20.66 years ($SD = 3.12$, range = 18 to 54 years). The majority of participants were female ($n = 499$). Participants reported their ethnicity as Asian ($n = 262$), Hispanic/Latino ($n = 190$), White ($n = 103$), African American ($n = 14$), Pacific Islander ($n = 14$), or Other ($n = 33$). Fourteen participants did not report demographic information.

Measures and Procedure

Baseline affect. At the start of the study, participants reported their current mood using the Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988). Using a scale from 1 (*very slightly or not at all*) to 5 (*extremely*), they rated the extent to which they felt positive affect (e.g., excited) and negative affect (e.g., distressed). Baseline positive and negative affect refer to mean ratings of positive ($\alpha = .90$) and negative ($\alpha = .87$) affect items. Participants then completed measures in the order listed below.

Theories that emotion helps and hinders. Participants rated items from the initial pool of the Attention to Feelings Factor of the Trait Meta-Mood Scale (TMMS; Salovey et al., 1995). The TMMS includes three subscales which assess beliefs about the degree to which people attend to their emotions, have clarity about their moods, and can repair negative moods. Participants also rated items from the Meta-Interest factor of the Meta-Emotion Scale which assesses people's thoughts and feelings about their emotions (Mitmansgruber, Beck, Höfer, & Schüßler, 2009), and from the short form of the Need for Affect Scale (Appel, Gnambs, & Maio, 2012). To assess lay theories about the functionality of emotion, we selected items from the initial pool of the TMMS and the Meta-Interest factor of the Meta-Emotion Scale that specifically tapped the construct that emotion is helpful or a hindrance. We included all items that: (a) clearly reflected positive or negative value judgments about emotions or feelings, and (b) did not confound beliefs about emotion with other constructs such as emotional intensity, thinking about or attending to emotions, emotion regulation, or perceived emotion regulation efficacy. The four help items and four hinder items that met these selection criteria are shown in Table 1. One item used a 6-point scale and the others used a 5-point scale. We applied a linear transformation so that ratings on the 6-point scale corresponded to ratings on the 5-point scale [transformed item = (0.8*item) + 0.2].

The four help items included two items that described feelings as adaptive and valuable ("Feelings give direction to life" and "The variety of human feelings makes life more interesting"), one item that described feeling emotion as healthy ("I believe it's healthy to feel whatever emotion you feel"), and one item that described feelings as having informational value ("I learn through my feelings"). Participants' mean ratings on these four items were used to assess their endorsement of the theory that emotion helps.

The four hinder items included two items that stated that emotions were maladaptive ("Feelings are a weakness humans have" and "One should never be guided by emotions"), one

item that implied that emotions do not provide valuable information ("It is usually a waste of time to think about your emotions"), and one item that described emotion as inferior to cognition ("People would be better off if they felt less and thought more"). We used participants' mean ratings on these four items to assess their endorsement of the theory that emotion hinders.

We used confirmatory factor analysis to assess the measurement properties of the help and hinder theories. The results are shown in Figure 1. The four items conveying the view that emotions are helpful loaded significantly on a single factor and the four items conveying the belief that emotions are a hindrance loaded significantly on a single factor. As expected, the help factor was moderately negatively correlated with the hinder factor. The model showed a good fit to the data, $X^2(19)$: 50.10, $p < .001$; root-mean square error of approximation (RMSEA) = .051; comparative fit index (CFI) = .957. The standardized loadings of the four indicators of the help theory ranged from 0.43 to 0.61. The standardized loadings of the four indicators of the hinder theory ranged from 0.41 to 0.78.

We conceptualized help and hinder theories as two separate constructs because people often describe emotion as both helpful and harmful (Lutz, 1896). However, we also conducted a confirmatory factor analysis treating help and hinder theories as a single, bipolar construct to find out whether help and hinder items should be combined in analyses. The resulting model did not show as good of a fit to the data based on RMSEA and CFI. Therefore, we treated help and hinder as separate constructs in analyses.

Attention check. To determine whether participants were reading the survey questions carefully, one item stated, "This question is an attention check. Please select '2' for 'disagree'." Participants who followed this instruction were included in the analyses.

Emotion regulation self-efficacy. In assessing help and hinder theories, we wanted to account for people's beliefs concerning whether or not their emotions can be changed, since

perceived emotion regulation ability is related to more reappraisal use and greater wellbeing (Tamir, John, Srivastava, & Gross, 2007; De Castella et al., 2013). A modified version of the Implicit Beliefs about Emotion scale (Tamir et al., 2007) was used to assess the extent to which participants viewed emotions as fixed or malleable (De Castella et al., 2013). The scale includes two items assessing perceptions that emotions are fixed entities (e.g., "No matter how hard I try, I can't really change the emotions that I have") and two items assessing perceptions that emotions can be changed or controlled (e.g., "If I want to, I can change the emotions that I have"). Entity items were reverse scored, thus, a higher mean score reflects greater endorsement of the belief that one's emotions can be changed or controlled ($\alpha = .81$).

Emotional intensity. The Impulse Strength factor of the Berkeley Expressivity Questionnaire (Gross & John, 1995) was included to assess the intensity of participants' emotional reactions. Participants rated six statements (e.g., "I experience my emotions very strongly," "I am sometimes unable to hide my feelings, even though I would like to") using a scale from 1 (*strongly disagree*) to 7 (*strongly agree*); $\alpha = .86$.

Emotion regulation. Participants completed items from The Emotion Regulation Questionnaire (ERQ; Gross & John, 2003), which assesses habitual use of reappraisal and emotion suppression. Participants rated five items about reappraisal (e.g., "When I want to feel less negative emotion, I change the way I'm thinking about the situation"), and four items about suppression (e.g., "I keep my emotions to myself"), using a scale from 1 (*strongly disagree*) to 7 (*strongly agree*); $\alpha = .90$ for reappraisal, $\alpha = .76$ for suppression.[3]

Happiness. Participants completed The Subjective Happiness Scale (Lyubomirsky & Lepper, 1999). Using a 7-point scale, they rated items concerning their level of general happiness and items comparing themselves to descriptions of happy or unhappy individuals; $\alpha = .87$.

Perceived social support. The Multidimensional Scale of Perceived Social Support

(Zimet, Dahlem, Zimet, & Farley, 1988) was used to assess perceptions of being supported by individuals from three different sources: family (e.g., "I get the emotional help and support I need from my family"), friends (e.g., "I can count on my friends when things go wrong"), and a significant other (e.g., "There is a special person in my life who cares about my feelings"). The response scale ranges from 1 (*strongly disagree*) to 5 (*strongly agree*). The mean score was used as a measure of perceived social support; $\alpha = .92$.

Reasoning task. Participants completed a brief filler task during which they were instructed to study a sequence of shapes of different colors and to select the best choice for the next color in the progression. They were then informed that they would be completing a difficult "IQ test" under time pressure. The 16-minute task (a countdown timer was displayed at the top of the webpage) consisted of 10 questions, which included multiple-choice analytical reasoning problems about a brief text excerpt and math problems, slightly modified from the Graduate Record Examination, and anagrams. The first reasoning problem did not display the correct answer choice due to experimenter error; the test was scored based on the other 9 questions.

Appraisals of threat. Participants rated five items assessing their beliefs about their resources for the task (e.g., "I had the abilities to perform well on this task"; $\alpha = .71$) and six items assessing the demands of the task (e.g., "This task was stressful"; $\alpha = .85$; Mendes, Gray, Mendoza-Denton, Major, & Epel, 2007). The response scale ranged from 1 (*strongly disagree*) to 7 (*strongly agree*). These ratings were completed immediately after receiving task instructions and again immediately the task. Post-task ratings were used to determine how threatening participants found the task once they had actually experienced it. Following the procedure used by Mendes et al., we first computed the average scores for the resource appraisals and for demand appraisals. We then divided the average demand rating by the average resource rating to provide an index of how threatening (versus challenging) participants found the task (Mean threat index =

0.96, *SD* = 0.38, range: 0.16 to 2.69).

Demographics. At the end of the study, participants reported their gender, ethnicity, grade point average, and whether they were currently studying for a graduate school admissions exams (e.g., GRE, LSAT, MCAT).

Other measures. Participants in this study also completed exploratory items concerning the size of their social network, heath service visits and sick days, and beliefs about emotion control that do not represent help or hinder theories, which were not the focus of the current investigation. In addition, just prior to reporting demographic information, they took part in a pilot study to find out whether reading essays promoting a help or hinder theory would alter their beliefs about the extent to which emotion is helpful or harmful. We have reported all measures, conditions, data exclusions, and how we determined our sample size.

Results

As expected, the more participants endorsed the theory that emotion helps, the less they endorsed the theory that emotion is a hindrance, $r(630) = -.41$, $p < .001$. A paired samples *t*-test showed that, overall, participants viewed emotion as more helpful ($M = 3.89$, $SD = 0.53$) than hindering ($M = 2.37$, $SD = 0.68$), $t(629) = 37.66$, $p < .001$, $d = 2.52$.

To assess whether gender or ethnicity were related to help and hinder theories, we conducted a mixed model ANOVA with help and hinder theories as the dependent variables. Latino, White, and Other groups were dummy-coded and compared to the Asian group. The results showed that women endorsed a help theory ($M = 3.93$, $SD = 0.51$) more than did men ($M = 3.76$, $SD = 0.57$), $F(1, 608) = 8.48$, $p < .01$, $\eta_p^2 = .01$. Women endorsed a hinder theory ($M = 2.32$, $SD = 0.67$) less than did men ($M = 2.57$, $SD = 0.69$), $F(1, 608) = 15.39$, $p < .05$, $\eta_p^2 = .03$.

Endorsement of a help theory did not differ by ethnic group, $F(3, 608) = 1.39$, $p = .27$, $\eta_p^2 = .01$,

but endorsement of a hinder theory did differ, $F(3, 608) = 4.32$, $p < .01$, $\eta_p^2 = .02$. A Bonferroni-adjusted comparison showed that Asian participants endorsed a hinder theory ($M = 2.51$, $SE = 0.63$) more than did White participants ($M = 2.18$, $SD = 0.66$), $t(363) = 3.26$, $p < .01$. A Bonferroni-adjusted comparison showed that Hispanic participants also endorsed a hinder theory ($M = 2.39$, $SD = 0.73$) more than did White participants, $t(291) = 3.28$, $p < .05$. There were no interactions between gender and ethnicity.

We also assessed how help and hinder theories were related to emotion regulation efficacy, emotional intensity, and baseline positive and negative affect. People who believe they cannot change emotions might be expected to view emotion as less helpful and more of a hindrance. However, efficacy was not related to endorsement of a help theory, $r(630) = -.05$, $p = .22$, or hinder theory, $r(630) = -.05$, $p = .24$. People who react more strongly to events might also be expected to view emotion as less helpful and more of a hindrance. Contrary to these expectations, participants with more intense emotions actually endorsed a help theory more, $r(630) = .32$, $p < .001$, and a hinder theory less, $r(630) = -.17$, $p < .001$. Help theory endorsement was related to greater baseline positive affect ($r = .13$, $p < .01$), but not negative affect ($r = -.05$, $p = .25$). Hinder theory endorsement was related to greater baseline negative affect ($r = .16$, $p < .001$), but not positive affect ($r = -.07$, $p = .10$).

Relation of Help and Hinder Theories to Reasoning and Emotional Wellbeing

Table 2 shows descriptive statistics and correlations among help and hinder theories, reasoning, and the emotional wellbeing variables. We conducted separate regression analyses for each outcome to test our hypotheses that greater endorsement of a help theory, and less endorsement of a hinder theory, would predict (a) better reasoning, (b) more reappraisal, (c) less emotion suppression, (d) greater happiness, and (e) greater perceived social support. In Step 1 of each of regression, we entered gender, emotional intensity, and perceived efficacy at regulating

emotions. This was done because endorsement of help and hinder theories differed by gender and were related to intensity. We also wanted to assess whether help and hinder theories predicted outcomes after accounting for potential differences in efficacy. In Step 2 of each regression, we entered help and hinder theories so that associations between endorsement of a help theory and an outcome accounted for endorsement of a hinder theory, and vice versa. Further details specific to each analysis, and the results, are described below. A more detailed summary of the results for each regression analysis, including values for each covariate, is provided in Supplementary Material available online (Tables S1, S2, S3). Unless noted, the relations between help and hinder theory endorsement and outcomes did not change when the following additional covariates were included at Step 1: ethnicity, baseline positive affect, and baseline negative affect.

Reasoning. Participants scored an average of 5.84 correct out of the 9 questions on the reasoning test ($SD = 1.89$). Participants found the task to be threatening, with an average threat appraisal index of 0.96 ($SD = 0.38$, range: 0.16 to 2.69). One item from this index assessed importance ("Performing well was important to me"). Ratings on this item indicated that participants also viewed the task as important ($M = 4.82$, $SD = 1.49$, range: 1 to 7). To test the hypothesis that help theory endorsement would be associated with better performance on a stressful reasoning task, we conducted a regression analysis with reasoning scores as the dependent variable. In Step 1, we entered gender, intensity, efficacy, and participants' mean-centered threat appraisal index as predictors. In Step 2, we entered mean-centered help and hinder theories. In Step 3, we entered the interaction between help theory and threat appraisal, and the interaction between hinder theory and threat appraisal (interactions were computed using mean-centered scores). The final model accounted for 9% of the variance, $F(8, 607) = 7.31$, $p < .001$. The more threatened participants felt, the lower their reasoning score, $\beta = -0.27$ $t = -6.69$, $p < .001$. As hypothesized, the more participants endorsed a help theory of emotion, the higher they

scored, $\beta = 0.12$, $t = 2.68$, $p < .01$. Hinder theory endorsement, gender, intensity, and efficacy were not related to reasoning scores. No interactions were found between help theory and threat appraisals or between hinder theory and threat appraisals. Adjusting for ethnicity, baseline positive and negative affect, GPA, and whether participants were currently studying for a graduate admissions examination at Step 1, did not alter these findings. Thus, when completing a stressful reasoning task, feeling threatened was associated with poorer performance, but viewing emotion as helpful was associated with better performance.

Happiness. The next set of analyses was conducted to find out whether help and hinder theories predicted two measures of emotional wellbeing: happiness and perceived social support. First, we examined factors that predicted happiness. At Step 1, the three-predictor model (gender, intensity, perceived efficacy) accounted for 11% of the variance in happiness. At Step 2, after adding help and hinder theory endorsement, the model accounted for 16% of the variance. The final regression equation was significant, $R = 0.40$, $F(5, 610) = 23.05$, $p < .001$. The more participants believed they could change their emotions (efficacy), the more happiness they reported ($\beta = 0.33$, $t = 7.59$, $p < .001$). The more emotional intensity participants reported, the less happiness they reported ($\beta = 0$-.09, $t = -2.14$, $p < .05$). As hypothesized, the more participants endorsed a help theory, the more happiness they reported, $\beta = 0.17$, $t = 4.09$, $p < .001$. In contrast, the more participants endorsed a hinder theory, the less happiness they reported, $\beta = -0.111$, $t = -2.63$, $p < .01$. However, when ethnicity and baseline positive and negative affect were included as covariates, the association between hinder theory and experiencing less happiness did not reach the conventional level of statistical significance, ($\beta = -0.07$, $p = .07$, $t = -1.83$).

Social Support. Next, we examined factors that predicted perceived social support. At Step 1, the three-predictor model (gender, intensity, perceived efficacy) accounted for 4% of the variance in perceived social support. At Step 2, the three-predictor model accounted for 8% of the

variance. This improvement in the fit of the model was significant, $\Delta R^2 = 0.05$, $F(2, 610) = 16.18$, $p < .001$. The final regression equation predicting perceived social support was significant, $R = 0.30$, $F(5, 610) = 12.10$, $p < .001$. The more participants believed they could change their emotions (efficacy), the more social support they reported ($\beta = 0.15$, $t = 3.55$, $p < .001$). As hypothesized, the more participants endorsed a help theory, the more social support they reported ($\beta = 0.15$, $t = 3.44$, $p < .01$). The more participants endorsed a hinder theory, the less social support they reported ($\beta = -0.12$, $t = -2.89$, $p < .01$). Gender and intensity were not related to social support. In summary, viewing emotion as a help was associated with greater happiness and perceived social support, whereas viewing emotion as a hindrance was associated with less perceived social support.

Emotion regulation. We also assessed whether help and hinder theories predicted the strategies participants reported using to regulate emotion. First, we examined factors that predicted reappraisal use. At Step 1, gender, intensity, and perceived efficacy accounted for 17% of the variance in reappraisal. At Step 2, after adding help theory and hinder theory endorsement, the model accounted for 21% of the variance. This improvement in the fit of the model was significant, $\Delta R^2 = 0.04$, $F(2, 610) = 16.74$, $p < .001$, and the final regression equation was significant, $R = 0.46$, $F(5, 615) = 32.09$, $p < .001$. The more participants believed they could change their emotions (efficacy), the more they used reappraisal, $\beta = 0.41$, $t = 10.62$, $p < .001$. Efficacy accounted for 15% of the variance in reappraisal, after adjusting for gender, intensity, and help and hinder theory endorsement. As hypothesized, the more participants endorsed a help theory, the more they used reappraisal, $\beta = 0.22$, $t = 5.22$, $p < .001$. Help theory endorsement accounted for 4% of the variance in reappraisal, after adjusting for gender, intensity, efficacy, and hinder theory endorsement. Hinder theory and intensity were not related to reappraisal.

Next, we examined factors that predicted participants' reports of engaging in suppression.

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At Step 1, gender, intensity and perceived efficacy accounted for 4% of the variance in suppression. At Step 2, after adding help and hinder theory endorsement, the model accounted for 20% of the variance. This was a significant improvement in model fit, $\Delta R^2 = 0.16$, $F(2, 610) = 59.31$, $p < .001$, and the final regression equation was significant, $R = 0.44$, $F(5, 610) = 29.85$, $p < .001$. As hypothesized, the more participants endorsed a hinder theory, the more they used suppression, $\beta = 0.41$, $t = 10.20$, $p < .001$. Hinder theory endorsement accounted for 14% of the variance in suppression, after adjusting for gender, intensity, efficacy, and help theory endorsement. The more emotional intensity participants reported, the less they used suppression, $\beta = -0.12$, $t = -2.75$, $p < .01$. Help theory and efficacy were not associated with suppression.

Analyses of Indirect Effects

The next set of analyses was conducted to find out whether help theory endorsement was related to happiness and social support via reappraisal. These analyses used Preacher and Hayes's (2008) bootstrapping method, and included hinder theory endorsement, gender, intensity, and efficacy as covariates. We also assessed whether hinder theory endorsement was related to lower wellbeing and less perceived social support via suppression, with help theory endorsement, gender, intensity, and efficacy as covariates.

As shown in Figure 2, the more participants endorsed a help theory of emotion, the more happiness they reported ($b = .41$, $SE = .10$, $t = 4.09$, $p < .01$), and this association was partially explained by reappraisal (Indirect effect = 0.171; $SE = .04$; 95% $CI = 0.09$ to 0.26). Specifically, the more participants endorsed a help theory, the more they regulated emotion using reappraisal ($b = .45$, $SE = .09$, $t = 5.22$, $p < .001$). In turn, the more they used reappraisal, the more happiness they reported ($b = .37$, $SE = .04$, $t = 8.38$, $p < .01$). After controlling for reappraisal, the association between a help theory and happiness significantly decreased ($b = .24$, $SE = .10$, $t = 2.49$, $p < .05$). With respect to social support, the more participants endorsed a help theory of

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emotion, the more social support they reported ($b = .21$, $SE = .06$, $t = 3.44$, $p < .001$), and reappraisal partially explained this association (Indirect effect = 0.05; SE = .02; 95% CI = 0.02 to 0.10). Specifically, the more participants endorsed a help theory, the more they used reappraisal ($b = .45$, $SE = .09$, $t = 5.22$, $p < .001$). The more they used reappraisal, the more social support they reported ($b = .12$, $SE = .03$, $t = 4.13$, $p < .001$). After controlling for reappraisal, the association between a help theory and perceived social support decreased significantly ($b = .17$, $SE = .06$, $t = 2.55$, $p = .01$).

The more participants endorsed the hinder theory of emotion, the less social support they reported ($b = -.14$, $SE = .05$, $t = -2.89$, $p < .001$), and suppression fully explained this relationship (Indirect effect = -0.06; $SE = .02$; 95% $CI = -3.05$ to -0.02). Thus, the more participants endorsed a hinder theory, the more they used suppression ($b = .73$, $SE = .07$, $t = 10.20$, $p < .001$). The more they used suppression, the less social support they reported ($b = -.09$, $SE = .03$, $t = -3.21$, $p < .01$). After controlling for suppression, the negative association between hinder theory endorsement and perceived social support was no longer significant ($b = -.07$, $SE = .05$, $t = -1.47$, $p = .14$). In summary, the link between viewing emotion as a help and feeling happier was partially explained by engaging in more reappraisal, and the link between viewing emotion as a help and feeling more supported was partially explained by engaging in more reappraisal. The link between viewing emotion as a hindrance and feeling less supported was fully explained by suppression.

Because the study design was cross-sectional, we also tested alternative indirect effect models that included the same covariates. We first tested three reverse causation models to determine whether feeling more or less happy or socially supported predicts how people regulate emotion, which in turn predicts the theories they hold about whether emotion is helpful or a hindrance (see Supplementary Material, Figure S1, for a detailed depiction of these models). Compared to the results of our hypothesized models, the indirect effects of emotion regulation

were weaker for the three models tested: (a) happiness predicting help theory endorsement via reappraisal (Indirect effect = 0.024; SE = .01; 95% CI = 0.01 to 0.04); (b) social support predicting help theory endorsement via reappraisal (Indirect effect = 0.023; SE = .01; 95% CI = 0.01 to 0.04); and (c) social support predicting hinder theory endorsement via suppression (Indirect effect = -0.052; SE = .02; 95% CI = -0.09 to -0.03).

We also tested the alternate models that feeling happy and supported predicts the use of particular emotion regulation strategies which in turn inform people's beliefs about the functionality of emotion (see Supplementary Material, Figure S2, for a detailed depiction of these models). Again, compared to the results of our hypothesized models, indirect effects were either absent or weaker for the alternative models: (a) reappraisal predicting help theory endorsement via happiness (Indirect effect = 0.02; SE = .01; 95% CI = 0.01 to 0.03); (b) reappraisal predicting help theory endorsement via social support (Indirect effect = 0.01; SE = .01; 95% CI = 0.01 to 0.02); and (c) suppression predicting hinder theory endorsement via social support (Indirect effect = 0.01; SE = .01; 95% CI = -0.01 to 0.01). Thus, the results of these alternative models indicate that there was greater support for our hypothesized models in which lay theories about emotion predict wellbeing outcomes via emotion regulation.

Discussion

Academic psychology emphasizes the adaptive functions of emotion (e.g., Frijda, 1994; Lench et al., 2015; Simon, 1967), but portrayals of emotion in popular culture and everyday discourse are more varied. For example, the android Data from *Star Trek* admired human emotions and tried to acquire them whereas Spock overlooked no opportunity to point out that emotions are irrational and maladaptive. This is the first study to examine whether laypeople share Data's view of emotion as helpful or Spock's view of emotion as a hindrance, and to examine whether endorsing either theory predicts reasoning, wellbeing, and emotion regulation.

Endorsement of Help and Hinder Theories

The items assessing help and hinder theories loaded well on their respective factors in a confirmatory factor analysis. Participants endorsed a help theory more than a hinder theory, and a moderate negative correlation was found between endorsements of the two theories. Men viewed emotion as less helpful and as more of a hindrance than did women. Men who endorse a masculine gender identity describe themselves as less emotional (Jakupcak, Salters, & Gratz, 2003). Thus, men may have a greater tendency than women to view emotion as a threat to their identity and a sign of weakness. Given this gender difference, we included gender as a covariate in all analyses. Additional regression analyses showed no interactions between gender and help or hinder theory endorsement.

Help theory endorsement did not vary across ethnic groups but Asian and Hispanic/Latino participants viewed emotion as more of a hindrance than did White participants. Although Asian and Hispanic/Latino cultures differ in the value placed on emotional expression (Soto, Levenson, & Ebling, 2005), both cultures emphasize interdependence more than does European American culture. Asian and Hispanic/Latino participants may view individual emotional experience as at odds with the needs of their social groups and as a hindrance to maintaining social harmony. Relative to European Americans, Asian Americans may also have a greater tendency to view emotion as a hindrance because they place more value on emotional control (Mauss et al., 2010).

Help and Hinder Theories, Reasoning, and Wellbeing

As hypothesized, the more that participants endorsed the view that emotion is helpful, the higher they scored on a stressful timed reasoning task. This finding extends past research showing that valuing specific features of emotion (e.g., arousal) can promote achievement (Jamieson et al., 2010). Participants who viewed emotion as more helpful may have been less preoccupied by the stressful nature of this timed task and their feelings about it, freeing up cognitive resources that

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led to better performance. Indeed, their feelings may have served to motivate them and to direct their attention to the task at hand (Levine & Edelstein, 2009). Viewing emotion as a hindrance, however, was not related to participants' reasoning scores.

Help and hinder theories were also related to emotional and social wellbeing. As hypothesized, the more participants viewed emotion as a help, the more they reported feeling happy and socially supported. Consistent with appraisal theories (e.g., Moors et al., 2013; Siemer et al., 2007), appraising emotions as facilitating rather than obstructing goals should promote positive feelings. People who view emotion as helpful are also likely to empathize with, and accept, the feelings of family, friends, and colleagues (Thoits, 1986), resulting in mutually satisfying relationships. In contrast, the more participants viewed emotion as a hindrance, the less happiness they tended to feel (though this association did not reach statistical significance; $p = .07$), and the less social support they reported. Appraising emotional reactions as a hindrance may compound people's distress and lead them to be less understanding and accepting of how others feel, resulting in less satisfying relationships.

Help and Hinder Theories and Emotion Regulation

People often have cause to up-or down-regulate emotion regardless of whether they value emotion. Why they select one emotion regulation strategy versus another is an under-explored question in the field of emotion regulation. This issue is critically important because the emotion regulation strategies people use have implications for their wellbeing, relationships, and mental health (Gross, 2015). We found that participants' theories of emotion predicted the emotion regulation strategies they reported. The more they viewed emotion as helpful, the more they reported engaging in reappraisal. People who value emotion are likely to attend to and learn from their emotions, even negative ones (Tamir et al., 2015). This would provide opportunities to observe that their appraisals of situations impact their emotional responses, and that changing

their appraisals can alter how they feel. Viewing emotion as adaptive should also diminish the tendency to experience distress about an initial unpleasant emotion, for instance, feeling ashamed of having felt angry or sad. Preventing escalation of the initial emotion makes it easier to reappraise situations, since higher-intensity emotions are more difficult to change via reappraisal (John & Gross, 2004). Future research should directly assess whether viewing emotion as helpful promotes the deeper understanding of the links between thoughts and feelings needed for successful reappraisal (McRae et al., 2012).

More frequent reappraisal has been shown to predict greater wellbeing and closer relationships (Tamir et al., 2007; De Castella et al., 2013; John & Gross, 2004; Nezlek & Kuppens, 2008). Indeed, analyses of indirect effects showed that the associations between endorsing a help theory and feeling happier and more socially supported were partly explained by reappraisal. That is, the more participants endorsed a help theory, the more they regulated emotion using reappraisal. In turn, the more they used reappraisal, the more happiness and social support they reported. After controlling for reappraisal, the associations between help theory endorsement and happiness, and between help theory endorsement and social support, decreased significantly. It should be noted however that, even after accounting for reappraisal, the associations between help theory endorsement and both happiness and social support remained statistically significant. Thus, emotion regulation strategy use does not fully account for the links between help theory endorsement and wellbeing.

As hypothesized, the more participants viewed emotion as a hindrance, the more they reported using suppression to regulate emotion in daily life. People who view emotion as harmful may be motivated to find ways not to feel or express emotion. Moreover, the association between endorsing a hinder theory and perceiving less social support was explained by suppression. The more participants endorsed a hinder theory, the more they regulated emotion using suppression. In

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turn, the more they used suppression, the less socially supported they felt. Suppressing emotional expression is not always maladaptive (Ford & Mauss, 2015; Bonanno, Papa, Lalande, Westphal, & Coifman, 2004), but it is less effective than reappraisal for changing emotional experience (Gross, 2015). Hiding their feelings also makes people feel inauthentic (English & John, 2003), especially in cultural contexts where authentic expression is valued (Butler, Lee, & Gross, 2007), and can impede the formation of close relationships (Butler et al, 2003; John & Gross, 2004; Nezlek & Kuppens, 2008). People who view emotion as a hindrance may also try to suppress feelings expressed by friends, family, and partners, which can further strain relationships (Lepore & Helgeson, 1998).

The emotion regulation strategies people use depend in part on their perception of their efficacy at regulating emotion (e.g., De Castella et al., 2013). Consistent with this past research, we found that participants who reported greater efficacy engaged more in reappraisal. People who think they can change their emotions might also be expected to view emotion as more helpful and less of a hindrance. However, we found that help and hinder theories were not related to emotion regulation efficacy. Moreover, help and hinder theories predicted reappraisal and suppression, respectively, after adjusting statistically for efficacy. Thus, people's theories about whether emotion helps or hinders were distinct from their perceptions of emotion regulation efficacy and were related to emotion regulation via other pathways. As noted above, attending to feelings may provide people who endorse a help theory with opportunities to learn that their interpretations of situations influence their emotional responses. Thus, when they want to change how they feel, they may direct their efforts toward reappraisal. People who endorse a hinder theory may attend less to factors that shape their emotions and miss out on opportunities to learn to reappraise. Instead, they may use suppression in an attempt to "get rid of" and avoid being hindered by emotion.

Lay theories of emotion may also have broader implications for mental health. Symptoms of psychopathology often include unwanted affect, such as feeling anxious or depressed. Hinder theory endorsement might contribute to the generation or maintenance of such states. For instance, negatively evaluating emotional reactions, and feeling bad *about* one's feelings, may intensify or prolong negative affective states. Negatively evaluating emotional reactions may also lead to using less effective strategies to down-regulate emotion, such as suppression or experiential avoidance, both of which have been implicated in psychopathology (Aldao et al., 2010; Kneeland et al., 2016). Consistent with this view, past research shows that believing that emotion hijacks behavior is associated with anxiety; believing that emotion constrains behavior is associated with symptoms of anxiety and depression (De Castella et al., 2014; Veilleux et al., 2015). These findings suggest that it would be fruitful to assess whether hinder theory endorsement prospectively predicts symptoms of psychopathology and whether help theory endorsement is protective.

Limitations and Directions for Future Research

The current findings open exciting avenues for future research. A limitation of this study was that the data were correlational, leaving uncertainty about the causal direction of the associations. To address the issue of causality, a valuable next step would be to assess how manipulating theories about emotion impacts people's reasoning, wellbeing, and emotion regulation. Based on the current findings, a manipulation that increases help theory endorsement should promote better reasoning, quicker recovery following a negative emotion induction, and use of reappraisal. Increasing hinder theory endorsement should promote slower recovery from a negative emotion induction and use of suppression. This approach is in keeping with past research showing that manipulating beliefs about the malleability of emotions influences the types of emotion regulation strategies people use (Kneeland et al., 2016; Bigman, Mauss, Gross, & Tamir,

2015). Longitudinal research could also be conducted to explore the directionality of the associations reported here. Including baseline positive and negative affect as covariates did not change the pattern or statistical significance of any of the reported results. However, participants who reported greater baseline positive affect showed stronger endorsement of help theory and participants who reported greater baseline negative affect showed stronger endorsement of hinder theory. Future research could examine: (a) whether daily levels of positive and negative affect shape help and hinder theory endorsement; (b) whether help and hinder theories shape daily affective experience in ways that influence reasoning and wellbeing; and (c) whether bidirectional associations exist between daily affect and lay theories about emotion.

The current study was conducted online with university students. About 80% of participants were female, and a proportion of the sample was excluded from analyses due to outlying values on variables or failing to follow instructions. Instructional attention checks improve the reliability of data and the statistical power of analyses (Oppenheimer, Meyvis, & Davidenko, 2009). However, future research should assess whether the current findings replicate when help and hinder theories are manipulated in the laboratory and whether they generalize to community samples. All analyses controlled for gender but, given that women viewed emotion as more of a help and less of a hindrance than did men, it will also be important to assess consequences of holding these theories in samples that are more balanced with respect to gender.

Future research should also explore whether help and hinder theories have similar consequences across cultures. We found that participants who endorsed a hinder theory reported engaging more in emotion suppression, but this strategy may not be universally maladaptive. Suppression has also been found to be less problematic, and even adaptive, in groups that hold collectivist rather than individualist values (Ford & Mauss, 2015). In addition, people from Asian American versus European American cultures refer more to social context, and use more somatic

terms, when discussing emotional events (Tsai, Simeonova, & Watanabe, 2004). Thus, in cultures that hold collectivist values, endorsing a hinder theory may be less strongly linked to lower wellbeing. People may view emotion as interfering with the goals of their social group without feeling personally threatened or distressed by their feelings. Future research should measure acculturation and cultural values to allow a more nuanced evaluation of the implications of endorsing help and hinder theories for individuals of different cultural backgrounds.

Finally, we conceptualize help and hinder theories as relatively stable individual differences but our findings raise important questions about how these theories develop and their stability over time. Parenting practices likely contribute to the early development of these theories, for instance, positive emotion coaching may promote a help theory (Gottman, Katz, & Hooven, 1996). Peer norms and attitudes conveyed in the media (e.g., Spock from *Star Trek*) may also contribute to the development of help and hinder theories. Even in adulthood, however, people can be taught to find value in emotional experience (Denny & Ochsner, 2014). Alternatively, traumatic life events or chronic stressors may lead to dysregulated emotion and promote hinder theory endorsement. Once acquired, these theories may also act as self-fulfilling prophecies wherein negative evaluations of emotion exacerbate undesired affective states and positive evaluations promote skills and relationships that make emotional experience rewarding.

Conclusions

In conclusion, Spock had a negative attitude toward emotion and tried to suppress his "illogical" feelings, so he was surprised to find that Data, who was not designed to feel, wanted to experience emotions. Our findings indicate that it is more logical to view emotion in a positive than a negative light. Help and hinder theories about emotion predict individual differences in how well people reason, how happy and socially supported they feel, and the strategies they use to change how they feel.

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Table 1

Items Used to Assess Help and Hinder Theories of Emotion

| Emotion Helps	Emotion Hinders
Feelings give direction to life.[1]	One should never be guided by emotions.[1]
The variety of human feelings makes life more interesting.[1]	Feelings are a weakness humans have.[1]
I believe it's healthy to feel whatever emotion you feel.[1]	People would be better off if they felt less and thought more.[1]
I learn through my feelings.[2]	It is usually a waste of time to think about your emotions.[1]

Note. [1]Item comes from the initial item pool of the Trait Meta-Mood Scale (TMMS; Salovey et al., 1995). [2]Item comes from the Meta-Interest subscale of the Meta-Emotion Scale (Mitmansgruber et al., 2009).

Table 2

Descriptive Statistics and Correlations among Theories that Emotion Helps versus Hinders, Emotion Regulation Efficacy, Emotional Intensity, Emotion Regulation, Happiness, Social Support, Reasoning, and Baseline Positive and Negative Affect

Variable	M	SD	Range	Correlations										
				1	2	3	4	5	6	7	8	9	10	11
1. Emotion helps	3.89	0.53	1.95 - 5.00	1	-.41**	-.05	.32**	.20**	-.19**	.18**	.24**	.08*	.13**	-.05
2. Emotion hinders	2.37	0.68	1.00 - 4.75		1	-.05	-.17**	-.12**	.42**	-.18**	-.21**	-.04	-.07	.16**
3. Efficacy	3.37	0.78	1.00 - 5.00			1	-.32**	.41**	.02	.33**	.11**	.02	.22**	-.23**
4. Intensity	4.99	1.22	1.50 - 7.00				1	-.06	-.19**	-.11**	.09*	-.02	-.06	.08
5. Reappraisal	4.52	1.11	0.40 - 6.40					1	.01	.44**	.23**	.04	.24**	-.13**
6. Suppression	3.26	1.20	0.50 - 6.50						1	-.23**	-.19**	.02	-.12**	.16**
7. Happiness	4.84	1.23	1.00 - 7.00							1	.35**	-.07	.31**	-.22**
8. Social support	3.94	0.75	1.00 - 5.00								1	.07	.19**	-.17**
9. Reasoning score	5.84	1.89	0.00 - 9.00									1	-.06	-.13**
10. Positive affect	2.56	0.79	1.00 - 5.00										1	.12**
11. Negative affect	1.62	0.63	1.00 - 4.10											1

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

53
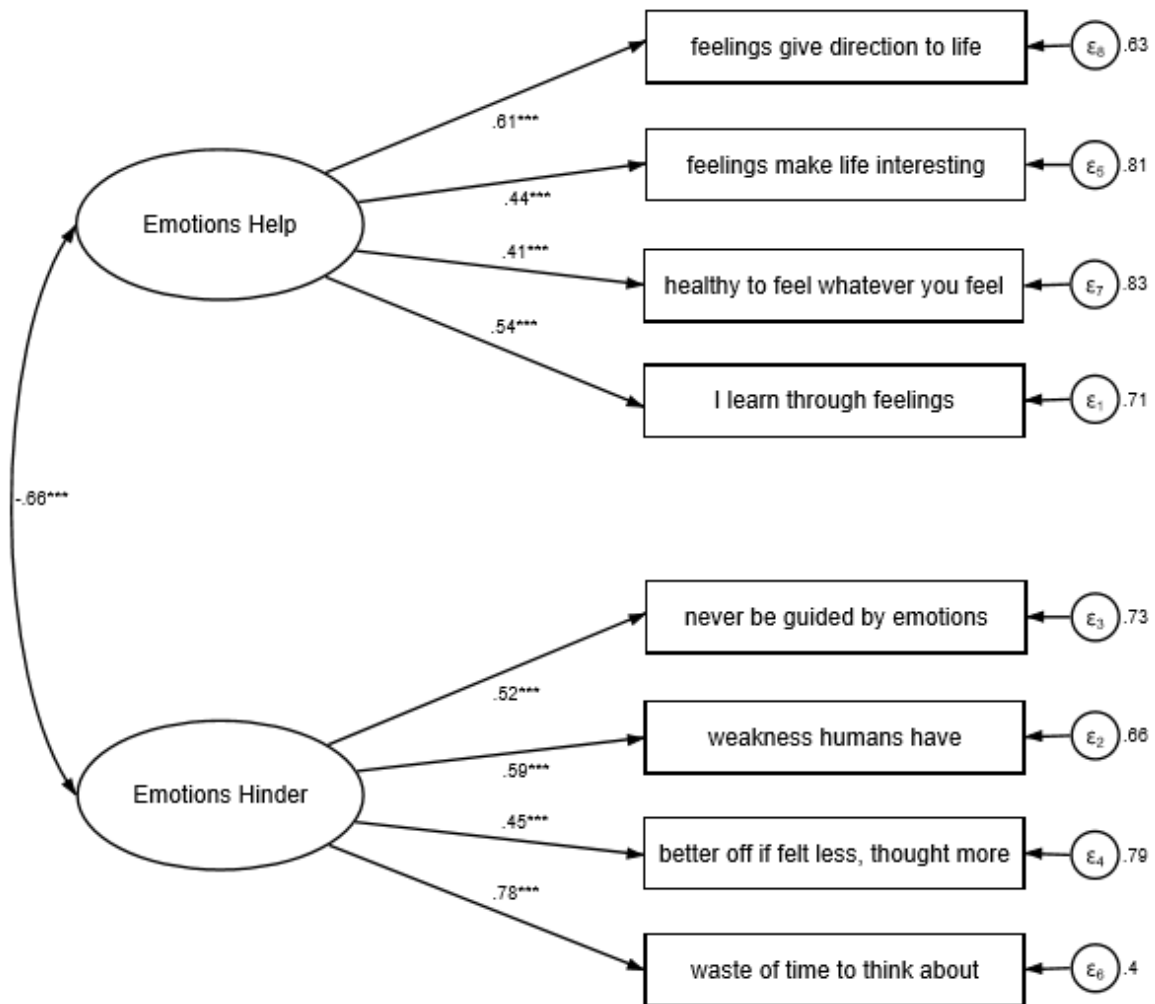
Figure 1. Confirmatory factor analysis for the help and hinder theories of emotion, with standardized regression coefficients.

A.

Reappraisal

$b = .45$, $SE = .09$, $t = 5.22**$ $b = 0.37$, $SE = .04$, $t = 8.38**$

Help theory of emotion   Happiness

$b = .24(.41**)$, $SE = .10$, $t = 2.49*$

B.

Reappraisal

$b = .45$, $SE = .09$, $t = 5.22**$ $b = 0.12$, $SE = .03$, $t = 4.13**$

Help theory of emotion   Social support

$b = .17(.21**)$, $SE = .06$, $t = 2.55*$

C.

Suppression

$b = 0.73$, $SE = .07$, $t = 10.20***$ $b = -0.09$, $SE = .03$, $t = -3.21**$

Hinder theory of emotion   Social support

$b = -.07(-.14*)$, $SE = .05$, $t = -2.89$
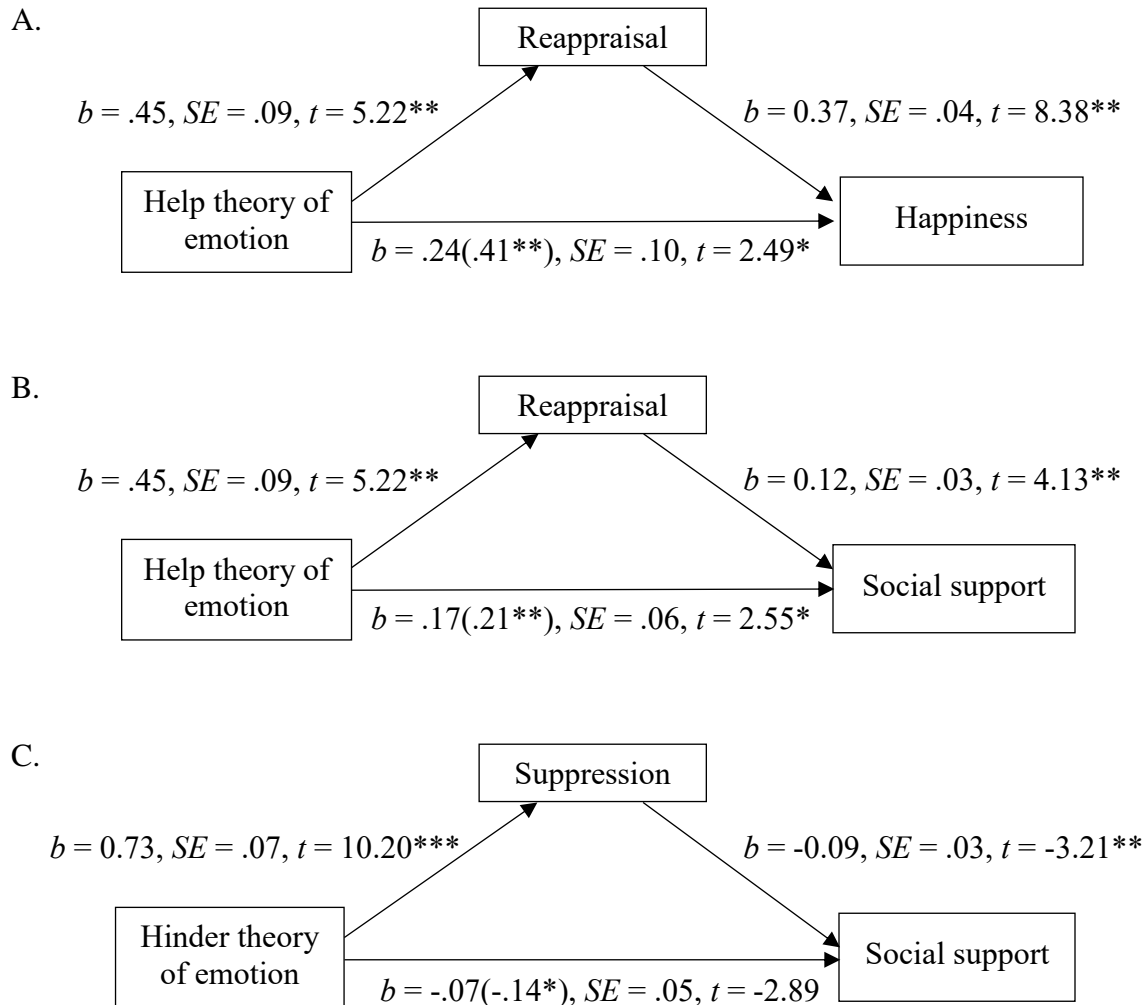
Figure 2. Panels A and B show the indirect effects of help theory endorsement on happiness (Panel A) and social support (Panel B) via reappraisal, controlling for hinder theory. Panel C shows the indirect effect of hinder theory endorsement on social support via suppression, controlling for help theory. Unstandardized regression coefficients are presented. Total effects of lay theories predicting happiness and social support are shown in parentheses. Analyses included the covariates of gender, emotion regulation efficacy, and intensity. $*p < .05$. $**p < .001$.

Supplementary Material

Supplementary Table S1

Hierarchical Multiple Regression Analysis Predicting Reasoning Task Performance (N = 616)

Predictor	B	SE B	β
Step 1			
Gender	-.14	.20	-.03
Emotional intensity	.05	.07	.03
Perceived efficacy	-.04	.10	-.02
Threat index	-1.32	.20	-.27***
Step 2			
Gender	-.15	.20	-.03
Emotional intensity	-.01	.07	-.01
Perceived efficacy	-.06	.10	-.02
Threat index	-1.32	.20	-.27***
Help theory	.40	.16	.11*
Hinder theory	.01	.12	.01
Step 3			
Gender	-.17	.20	-.04
Emotional intensity	-.01	.07	-.01
Perceived efficacy	-.04	.10	-.02
Threat index	-1.31	.20	-.27
Help theory	.42	.16	.12**
Hinder theory	-.01	.12	-.01
Help theory*Threat index	.69	.40	.07
Hinder theory*Threat index	-.11	.29	-.02

Note. Adjusted R^2 = .07 at Step 1, .08 at Step 2, and .09 at Step 3. Threat index, help theory, and hinder theory scores are mean-centered.

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

Supplementary Table S2

Hierarchical Multiple Regression Analyses Predicting Reappraisal and Suppression (N = 616)

Predictor	Reappraisal			Suppression		
	B	*SE B*	*β*	*B*	*SE B*	*β*
Step 1						
Gender	.08	.11	.03	-.12	.13	-.05
Emotional intensity	.06	.04	.06	-.18	.04	-.19***
Perceived efficacy	.60	.06	.42***	-.06	.07	-.04
Step 2						
Gender	.07	.11	.02	-.05	.12	-.02
Emotional intensity	-.01	.04	-.01	-.12	.04	-.12**
Perceived efficacy	.57	.06	.41***	.01	.06	.01
Help theory	.45	.09	.22***	.03	.09	.01
Hinder theory	-.02	.07	-.01	.73	.07	.41***

Note. Adjusted R^2 = .16 at Step 1 and .20 at Step 2 for the reappraisal model. Adjusted R^2 =.04 at Step 1 and .19 at Step 2 for the suppression model.
*p < .05. **p < .01. ***p < .001.

Supplementary Table S3

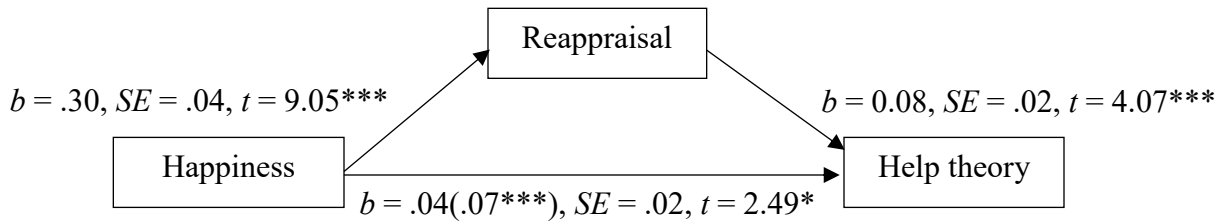*Hierarchical Multiple Regression Analyses Predicting Reappraisal and Suppression (N = 616)*

	Reappraisal			Suppression		
Predictor	*B*	*SE B*	*β*	*B*	*SE B*	*β*
Step 1						
Gender	.08	.11	.03	-.12	.13	-.05
Emotional intensity	.06	.04	.06	-.18	.04	-.19***
Perceived efficacy	.60	.06	.42***	-.06	.07	-.04
Step 2						
Gender	.07	.11	.02	-.05	.12	-.02
Emotional intensity	-.01	.04	-.01	-.12	.04	-.12**
Perceived efficacy	.57	.06	.41***	.01	.06	.01
Help theory	.45	.09	.22***	.03	.09	.01
Hinder theory	-.02	.07	-.01	.73	.07	.41***

Note. Adjusted R^2 = .16 at Step 1 and .20 at Step 2 for the reappraisal model. Adjusted R^2 =.04 at
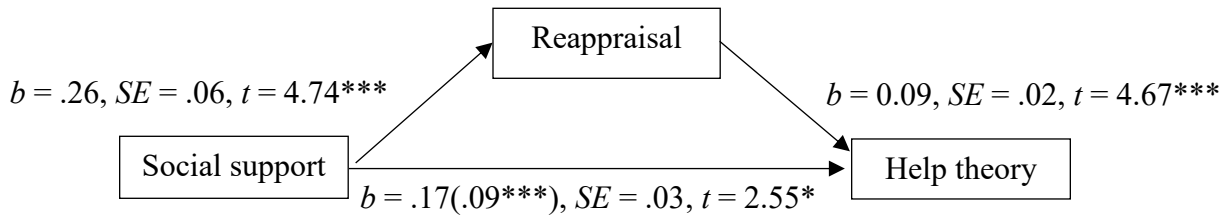
Step 1 and .19 at Step 2 for the suppression model.

p < .05. **p* < .01. ****p* < .001.

A.

$b = .30$, $SE = .04$, $t = 9.05***$

Reappraisal

$b = 0.08$, $SE = .02$, $t = 4.07***$

Happiness

Help theory

$b = .04(.07***)$, $SE = .02$, $t = 2.49*$

B.

$b = .26$, $SE = .06$, $t = 4.74***$

Reappraisal

$b = 0.09$, $SE = .02$, $t = 4.67***$

Social support

Help theory

$b = .17(.09***)$, $SE = .03$, $t = 2.55*$

C.

Suppression

$b = -0.27$, $SE = .07$, $t = -4.08***$

$b = 0.20$, $SE = .02$, $t = 9.84***$

Social support

Hinder theory

$b = -.05(-.10**)$, $SE = .03$, $t = -1.47$
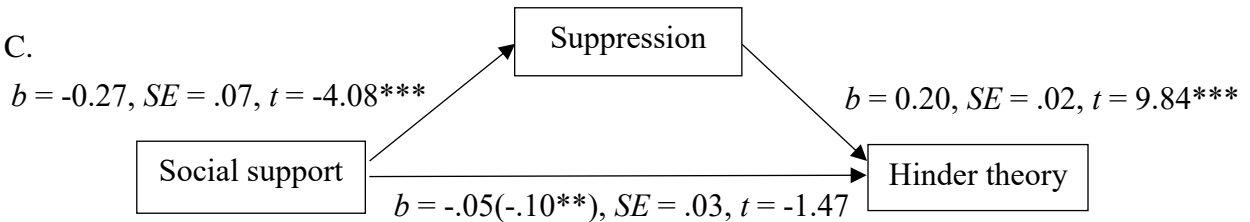
Supplementary Figure S1. Panels A and B display the indirect effects of happiness on help theory endorsement (Panel A) and social support on help theory endorsement (Panel B), via reappraisal while controlling for hinder theory. Panel C displays the indirect effect of social support on hinder theory endorsement, via suppression, while controlling for help theory. Total effects of happiness and support predicting lay theories are displayed in parentheses. Unstandardized regression coefficients are presented. Analyses included the covariates of gender, emotion regulation efficacy, and intensity. $*p < .05$. $**p < .001$. There was greater support for the hypothesized indirect effect models in which lay theories about emotion predicted wellbeing outcomes via emotion regulation (see Figure 2 in the text).
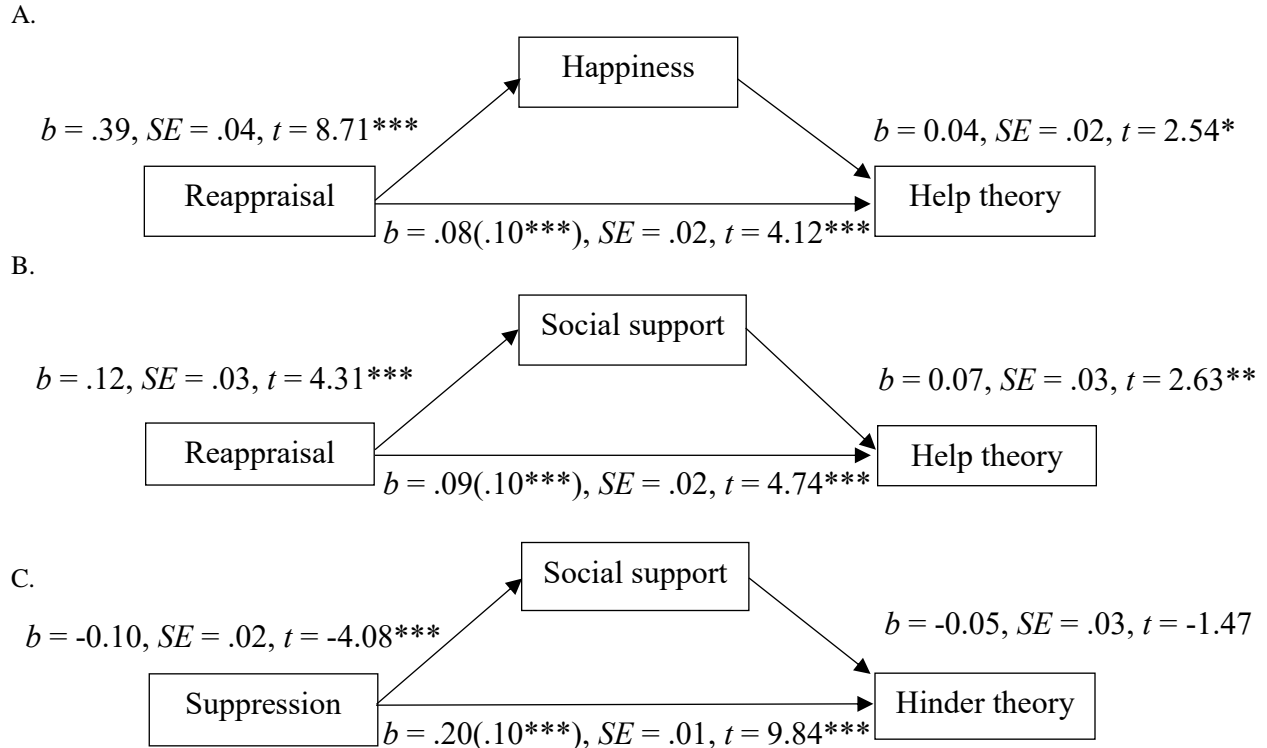
A.

B.

C.

Supplementary Figure S2. Panels A and B display the indirect effects of reappraisal on help

theory endorsement (Panel A) and social support on help theory endorsement (Panel B), via

happiness while controlling for hinder theory. Panel C displays the indirect effect of suppression

on hinder theory endorsement, via social support, while controlling for help theory. Total effects

of reappraisal and suppression predicting lay theories are displayed in parentheses.

Unstandardized regression coefficients are presented. Analyses included the covariates of

gender, emotion regulation efficacy, and intensity. *p < .05. **p < .001. There was greater

support for the hypothesized indirect effect models in which lay theories about emotion predicted

wellbeing outcomes via emotion regulation (see Figure 2 in the text).

Acknowledgements

CHAPTER 3:

A NEW MEASURE OF LAY THEORIES ABOUT WHETHER EMOTION

HELPS OR HINDERS REASONING AND WELLBEING

Abstract

Western scholars, media, and discourse sometimes portray emotion as helpful to reasoning and wellbeing, other times as harmful. Research shows that people vary in the extent to which they endorse these views. We propose that lay theories about the functionality of emotion shape people's emotional experience and the ways they try to regulate their emotional responses to events, with important consequences for their wellbeing. We developed a new measure of lay theories about the functionality of emotion and, in two studies, found evidence for structural validity. We also found that help and hinder theory scores were related to and distinct from other measures in theoretically expected ways, providing evidence for external validity (i.e., convergent and discriminant validity). Both help and hinder theory scores also predicted emotion regulation and wellbeing outcomes in theoretically expected ways, providing further evidence for external validity. This new measure and these studies represent a first step toward determining whether it is advantageous for people to view emotion overall as functional, predisposing them to feel better about their own emotional reactions, better regulate their emotions, receive more social support, and thus experience greater wellbeing over time. It also makes the unique contribution of tapping beliefs that emotion is harmful overall. This is a first step toward determining whether a negative view about emotion puts people at risk by predisposing them to feel worse about their own emotional reactions, use less-effective strategies to regulate their emotions, experience less social support, and experience worse wellbeing over time.

A New Measures of Lay Theories about Whether Emotion

Helps or Hinders Reasoning and Wellbeing

In the 1943 Disney short film, "Reason and Emotion," each character's emotions were personified as a caveman or cavewoman living inside his or her brain. In contrast, each character's sense of reason was personified as a modern-day human wearing a business suit and glasses. While the film aimed to promote U.S. support for World War II, it had a broader message: reason should be in the driver's seat, with emotion under control, in the rear. Even today, popular culture and the media often portray emotion as the antagonist of reason, conveying the assumption that decisions are best made when unhindered by emotion. However, popular culture and media also portray the merits of emotion. Emotion makes us human, or better than nonhuman animals and robots. It motivates us to take important action, helps us persevere in pursuit of goals, and gives us the ability to care for others (Lutz, 1986). People's views about the functionality of emotion can have important implications for the ways in which they try to change or regulate their emotions (Ford & Gross, in press), which in turn can influence wellbeing (Gross, 2015).

We propose that people who value emotion generally are also more accepting of their own emotional reactions, pay more attention to their emotional reactions, and learn effective ways to regulate them. Because emotional acceptance and emotion regulation efficacy are associated with better outcomes (e.g., Ford & Gross, in press; Karnaze & Levine, 2018), over time, viewing emotion as helpful should contribute to better wellbeing. We propose that people who view emotion as harmful, on the other hand, will be more inclined to try to suppress their own emotional reactions, pay less attention to their emotional reactions, and be less adept at regulation. Because use of inappropriate or ineffective emotion regulation strategies is associated

with worse outcomes, over time, viewing emotion as harmful should contribute to less wellbeing. In the present study, we developed a new measure to assess lay beliefs about the extent to which emotion helps and hinders reasoning and wellbeing. We assessed the structural validity of the measure and its test-retest reliability and convergent and divergent validity. Creating a new measure of help and hinder theories about emotion is the first step in understanding how beliefs about emotion can affect how people appraise and respond to their emotional experience, and in turn, their wellbeing.

Current Measures of Lay Theories about the Functionality of Specific Emotions

Recent empirical research has explored people's beliefs about whether specific emotional states (e.g., stress, physiological arousal) are good or bad, and how these beliefs are related to reasoning, physical health, emotion regulation, and wellbeing. In one study, people rated how often they experienced positive feelings (joy, contentment, interest) and negative feelings (anger, nervousness, downcast) as pleasant, helpful, appropriate, and meaningful, and (reverse-coded) as disruptive, unpleasant, inappropriate, and pointless (Luong, Wrzus, Wagner, and Riediger, 2015). Over a three-week period, the same participants rated the intensity with which they experienced these positive and negative feelings and completed measures of physical health (e.g., health complaints, hand grip) and mental health (e.g., irritability, anxiety, depression, perceived social support). The results showed that the more participants valued negative feelings, adjusting for the degree to which they valued positive feelings, the weaker were the associations between their daily levels of negative feelings and poor physical and mental health.

The findings of Luong et al. (2015) suggest the importance of viewing negative feelings as valuable. However, their measures incorporated attitudes toward emotion which, though related, are theoretically distinct from viewing feelings as helpful or harmful. For example, they

assessed the extent to which participants viewed feelings as undesirable, inappropriate, disruptive, and unpleasant. Getting angry at an employer may be undesirable, inappropriate, disruptive, and unpleasant yet helpful for guiding people to seek a more satisfying job. The appropriateness of an emotion can also vary depending on cultural context. Further, when asked about specific emotions, people may be more likely to rate negative emotions like anger or fear as more of a hindrance than they are to rate emotion, generally, as maladaptive. Asking people about their global assessments of emotion may capture attitudes about what it means to experience emotion, in general, regardless of whether the emotion is pleasant or unpleasant, positive or negative. Attitudes concerning the functionality of emotion generally could shape whether people are open to their emotional experience and attend to their emotions, and it could motivate them to accept their emotional reactions or try to dissociate from or change them. Thus, we developed a measure designed to capture beliefs about the overall functionality of emotion.

One study (Chow & Berenbaum, 2012) drew upon emotion theories to examine participants' views about the functional (Frijda, 1988; Keltner & Gross, 1999), informational (Schwarz & Clore, 1983; Clore & Huntsinger, 2007), and motivational (Carver & White, 1994) utility of emotional states. Participants rated positive states (e.g., proud, appreciative, humble) and negative states (e.g., ashamed, fearful, hostile) on three dimensions. The first dimension represented how informative an emotional state is (e.g., "feeling ashamed lets me know that I am not living up to my expectations"). The second dimension represented the how motivational an emotional state is (e.g., "feeling proud motivates me to achieve my goals and expectations"). The third dimension represented the extent to which an emotional state could benefit behavior (e.g., "feeling humble makes me behave in a way that is consistent with the person I want to be"). Confirmatory factor analysis showed that the three-dimensional model was a good fit to the data.

In addition, participants' views about the utility of emotional states were distinct from their views about whether they ideally wanted to feel those states (Tsai, et al., 2006). Ethnic differences were also found. Relative to European Americans, East Asians viewed other-focused positive states such as humility as more useful than self-focused positive states such as pride. This study established that people can hold beliefs about the utility of emotional states that do not simply reflect how they want to feel. However, this study assessed the people's views about the utility of emotional states as defined by current theories of emotion. It is also important to examine beliefs about emotion that contemporary theorists do not necessarily endorse but that pervade popular culture, such as the view that emotion is a weakness (Lutz, 1896) and that emotion is irrational (Scherer, 1995; Scherer, 2011; Clore, 2011). Assessing the dimensions along which emotion can be viewed as a hindrance more broadly is important for assessing the consequences of viewing emotion as a negative force.

Another study (Manser, Cooper, & Trefusis, 2011) assessed participants' beliefs about extent to which feeling upset is negative and included lay notions of feeling upset as useless and irrational. Six subscales emerged from exploratory factor analysis. The subscales were classified as believing that feeling upset is: (1) "overwhelming and uncontrollable" (e.g., "Once I start feeling upset, there's nothing I can do to stop it"); (2) "shameful and irrational" (e.g., "It is never rational for me to feel upset"); (3) "invalid and meaningless" (e.g., "When I feel upset, it means there is something to be upset about", reverse scored); (4) "useless" (e.g., "Feeling upset is not useful"); (5) "damaging" (e.g., "Feeling upset might damage me physically"); and (6) "contagious" ("If I feel upset, other people will become upset"). Beliefs that feeling upset is "shameful and irrational" and "useless" predicted scores on the borderline symptom list (Bohus et al., 2001). Participants who endorsed beliefs that feeling upset is "shameful and irrational" and

"damaging" engaged in more dysregulatory behaviors to cope with strong feelings, such as using alcohol or sexual encounters. This study suggests that believing that feeling upset is maladaptive has implications for mental health and emotion regulation. However, people may be more likely to assess feeling upset in a negative way than they would assess emotion generally. In addition, several items confounded judgments about feeling upset with consequences of the feeling which could reflect the person's ability or lack of ability to regulate the feeling (e.g., "Once I start feeling upset, there's nothing I can do to stop it"). To find out if beliefs about the functionality of emotion predict emotion regulation tendencies, measures of beliefs must be distinct from regulatory skill.

Three Reasons for a New Measure of Lay Theories about the Functionality of Emotion

The three studies reviewed above are important because they show that beliefs about the functionality of emotional states are distinct from how people ideally want to feel and are related to mental health, physical health, and emotion regulation. However, the measures developed to date do not ask people about their theories about the function of emotion overall. Western media and discourse often portray emotion generally (i.e., both pleasant and unpleasant emotions) as hijacking reason and behavior. Research shows that this belief is associated with more anxiety and depressive symptoms (Veilleux, et al., 2005; De Castella et al., 2014). We propose that a new measure is needed to assess the broader view that emotion hinders reasoning and wellbeing, and that emotion is adaptive and functional. Doing so can help us understand how these lay theories relate to other important aspects of emotional experience and wellbeing. Moreover, if people's theories about the functionality of emotion can be changed to improve outcomes in settings such as college, work, and relationships, developing a measure and establishing evidence for its reliability and validity is an important first step.

One reason to examine overarching theories about the functionality of emotion generally is that these theories may shape how people experience emotion. When people experience an emotional reaction, those who view emotion as helpful should allow themselves to emotionally react to situations without feeling badly about their feelings. Ultimately, emotional acceptance should lead to feeling better over time. Believing that emotion is maladaptive, on the other hand, implies that people should experience less emotion. When people experience emotion, those who view their reaction as dysfunctional are likely to feel badly about it, which may prolong unpleasant emotional states and lead to lower wellbeing over time.

A second reason to examine theories about the functionality of emotion generally is that these theories may guide the ways that people relate to others in personal relationships, which can in turn influence wellbeing. People who view emotion as valuable should be more open about their feelings within their close relationships, more accepting of how close relationship partners feel and thus be more empathetic and provide emotional support, which can improve the quality of relationships and thus wellbeing. People who view emotion as harmful, however, should be less open about their feelings within their close relationships. This approach may lead people to discount or invalidate how close relationship partners feel, which can impair the quality of relationships, especially in cultural contexts where authentic expression of emotional experience is valued.

A third reason to examine theories about the functionality of emotion generally is that these theories may guide the ways people regulate their emotional responses, with important consequences. People who view emotion as adaptive may allow their emotional states to unfold and attend to them. This would provide them with opportunities to learn that their emotions reflect their appraisals of events, how and why they react to certain events, and that emotions are

accompanied by action tendencies (Frijda, 1988). For instance, a person may learn that the feeling angry can help them overcome a challenge, or that feeling sad over the loss of a relationship can signal that he or she should reevaluate how best to allocate personal resources (Karnaze & Levine, 2018b). Over time, knowledge acquired by allowing and attending to emotional reactions should also help people learn to better employ the emotion regulation strategies of selecting situations, modifying attention, and modifying expression in order to be more successful in pursuing personal goals (Gross, 2015). In contrast, viewing emotion as maladaptive motivates people to avoid emotional experiences and attempt to get rid of them. Avoiding how they feel may also prevent people from recognizing the types of situations and cognitive processes that result in pleasant or unpleasant feelings, ultimately rendering them less effective at employing emotion regulation strategies.

In summary, developing a new measure of lay theories about the functionality of emotion is a first step toward determining whether a help theory confers benefits for individuals by predisposing them to accept their emotions, experience greater social support, use more effective strategies to regulate their emotions, and experience greater wellbeing. Developing a new measure is also a first step toward determining whether a hinder theory puts people at risk by predisposing them to feel worse about their emotions, experience lower social support, use less-effective strategies to regulate their emotions, and experience worse wellbeing. In a previous study, we found that help and hinder theories about emotion were associated with reasoning, emotion regulation and wellbeing. However, help and hinder theories were assessed using items from two previously validated measures of emotion (Salovey, Mayer, Goldman, Turvey, & Palai, 1995; Mitmansgruber, Beck, Höfer, & Schüßler, 2009). These items used different rating scales, used "feeling" and "emotion" interchangeably," and did not refer to emotion overall, such that

participants may have interpreted items as referring to positive or negative emotions. We wanted to create a new scale that was designed to capture lay theories about the functionality of both positive and negative that researchers could administer with the same set of instructions. We wanted to start with a larger pool of items based on theories of emotion as well as ethnographic accounts of emotion to better represent the help and hinder theory constructs, determine whether help and hinder theory factors emerged from the data, and then select the highest loading items while also representing different facets of how emotion can help and hinder. The aim of the current investigation was to create a new measure which would capture the broad views that emotion helps or hinders reasoning and wellbeing, and to test its psychometric properties. We tested whether this new measure would show three types of construct validity. First, we assessed whether the structure of the measure reflected the structure of the help and hinder theory constructs using exploratory and confirmatory factor analysis (structural validity). Second, we assessed whether the measure generalized across occasions (test-retest reliability). Third, we assessed whether the measure related to other measures in theoretically expected ways (external validity).

Overview of the Present Investigation

The aim of the present investigation was to develop a new measure of lay theories about whether emotion helps or hinders reasoning and wellbeing (Study 1). We tested the psychometric properties of the new scale including structural validity (Studies 1 and 2) and one-month test-retest reliability (Study 2). We also assessed external validity by determining whether help and hinder theories correlated with outcome variables (e.g., wellbeing, emotion regulation) and with other theoretically similar emotion constructs (convergent validity) and did not correlate or only weakly correlated with constructs that were thought to be theoretically distinct (divergent

validity; Study 2).

Study 1

The Help and Hinder Theories about Emotion scale (HHTE) was developed to measure the lay theories that emotion overall helps or hinders reasoning and wellbeing, using both exploratory and confirmatory factor analysis.

<p align="center">**Method**</p>

Development of The Help and Hinder Theories about Emotion Scale

Item development. Our goal was to create an efficient scale for measuring help and hinder theories about the functionality of emotion by including the fewest items possible while also meeting the recommended guidelines of goodness of model-fit indices for confirmatory factor analysis (RMSEA ≤ .05 for a good fit; CFI ≥ .95 for a good fit). We took a systematic approach to conceptualizing and measuring lay theories that emotion helps reasoning and wellbeing and that emotion hinders reasoning and wellbeing. We consulted recent functionalist theories of emotion (Frijda, 1994; Simon, 1967; Gross, & Barrett, 2011; Moors, Ellsworth, Scherer, & Frijda, 2013; Schwarz & Clore, 1983; Clore & Huntsinger, 2007; Carver & White, 1994), ethnographic accounts of lay views on the functionality of emotion (Lutz, 1986; Parrott, 1995; Shields, 2005), and the previously reviewed scales concerning lay beliefs about the functionality of specific emotions (Manser, Cooper, & Trefusis, 2011; Chow and Berenbaum, 2012; Luong et al., 2015). Based on this review, we proposed that there are three distinct ways in which people see emotion overall as a help or a hindrance to reasoning and wellbeing. First, people can view emotion as motivating or impeding the attainment of personal goals. Second, people can view emotion as informative or irrational. Third, people can view emotion as

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facilitating or threatening life satisfaction, in ways that are not explicitly tied to motivation or decision-making.

We used these three help theory categories and three hinder theory categories as a framework for generating specific items because we wanted to measure the broad construct of beliefs about the functionality of emotion in order to better predict outcomes, at the possible expense of low internal consistency (Cronbach's alpha), which is boosted by having more redundant items (Cronbach & Gleser, 1957, as cited in John & Benet-Martínez, 2000). We then generated an over-inclusive pool of items (Loevinger, 1957) that contained six items in each of the three help theory categories, and six items in each of the three hinder theory categories. These 36 items were revised based on feedback concerning conceptual clarity and readability from members of the authors' research team. The initial eighteen help theory and eighteen hinder theory items are available online in Supplementary Table 1.

Participants and Procedure

Undergraduates ($N = 223$) at a university in southern California completed an online survey for partial course credit emotion during the Fall academic term. They reported their current mood, completed ratings of the eighteen help theory and eighteen hinder theory items, and were then instructed to complete an "IQ test" under time pressure. Next, they completed individual difference measures that were not part of the current study but were included in exploratory analyses. A complete list and description of these measures can be found in Supplementary Materials available online. Data were omitted from participants who failed an attention check ($n = 11$). The mean age of participants was 20.56 years ($SD = 2.53$, range = 18 to 39 years). The majority of participants were female ($n = 168$). Participants reported their race-

ethnicity as Asian ($n = 87$), Hispanic/Latino ($n = 72$), White ($n = 33$), African American ($n = 2$), Middle Eastern ($n = 13$), or Mixed Race ($n = 16$). Five participants did not report their sex.

Measures

     Help and Hinder item ratings. Participants read the instructions: "People can experience many different kinds of emotion, such as anger, disgust, sadness, fear, joy, love, pride, and awe. We want to know what you think about emotion overall. Considering emotion overall, how often is each statement below true?" They rated each of the 18 help theory items and each of the 18 hinder theory items using a scale from 0 (*almost never*) through 2 (*sometimes*) to 4 (*almost always*).

     Because we wanted to assess lay theories that emotion, overall, helps or hinders reasoning and wellbeing, we instructed participants to think about emotion overall, rather than specific types of emotion. However, some items may have prompted thoughts that were mostly about positive emotion or mostly about negative emotion. To ensure that the final HHTE scale included items that were widely interpreted as referring to emotion overall, we had participants answer a follow-up question about each item after they completed their initial ratings of the help and hinder items. Participants were instructed, "Earlier, you told us how often the statement below is true: [e.g., Emotion makes life confusing] But sometimes when people see a statement like this, they might be thinking about mostly positive emotion or mostly about negative emotion. Here we just want to know what came to your mind. What were you thinking about when you rated the statement, '[Emotion makes life confusing]'? The response options were: (a) mostly about positive emotion; (b) mostly about negative emotion; and (c) about emotion overall.

Baseline affect. Participants reported their current mood using the Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988). Using a scale from 1 (*very slightly or not at all*) to 5 (*extremely*), they rated the extent to which they felt positive affect (e.g., excited) and negative affect (e.g., distressed). Baseline positive and negative affect refer to mean ratings of positive ($\alpha = .89$) and negative ($\alpha = .88$) affect items.

Timed reasoning task. Participants were then told they would complete a "difficult IQ test under time pressure" to assess their quantitative reasoning skills. The questions were algebra problems using novel operations. Participants were given a practice question before completing eight questions. These questions were not analyzed as part of the present study but included to be part of the study's cover story.

Individual differences measures. In addition to completing the HHTE, participants completed several individual differences measures. To minimize participant fatigue, participants were randomly assigned to complete either the first set of individual difference measures (neuroticism, valuation of positive and negative affect, need for cognition, depressive symptoms, trait anxiety, range and differentiation of emotion, and emotional approach coping) or the second set of comparable length (religiosity, political ideology, approach and avoidance motivation, optimism, perceived utility of positive and negative affect, ideal affect, following/ignoring affect states, and emotional intensity). The description of these measures and the exploratory analyses can be viewed in Supplementary Text 1.

Demographics. After completing the individual differences measures, participants completed questions regarding their age, sex, and race-ethnicity.

Life satisfaction. Participants then completed the five-item Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985) which asked them to rate their subjective wellbeing

(e.g., "In most ways my life is close to ideal") using a scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

Factor Analyses

We used exploratory factor analysis to assess the factors that would emerge from the help and hinder theory items. We then took the the help and hinder theory items with the highest factor loadings based on the exploratory factor analysis, and entered them in a confirmatory factor analysis to assess the fit of the model.

Results

Item Selection

The first step in item selection was to examine the percentage of participants who interpreted the items in the Help and Hinder Theories about Emotion Scale correctly, by thinking about emotion overall, rather than about mostly positive or mostly negative emotion. For nine of the help theory items, and six of the hinder theory items, more than 40% of participants interpreted them as referring to "emotion overall" (see Table 1 for results for each item). Of these items, the ones (9 help theory items, 6 hinder theory items) for which participants used the full range of the rating scale were included in exploratory factor analysis. We also dropped one hinder theory item, "When people feel emotion they cannot be objective," because not being objective could be viewed in a positive manner, such as in the context of relationships.

Table 1

Mean Endorsement of Help Theory and Hinder Theory Items, and Percentage of Participants
that Reported that their Item Rating was Based on Emotion Overall, Mostly Positive Emotion, or
Mostly Negative Emotion

		Endorsement		Percentage of Participants		
Lay Theory Item		*M*	*SD*	Emotion Overall	Mostly Positive	Mostly Negative
Help Theory						
1.	People need emotion to know what's beneficial and harmful	3.34	0.79	77.3%	10.5%	6.5%
2.	People's emotions help them know what's right and wrong	3.54	0.74	74.5%	12.1%	7.7%
3.	A person's emotions reveal what they value	3.89	0.73	68.0%	23.1%	3.2%
4.	Emotion helps people see situations clearly	2.84	0.85	58.7%	24.7%	11.8%
5.	Emotion is a source of wisdom	2.84	0.85	54.7%	36.0%	3.6%
6.	Emotion helps people focus on what's important	3.28	0.68	55.1%	35.6%	3.6%
7.	Emotion is a strength that people have	3.77	0.84	49.4%	41.7%	3.2%
8.	People need emotion to live a fulfilling life	4.08	0.83	49.0%	43.3%	2.0%
9.	Emotion helps people avoid harm	2.39	0.69	40.5%	32.0%	21.9%
Hinder Theory						
1.	Emotion makes it hard to know what's beneficial or harmful	3.06	0.73	67.6%	7.3%	19.8%
2.	Emotion clouds judgment about right and wrong	3.14	0.61	55.9%	8.9%	29.6%
3.	Emotion distracts people from what's important	2.98	0.60	49.4%	10.1%	34.8%
4.	Emotion is a weakness that people have	2.57	1.02	48.2%	6.5%	39.7%
5.	Emotion makes life confusing	2.36	0.61	40.1%	17.0%	47.4%
6.	Emotion is a source of foolishness	2.39	0.86	45.7%	10.1%	38.5%

Note. Means are based on ratings of items on a scale from 0 (*almost never*) through 2
(*sometimes*) to 4 (*almost always*).

Exploratory factor analysis

      The 15 items noted in the previous section were included in an exploratory factor analysis (EFA) in SPSS using a direct oblimin rotation. We hypothesized that that a help theory and hinder theory factor would emerge from the data. Our goal was to select the four help theory and four hinder theory items with the highest loadings, while also ensuring that each of the three help theory and three hinder theory dimensions were represented. Five factors with eigenvalues greater than one emerged and accounted for 56% of the total variance. The first factor represents a theory that emotion is helpful. Eight of the nine help theory items had a loading on this emergent factor of ≥ .40, and the two highest-loading items were, "Emotion is a source of wisdom" and "People need emotion to know what's beneficial or harmful". The second factor represents a theory that emotion is a hindrance. Four of the six hinder theory items had a loading on this emergent factor of ≥ .40, and the two highest-loading items were "Emotion clouds judgment about right and wrong" and "Emotion makes it hard to know what's beneficial or harmful". The third factor had one help theory item and one hinder theory item each with a loading ≥ .40. The fourth factor had two help theory items with a loading ≥ .40 and one help theory item with a loading ≥ -.40. Because the third and fourth factors were difficult to interpret and explained less of the variance than the first two factors, the third and fourth factors were dropped from further analyses. Factor loadings for the first two extracted factors, which explained 41% of the total variance, are presented in Table 2.

Table 2

Help and Hinder Theory Item Loadings on Emergent Factor 1 and Factor 2

	Factor Loading	
Lay Theory and Item	*1*	*2*
Help Theory		
People need emotion to know what's beneficial or harmful	.662	.203
People's emotions help them know what's right and wrong	.621	.248
A person's emotions reveal what they value	.391	.325
Emotion helps people see situations clearly	.576	.169
Emotion is a source of wisdom	.682	.266
Emotion helps people focus on what's important	.650	.297
Emotion is a strength that humans have	.597	.151
People need emotion to live a fulfilling life	.502	.294
Emotion helps people avoid harm	.404	.066
Hinder Theory		
Emotion makes it hard to know what's beneficial or harmful	-.396	.613
Emotion clouds judgment about right and wrong	-.313	.704
Emotion distracts people from what's important	-.429	.490
Emotion is a weakness that humans have	-.480	.361
Emotion makes life confusing	-.368	.497
Emotion is a source of foolishness	-.615	.198

Final items. Next, we selected four help theory and four hinder theory items and tested the factor structure of those items using confirmatory factor analysis in order to develop a useful scale that included the fewest number of items possible. Our goal was to include items with the highest factor loadings and to include items from all three facets of (1) being motivating/disrupting, (2) being informative/irrational and (3) being essential or a threat to life satisfaction in ways that do not specifically refer to motivation or rationality.

Selecting Help Theory items. The Help Theory item "Emotion helps people focus on what's important" was selected to represent the first facet about emotion being motivating. To represent the second facet about emotion being informative, the two items with the highest loadings on the emergent help theory factor were included, "Emotion is a source of wisdom" and "People need emotion to know what's beneficial and harmful". The item representing the third facet about emotion being a threat to life satisfaction, that had the highest loading on the emergent help theory factor, "Emotion is a strength that humans have", was also included.

Selecting Hinder Theory items. The Hinder Theory item "Emotion distracts people from what's important" was selected to represent the first facet about emotion being disruptive. To represent the second facet about emotion being irrational, "Emotion clouds judgment about right and wrong" was selected. We dropped the item, "Emotion makes it hard to know what's beneficial or harmful" because it was similar to another item we already selected, which had a higher factor loading, "Emotion clouds judgment about right and wrong." The two remaining items that represented the third facet about emotion hindering life satisfaction were also included, "Emotion is a weakness that humans have", and "Emotion makes life confusing".

Structural Validity of the Two-Factor Help and Hinder Theories about Emotion Scale

We followed the approach of Judd, Jessor, and Donovan (1986) to test the hypothesis that the selected help and hinder items would be better represented as measuring two distinct but correlated constructs, as we found in previous research (Karnaze & Levine, 2018), rather than one bipolar construct. In the first step of this process, Model 1 tested whether the four help theory items and the four hinder theory items could be represented as one help-vs.-hinder theory latent factor. Model 1 did not show a good fit to the data, $X^2(20)$: 100.90, $p < .001$; RMSEA = .132; CFI = .734. The absolute values of the standardized loadings of the items ranged from

0.20 to 0.64. Model 2 then tested whether help theory items loaded significantly onto a latent

factor of help theory and whether hinder theory items loaded significantly onto a latent factor of

hinder theory, with these factors allowed to covary. Model 2 showed a good fit to the data,

$X^2(19)$: 35.07, $p = .01$; RMSEA = .060; CFI = .947. The standardized loadings of the four help

theory items ranged from 0.58 to 0.67. The standardized loadings of the four hinder theory items

ranged from 0.45 to 0.63. To determine whether Model 2 was a significantly better fit than

Model 1, we conducted a difference in chi squares test between the models. The two-factor

Model 2 was a statistically significant improvement over the one-factor Model 1, $X^2(1) = 65.83$,

$p < .001$. Thus, help and hinder theories about emotion were better represented as two factors

than one factor.

Discussion

We developed a new measure of lay theories about the functionality of emotion because,

in a prior study, using questions from existing emotion measures, we found that viewing emotion

as a help was related to better reasoning and wellbeing and viewing emotion as a hindrance was

related to worse wellbeing. We first consulted theories that emotion is functional, ethnographic

accounts of lay theories, and previously published measures of beliefs about the functionality of

specific emotional states. From this review, we generated items along three dimensions that

reflect ways that emotion helps or hinders: goal attainment, decision-making, or wellbeing. The

help and hinder theory items were determined to be face valid by a team of emotion researchers.

The results of exploratory factor analyses showed that two main factors emerged from the

data, a factor representing the view that emotion is helpful and a factor representing the view that

emotion is a hindrance. To construct a concise scale, we selected the four items with the highest

loadings on a help theory factor while also including at least one item from each of the three

dimensions of a help theory. We also selected four items with the highest loadings on a hinder theory factor, while also including at least one item from each of the three dimensions of a hinder theory. Next, the results of confirmatory factor analysis showed that the help theory and hinder theory items were better represented as measuring two distinct but negatively-correlated factors (help and hinder theory), rather than measuring a single bi-polar factor (help-versus-hinder theory). The two-factor model showed a good fit to the data, supporting the structural validity of the measure. The more strongly participants endorsed a help theory, the less strongly they endorsed a hinder theory, as found in previous research (Karnaze & Levine, 2018).

In summary, we found evidence of construct validity. We tested whether the HHTE reflected the structure of the help and hinder theory constructs using exploratory and confirmatory factor analysis. The HHTE demonstrated evidence of structural validity because four of the help theory items loaded onto a help theory factor and four of the hinder theory items loaded onto a hinder theory factor. In addition, the help and hinder theory factors were distinct constructs, which reflects how people can view emotion as both adaptive and maladaptive (Lutz, 1986).

Study 2 Overview

Study 2 further assessed the new measure we had developed in Study 1, with the following aims. We tested whether we could replicate the HHTE's structural validity from Study 1, and whether the HHTE generalized across occasions by showing good test-retest reliability. We also assessed whether the HHTE showed evidence of external validity by being related to other measures in theoretically expected ways. That is, we tested whether help theory and hinder theory were correlated with other constructs theorized to be related to a help or hinder view, and whether help and hinder theory were either not correlated or weakly correlated with other

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constructs theorized to be distinct. Finally, we assessed whether the HHTE replicated our previous findings that viewing emotion as a help or hindrance were associated with emotion regulation strategies and wellbeing (Karnaze & Levine, 2018).

To achieve these aims, we had participants complete the HHTE and questions about social-emotional wellbeing at two sessions, three weeks apart. In between the two sessions, we also assessed emotion regulation.

Replicating Structural Validity and Assessing Test-Retest Reliability

We hypothesized that the results would replicate the findings in support of the HHTE's structural validity as indicated by CFA fit indices of RMSEA and CFI at Time 1. We also hypothesized that the HHTE scores at Time 1 and Time 3 would show good test-retest reliability ($r \geq .70$). We also hypothesized that the help and hinder theories about emotion would show evidence of external validity or being related or not related to other measures in theoretically expected ways (John & Soto, 2007).

Assessing Help Theory's Convergent, Discriminant, and External Validity

Convergent measures. We hypothesized that viewing emotion as a help to reasoning and wellbeing should be related to several other constructs that tap different dimensions of a help theory about emotion. We expected that people who view emotion overall as valuable would be more likely to view specific positive and negative emotions as more valuable (i.e., pleasant, helpful, meaningful, and appropriate; Luong), and more useful (i.e., informative, motivating for achieving goals, facilitating behaviors for achieving goals; Chow & Berenbaum, 2012). People who view emotion as helpful should also pay more attention to both their positive and negative emotional states because emotions are thought to convey important information. When people who view emotion as helpful experience emotional reactions to events, they should allow

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themselves to feel their reactions more intensely because value their reactions, and we found

support for this in previous research (Karnaze & Levine, 2018). Research shows that being

accepting of emotional experience predicts greater wellbeing months later (Ford, Lam, John, &

Mauss, 2018, study 3). Thus, we hypothesized that people who view emotion as helpful should

report greater wellbeing (Karnaze & Levine, 2019). We also expected that people who view

emotion as helpful should feel more socially supported, as we found in previous research

(Karnaze & Levine, 2018).

Divergent measures. In terms of discriminant validity, we hypothesized that viewing

emotion as a help would show weak, if any relationships, with need for cognition because

viewing emotion as a help should not be same as viewing cognition as less important. Viewing

emotion as a help should also show a weak, if any relationship with approach motivation because

viewing emotion as a help should not just reflect the extent to which people try to seek rewarding

experiences. Viewing emotion as a help should be not be related to social desirability, or the

degree to which people try to present themselves as having positive attributes.

Emotion regulation. We propose that viewing emotion as helpful should impact the

ways in which people respond to their emotional reactions. When people react to events, they

should be more accepting of how they feel in the moment. Accepting emotion should have

several advantages when people have reason to change or regulate their emotions in daily life to

pursue their goals. First, they should be more aware of their emotional reactions because they

regularly attend to them, which would allow them to choose regulation strategies that are most

appropriate for their emotion. Second, by generally accepting how they initially feel in response

to personal events, over time they should be able to recognize how their interpretations of events

influence the ways in which they emotionally respond. By understanding how their appraisals of

events are related to specific emotions, they should be better at reappraising events to change their emotional response. For instance, they may reframe an initially upsetting event in a more positive light (e.g., focus on what they can learn from the event) to feel better about the event. Third, people who value emotion should ultimately view their emotional reactions as a signal that some personal issue needs to be addressed. In the context of stressful situations, they should look to their emotional response as a signal that they need to plan their next steps to minimize their stress. Fourth, when people who value emotion encounter stressful events, they should be more likely to turn for instrumental or emotional support because instead of viewing their emotions as a burden that they should keep from their close relationships, they acknowledge that their emotions are a vital part of human experience and can even strengthen social bonds.

Wellbeing. We hypothesized that viewing emotion as a help to reasoning and wellbeing should be related to greater wellbeing. People who value their emotions should feel happier overall because they are less distressed by unpleasant or negative emotional experiences. When people who value their emotions experience an emotional reaction, they should be more accepting, and not regret the experience. They should also learn to harness their feelings to achieve personal goals, resulting in more life satisfaction. People who value their emotions should also experience more satisfying relationships because they are more accepting of how others feel and can thus have more open communication about feelings and provide more social support, which may in turn result in receiving more social support. By feeling happier, more satisfied in life, and more social supported, people who value emotion should also experience fewer depressive symptoms.

Assessing Hinder Theory's Convergent, Discriminant, and External Validity

Convergent measures. We hypothesized that viewing emotion as a hindrance to

reasoning and wellbeing should be related to several other constructs that tap different dimensions of a hinder theory about emotion. We expected that people who more strongly view emotion generally as a hindrance would be more likely to view specific positive and negative emotions as less valuable (i.e., unpleasant, disruptive, pointless, and inappropriate; Luong), and less useful (i.e., less informative, less motivating for achieving goals, and less facilitating behaviors for achieving goals; Chow & Berenbaum, 2012). People who view emotion as a hindrance should pay less attention to both their positive and negative emotional states.

Divergent measures. In terms of discriminant validity, we hypothesized that viewing emotion as a hindrance would show weak, if any relationships, with need for cognition, because viewing emotion as a hindrance should not be same as viewing cognition as more important. Viewing emotion as a hindrance should also show weak, if any, relationships with trait anxiety, depressive symptoms, and neuroticism, because a hinder theory should not just reflect emotional experience. Previously, we found that viewing emotion as a hindrance was not related to the intensity of emotional reactions (Karnaze & Levine, 2018). Therefore, we explored whether we would again find a weak, if any relationship between a hinder theory and emotional intensity. In addition, we expected to find a weak, if any relationship with avoidance motivation because a hinder theory should not just reflect the extent to which people try to avoid harmful experiences.

Emotion regulation. Viewing emotion as hindering should impact the ways in which people respond to their emotional reactions. When people who view emotion as a hindrance experience an emotional reaction, they should be less accepting of how they feel and have several disadvantages when trying to change or regulate their emotions in daily life. First, they should be less aware of their emotional reactions because they regularly discount or ignore them, which makes it harder to engage in explicit emotion regulation strategies. Second, by discounting

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or ignoring how they initially feel in response to personal events, over time it should be harder for them to recognize how their interpretations of events influence the ways in which they emotionally respond. Without understanding how their appraisals of events are related to specific emotions, they will be less adept at reframing or reappraising events to change how they feel. Instead, they should resort to less sophisticated strategies, such as trying to stop or experientially suppress their emotions, as well as trying to suppress any outward expression of their emotion to dampen their experience.

People who view emotion as a hindrance may also fail to recognize that their emotional reactions signal that an issue of personal importance needs to be addressed. Thus, in the context of stressful situations, instead of dealing with the issue, they should be more likely to use other activities to distract themselves and thus feel differently. As such, they should be more likely to turn to substance use to physically alter their feelings. Consistent with this view, one study showed that viewing the feeling of upset as maladaptive was related to more substance use to cope (Manser, Cooper, & Trefusis, 2012). When people who see emotion as problematic encounter stressful events, they should be less likely to turn to other for instrumental or emotional support because they view their emotions as a burden that they should keep from their close relationships. Finally, because the strategies listed here tend to be less effective for regulating emotion, we expect that viewing emotion as a hindrance should be related to feeling less able to regulate emotional experience.

Wellbeing. We hypothesized that viewing emotion as a hindrance to reasoning and wellbeing should be related to worse wellbeing. People who do not value their emotions should feel less happy overall because they are more distressed by unpleasant or negative emotional experiences. When people who view their emotions as a hindrance experience an emotional

reaction, they should be less accepting, and regret the experience. They should also view their feelings as hindering personal goals, resulting in less life satisfaction. People who view their emotions as a hindrance should be less accepting of how others feel and thus provide less social support, and in turn receive less social support. In addition, they should have less open communication about emotions because they do not see emotions as valuable, which can also contribute to less satisfying relationships. By feeling less happy, less satisfied in life, and less social supported, people who value emotion should also experience more depressive symptoms.

Method

Participants

Undergraduates at a university in southern California completed the first of three parts of an online study for partial course credit. Participants were told that participation was voluntary, and they could withdraw at any time. We excluded data from participants who spent less than 10 minutes on the one-hour Time 1 ($N = 1$) or Time 3 surveys ($N = 1$), or less than five minutes on the 30-minute Time 2 survey ($N = 2$). We also excluded data from participants who took more than three standard deviations above the mean time to complete the Time 1 survey ($N = 7$), Time 2 survey ($N = 2$), or Time 3 survey ($N = 1$). The remaining sample at Time 1 included 282 participants, at Time 2 it included 226 participants, and at Time 3 it included 193 participants.

The mean age of participants was 20.98 years ($SD = 4.26$ years, age range: 18 to 60 years). Most participants were female ($N_{female} = 240$, $N_{male} = 37$, 5 did not report gender). Participants reported their ethnicity as East Asian ($N = 127$), Hispanic/Latino ($N = 65$), White ($N = 50$), Pacific Islander ($N = 17$), South Asian ($N = 11$), Black/African American ($N = 3$), or more than one/other ($N = 9$).

Procedure and Measures

Participants completed three online questionnaires. At two sessions, three weeks apart, they completed the HHTE, questions about wellbeing, and other measures. In between the two sessions, they completed questions about emotion regulation.

Time 1 survey. At the start of the survey, participants entered their email address and had the option to enter their cell phone to receive reminders for the next two online surveys. The Time 1 survey included eleven brief filler tasks interspersed between the measures listed below. The filler tasks were interactive, involving judgments about images or sorting items into different categories, or asking questions about participants' college experience. They were designed to reduce participant fatigue and to match the study's cover study of being about college experiences.

Baseline affect. After completing informed consent, participants rated their current mood using the Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988), followed by questions concerning the previous night's sleep quality, exercise habits, and how stressful their day was. Participants then completed an emotionally neutral filler task that involved counting trees in photographs of their university. This task was designed to induce a neutral mood. Participants then rated the current affect items again, which were interspersed with several questions about college student experiences. Baseline affect refers to mean ratings of positive (α = .92) and negative (α = .91) affect items.

Satisfaction with life. Participants completed the Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985; α = .87). Participants rated five statements about how satisfied they felt with their life, using a scale from 1 (*Strongly disagree*) to 7 (*Strongly agree*).

Help and Hinder Theories Scale. Participants then completed the HHTE from Study 1.

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Valuing positive and negative feelings. Participants rated how often they experienced positive emotional states (joy, contentment, interest) and negative states (anger, nervousness, downcast) as pleasant, helpful, appropriate, and meaningful, and (reverse-coded) as disruptive, unpleasant, inappropriate, and pointless, using a scale from 1 (*almost never or never*) to 7 (*almost always or always;* Luong, Wrzus, Wagner, and Riediger, 2015). Average ratings for the positive states were used as an assessment of positive states valuation ($\alpha = .74$). Average ratings for the negative states were used as an assessment of negative states valuation ($\alpha = .64$).

Following one's feelings. The Following Affective States Test (Gasper & Bramesfeld, 2006) assessed the degree to which participants tended to: attend to and follow their positive feelings ($\alpha = .75$); ignore their positive feelings ($\alpha = .75$); attend to and follow their negative feelings ($\alpha = .70$); and ignore their negative feelings ($\alpha = .75$). Each subscale contained four items and the scale was from 0 (*strongly disagree*) to 6 (*strongly agree*).

Perceived utility of positive and negative feelings. The Perceived Affect Utility Scale (Chow & Berenbaum, 2012) assessed how often participants experienced positive feelings (e.g., proud, appreciative, humble; $\alpha = .85$) and negative feelings (e.g., ashamed, fearful, hostile; $\alpha = .84$) as informative, motivational for goal attainment, and beneficial for behavior, using a scale from 1 (*never*) to 6 (*all the time*).

Trait emotion regulation. Participants completed The Emotion Regulation Questionnaire (Gross & John, 2003), which measures daily use of cognitive reappraisal ($\alpha = .84$) and expressive suppression ($\alpha = .68$) of emotion, using a scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

Emotion regulation self-efficacy. Participants completed a modified version of the Implicit Beliefs about Emotion scale (De Castella et al., 2013; based on Tamir et al., 2007) to

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assess the degree to which they believed their emotions were fixed (reverse-scored), or that they could change or control their emotions ($\alpha = 0.77$), using a scale from 1 (*strongly disagree*) to 5 (*strongly agree*).

Trait coping strategies. The Brief COPE Inventory (Carver, 1997) assessed the how often participants used different strategies to cope "when under a lot of stress": active coping ($\alpha = .66$); planning ($\alpha = .68$); positive reframing ($\alpha = .78$); acceptance ($\alpha = .71$); humor ($\alpha = .82$); religion ($\alpha = .86$); receiving emotional support from others ($\alpha = .89$); seeking instrumental support from others ($\alpha = .86$); self-distraction ($\alpha = .43$); denial ($\alpha = .72$); venting ($\alpha = .62$); substance use ($\alpha = .94$); behavioral disengagement ($\alpha = .67$); and self-blame ($\alpha = .77$). The scale was from 1 (*I usually don't do this at all*) to 4 (*I usually do this a lot*).

Exploratory emotion regulation items. Participants completed exploratory items asking about the degree to which they tried to use cognitive reappraisal, suppression, thought suppression, or experiential suppression to regulate how they felt about their schoolwork, responsibilities outside of school, relationships, and their life overall, during the past week, using a scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

Depressive symptoms. Participants completed the Center for Epidemiologic Studies Depression Scale (Devins & Orme, 1985) by indicating how often they felt symptoms during the past week (e.g., "I could not 'get going'") using a scale from 1 (*Rarely or none of the time [Less than 1 day]*) to 4 (*All of the time [5-7 days]*; $\alpha = 0.85$.

Anxiety symptoms. Participants completed the trait anxiety scale of the State-Trait anxiety inventory (Spielberger, 2010) by rating how they generally felt (e.g., "I feel nervous") using a scale from 1 (*Almost never*) to 4 (*Almost always*); $\alpha = 0.91$.

Social support. The Multidimensional Scale of Perceived Social Support (Zimet,

Dahlem, Zimet, & Farley, 1988) assessed the degree that participants felt supported by family, friends, and a significant other, using a scale from 1 (*strongly disagree*) to 5 (*strongly agree*); α = 0.94.

Physical health. Participants reported how many sick days they took in the last three months. They also completed the perceived health subscale of the Medical Outcomes Study general short form Health Survey (Stewart, Hays, & Ware, 1988).

Emotional intensity. The Impulse Strength factor of the Berkeley Expressivity Questionnaire (Gross & John, 1995) assessed the strength of participants' emotional reactions; α = 0.86. The scale ranged from 1 (*strongly disagree*) to 7 (*strongly agree*).

Approach and avoidance motivation. Participants completed the BIS/BAS scales (Carver & White, 1994) to assess the degree of orientation to approach rewards (behavioral activation system) and to avoid punishment (behavioral inhibition system). The average of participants' responses to the four-item BAS Drive scale (e.g., "When I want something I usually go all-out to get it") was used to assess approach orientation (α = 0.77). The seven-item BIS scale (e.g., "Criticism or scolding hurts me quite a bit") was used to measure avoidance orientation (α = 0.74). The rating scale ranged from 1 (*very true for me*) to 4 (*very false for me*).

Acculturation questions. Participants answered questions about where they were born, the languages they spoke, and their parents' demographics information.

Personality. The Big Five Personality Inventory (John & Srivastava, 1999) assessed the personality dimensions of agreeableness, conscientiousness (α = 0.61), extraversion (α = 0.85), neuroticism (α = 0.81), and openness to experience (α = 0.72). Participants rated the extent to which several statements described themselves, using a scale from 1 (*Disagree strongly*) to 5 (*Agree strongly*).

Self-esteem. Participants rated the Single-Item Self Esteem Scale (Robins, Hendin, & Trzesniewski, 2001) using a five-point scale of agreement.

Need for cognition. The Short Form of the Need for Cognition scale measured the tendency to use and enjoy effortful cognition (Cacioppo, Petty, Feinstein, & Jarvis, 1996). Participants indicated to what extent eighteen statements were characteristic of them (e.g., "I would prefer complex to simple problems") using a scale from 1 (*extremely uncharacteristic*) to 5 (*extremely characteristic*).

Happiness. The Subjective Happiness Scale (Lyubomirsky & Lepper, 1999) assessed participants' level of general happiness and asked participants to compare themselves to happy or unhappy individuals, using 7-point scales ($\alpha = 0.84$).

Social Desirability. Participants completed the Balanced Inventory of Desirable Responding (Paulhus, 1984), which included the 20-item self-deceptive positive subscale and the 20-item impression management subscale. Participants rated their agreement with the statements using a scale from 1 (*Not True*) through 4 (*Somewhat True*) to 7 (*Very True*). The impression management subscale was used to assess social desirability, or the tendency to present oneself in a positive light ($\alpha = .72$).

Demographics and exploratory items. Participants reported their age, sex, and racial-ethnic background. Participants also answered exploratory items concerning emotion regulation and beliefs about emotions that do not represent help or hinder theories, which were not part of the present study.

Time 2 survey. During the second online survey, participants first reported their initial mood. They reported their sleep quality from the previous night, exercise habits, and day's stress, followed by baseline mood ratings interspersed between filler task questions similar to those
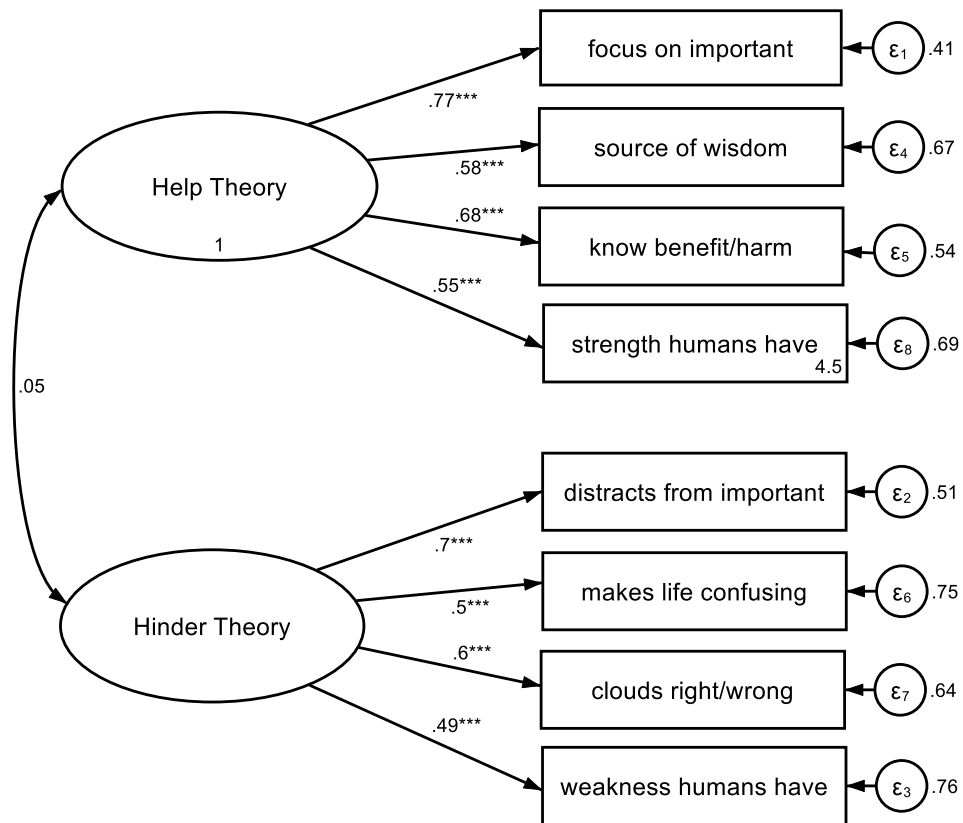
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used at Time 1 (counting trees) and questions about college experience. They then completed the same four emotion regulation questionnaires from Time 1, a measure of how often they ruminate when feeling down, sad or depressed (Treynor, Gonzalez, & Nolen-Hoeksema, 2003), and reported information about their high school and current college experience, including grade point averages.

Time 3 survey. After completing the baseline questionnaires and mood assessment, participants completed the same measures from Time 1, except for those regarding acculturation, social desirability, and demographics. In place of these measures, they completed individual difference measures that were not part of the present study, including a measure of familism values (Sabogal Marín, Otero-Sabogal, Marín, & Perez-Stable, 1987), a measure of trait acceptance (Baer, Smith, & Allen, 2004), and an inventory of stressful life events. Participants then completed questions about their religiosity and political ideology.

<div align="center">

Results

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Factor Structure Replication and Test-Retest Reliability

Figure 1 shows the results of a confirmatory factor analysis which modeled help and hinder theories at Time 1 as distinct factors which were allowed to covary. As was found in Study 1, modeling help and hinder theories as distinct factors provided a good fit to the data. Table 3 shows confirmatory factor analyses model fit indices for both Study 1 and Study 2. Fit indices are shown for help and hinder subscales in the same model and in separate models. As the Table shows, the distinct factors model in Study 2 (Model 4) was a better fit than a model with one bi-polar help-versus-hinder theory factor (Model 3). Because help theory and hinder theory were not related, we also represented help theory (Model 5) and hinder theory (Model 6) in separate models and each showed a strong fit to the data.

Help Theory

focus on important — ε_1 .41
.77***

source of wisdom — ε_4 .67
.58***

know benefit/harm — ε_5 .54
.68***

strength humans have — ε_8 .69
.55***
4.5

1

.05

Hinder Theory

distracts from important — ε_2 .51
.7***

makes life confusing — ε_6 .75
.5***

clouds right/wrong — ε_7 .64
.6***

weakness humans have — ε_3 .76
.49***

Chi-square(19) = 76.13
$p < .001$
RMSEA = 0.10
CFI = 0.872
$N = 232$

Note. *** = $p < .001$

Figure 1. Study 2 confirmatory factor analysis with the distinct Help Theory and Hinder Theory

factors, with standardized regression coefficients displayed.

Table 3

Study 1 and Study 2 Model Fit Indices for Confirmatory Factor Analyses of the Help and Hinder

Theories about Emotion Subscales in the Same Model and in Separate Models

Sample and Model	CFI	RMSEA
Study 1 sample		
Model 1: Help-vs.-Hinder Theory	.734	.13
Model 2: Help & Hinder Theories (allowed to covary)	.950	.06
Study 2 sample		
Model 3: Help-vs.-Hinder Theory	.543	.19
Model 4: Help & Hinder Theories (allowed to covary)	.872	.10
Model 5: Help Theory	.996	.04
Model 6: Hinder Theory	.973	.08

Note. CFI = Comparative fit index; RMSEA = Root Mean Square Error of Approximation.

Participants completed the Time 2 survey approximately two weeks after the Time 1 survey ($M = 13.94$ days, $SD = 1.74$ days, range = 9.49 to 21.50 days). Participants then completed the Time 3 survey, which included the HHTE, approximately one month after the Time 1 survey ($M = 28.63$ days, $SD = 3.21$ days, range = 14.92 to 34.01 days). Help theory scores were correlated between Time 1 and Time 3, $r(280) = .46$, $p < .001$. Hinder theory scores were also correlated between Time 1 and Time 3, $r(199) = .50$, $p < .001$. The test-retest reliability coefficients for convergent measures (valuation of positive and negative feeling states, perceived utility of positive and negative feelings, attending to/following positive and negative

feelings, and ignoring positive and negative feelings) are displayed in Supplementary Table 2.

There was no statistically significant difference in help theory endorsement between participants

who completed ($M = 3.47$, $SD = .59$, $N = 193$) or did not complete ($M = 3.35$, $SD = .67$, $N = 87$)

the Time 3 survey, $t(278) = 1.47$, $p = .14$. There was also no significant difference in hinder

theory endorsement between those who completed ($M = 3.08$, $SD = .58$, $N = 193$) or did not

complete ($M = 3.16$, $SD = .69$, $N = 193$) the Time 3 survey, $t(278) = -0.99$, $p = .32$.

Convergent, Discriminant, and External Validity

We first conducted correlation analyses between the HHTE subscales and validity

measures using 1,000 bootstrapped resamples, which allowed us to compute 95% confidence

intervals (Table 5 and Table 6). We refer to these correlations below using the conventional

descriptions of weak ($r < .20$), moderate ($.20 \geq r \geq .50$), and strong ($r \geq .50$). Next, we ran

hierarchical regression analyses to determine whether help and hinder theories predicted

wellbeing and emotion regulation variables while accounting for baseline positive and negative

mood, in separate analyses for each outcome variable.

Table 4

Correlations between Help and Hinder Subscales, Beliefs about the Functionality of Specific Affective States, Affective Experience, and Individual Differences

	Help Theory		Hinder Theory	
Measure	Correlation	CI	Correlation	CI
Beliefs about Functionality of Affect				
Positive Affect Valuation	.19**	[.05, .32]	-.12	[-.23, -.01]
Negative Affect Valuation	.05	[-.36, .01]	-.01	[-.14, .13]
Positive Affect Utility	.25***	[.14, .37]	-.03	[-.14, .13]
Negative Affect Utility	.20*	[.01, .37]	-.13	[-.15, .10]
Affective Experience				
Baseline Positive Affect	.18***	[.04, .32]	.05	[-.07, .18]
Baseline Negative Affect	.11	[-.04, .24]	.20***	[.05, .34]
Emotional Intensity	.26***	[.15, .37]	.13*	[-.01, .26]
Trait Happiness	.09	[-.05, .22]	-.18**	[-.30, -.06]
Life Satisfaction	.14*	[.01, .26]	-.14*	[-.25, -.01]
Perceived Social Support	.22***	[.09, .34]	-.10	[-.23, .01]
Trait Anxiety	.03	[-.01, .16]	.28***	[.14, .40]
Depressive Symptoms	.12	[-.01, .24]	.30***	[.16, .43]
Personality/Individual Differences				
Conscientiousness	.20**	[.07, .33]	-.07	[-.20, .06]
Extraversion	.10	[-.03, .22]	-.02	[-.14, .12]
Openness to Experience	.20**	[.09, .32]	-.07	[-.18, .05]
Neuroticism	.06	[-.08, .18]	.16**	[.02, .27]
Attention to Positive Feelings	.29***	[.15, .42]	-.02	[-.13, .10]
Attention to Negative Feelings	.17**	[.05, .29]	.20**	[.06, .32]
Ignoring Positive Feelings	-.20**	[-.30,-.04]	.24***	[.10, .35]
Ignoring Negative Feelings	-.17*	[-.36, .01]	.37***	[.25, .48]
Need for Cognition	.05	[-.05, .16]	-.08	[-.18, .05]
Self-Esteem	.08	[-.05, .20]	-.15*	[-.28, -.01]
Social Desirability	-.12	[-.22,-.01]	-.06	[-.18, .06]
Motivation				
Approach Motivation	.01	[-.14, .15]	.06	[-.09, .22]
Avoidance Motivation	.04	[-.10, .18]	.01	[-.12, .15]
Grade Point Average	-.05	[-.18, .09]	-.21**	[-.34, -.07]

Note. CI = .95; PA = Positive Affect; NA = Negative Affect; *p* < .05. **p* < .01. ***p* < .001.

Beliefs about the functionality of affective states. We first assessed whether help and hinder theory endorsement were related to existing measures of beliefs about the functionality of emotional states.

Valuation of positive and negative feelings. Help theory endorsement was weakly correlated with valuing positive feelings but was not correlated with valuing negative feelings. Hinder theory endorsement was not correlated with valuing positive or negative feelings. Because the Affect Valuation Scale included questions about how appropriate or enjoyable it was to experience positive and negative feelings, we ran follow-up correlations with the specific items in the scale assessing how meaningful, pointless, helpful, or disruptive feelings were. As expected, help theory was correlated with viewing both positive feelings, $r(280) = .30$, $p < .001$, and negative feelings as more meaningful, $r(280) = .23$, $p < .001$, and with viewing both positive feelings, $r(280) = .31$, $p < .001$, and negative feelings as more helpful, $r(280) = .19$, $p < .01$. As expected, hinder theory endorsement was correlated with viewing both positive feelings, $r(280)$ $= .17$, $p < .01$, and negative feelings as more pointless, $r(280) = .14$, $p < .05$. Hinder theory was also correlated with viewing positive feelings as more disruptive, $r(280) = .18$, $p < .01$.

Perceived utility of positive and negative feelings. As expected, help theory endorsement was moderately correlated with viewing positive and negative feelings as useful. Hinder theory, on the other hand, was not correlated with viewing either positive or negative feelings as useful, consistent with the view, and with early CFA results, that hinder theory is distinct from help theory.

Affective experience. Help theory endorsement was weakly correlated with greater baseline positive affect (after completing a neutral filler task at the start of the study) but was not

correlated with baseline negative affect. In contrast, hinder theory endorsement was moderately correlated with more baseline negative affect but was not correlated with baseline positive affect. This is consistent with previous findings (Karnaze & Levine, 2018) that viewing emotion as a help is related to reporting a more positive mood, whereas viewing emotion as a hindrance is related to reporting a more negative mood. We also found that help theory endorsement was moderately correlated with stronger emotional reactions to events but hinder theory was not related to emotional reactions, which is consistent with our previous findings (Karnaze & Levine, 2018).

Personality/Individual differences: *Personality.* Help theory endorsement was moderately correlated with more conscientiousness, suggesting that people who endorse a help theory are more aware of the role that emotion plays in social interactions and acting in accord with one's values. Help theory endorsement was also moderately correlated with more openness to experience, suggesting that people who endorse a help theory are more open to experiencing different emotions. Help theory endorsement was not correlated with extraversion or neuroticism. In contrast, hinder theory endorsement was not correlated with openness to experience, conscientiousness, or extraversion. Hinder theory endorsement was weakly correlated with more neuroticism, suggesting that people who view emotion as a hindrance are more easily distressed even though they generally view themselves as being less emotionally reactive in general.

Attention to positive and negative feelings. As we expected, participants' help theory endorsement was moderately correlated with paying attention to and following positive feelings and was also weakly correlated with attending to and following negative feelings. Similarly, help theory endorsement was moderately negatively correlated the tendency to ignore positive

feelings, and weakly negatively correlated the tendency to ignore negative feelings. In contrast, participants' hinder theory endorsement was not correlated with attention to and following positive feelings. Interestingly, hinder theory was moderately correlated with the tendency to attend to and follow negative feelings. Hinder theory endorsement was also moderately correlated with the tendency to ignore both positive and negative feelings. Thus, people who more strongly endorse a hinder theory tend to ignore the positive feelings, but report both ignoring and attending to negative feelings, perhaps indicating ambivalence toward their unpleasant emotions.

Need for cognition. As expected, neither help nor hinder theory were related to need for cognition. Therefore, help theory endorsement did not merely reflect a weaker tendency to value cognition, and hinder theory endorsement did not merely reflect a stronger tendency to value cognition.

Social desirability. As expected, neither help nor hinder theory were related to the tendency to present oneself in socially desirable ways.

Motivation. Neither help nor hinder theory endorsement were correlated with approach or avoidance motivation. Thus, help theory endorsement did not merely reflect a tendency to approach rewarding experiences, which would increase positive feelings. Similarly, hinder theory endorsement did not merely reflect a tendency to avoid negative experiences, which would decrease negative feelings.

Self-esteem. Help theory was not related to self-esteem, but hinder theory endorsement was weakly related to lower self-esteem.

GPA. Among students who were at least in their second year of college, the more they endorsed a hinder theory about emotion, the lower GPA they reported.

Relations with Emotion Regulation

Table 5 shows correlations between the help and hinder theory subscales and different styles of regulating emotional experience. As we found in previous research (Karnaze & Levine, 2018), help theory endorsement was weakly correlated with the tendency to use cognitive reappraisal to regulate emotion, but was not correlated with active coping. As expected, help theory endorsement was also weakly correlated with positive reframing, acceptance, and planning to cope when under stress. Help theory endorsement was moderately correlated with seeking and receiving social support. Help theory endorsement was not correlated with the belief that one's emotions could not be changed, which we found previously, and suggests that viewing emotion as a help taps beliefs that are independent of beliefs about one's ability to regulate emotion. Although, as mentioned above, Help theory endorsement was correlated with acceptance, it was not associated with "acceptance of thoughts and feelings without judgment". Perhaps people who believe that emotions are valuable and should be accepted nonetheless view them as subject to critical judgment as well. In summary, help theory endorsement overall was related to more frequent use of effective emotion regulation strategies and with using social support to regulate emotion.

As found in previous research (Karnaze & Levine, 2018), hinder theory endorsement was weakly correlated with use of expressive suppression to regulate emotion. Hinder theory endorsement was also weakly correlated with the belief that emotions could not be changed, as well as with using substances to cope when under stress. Hinder theory endorsement was weakly correlated with less acceptance of thoughts and feelings without judgment, suggesting that people who view their emotions as harmful also make negative judgements about other mental experiences, such as thoughts and perceptions. Contrary to hypotheses, hinder theory was not

related to more use of distraction. Thus, hinder theory endorsement was related to more frequent

use of suppression, a maladaptive coping strategy, less emotion regulation efficacy overall, and

more frequent negative judgments about one's thoughts and feelings.

Table 5

Correlations between Help and Hinder Theories about Emotion (HHTE) Subscales and Emotion

Regulation Variables

Emotion regulation variables	Help Theory	Hinder Theory
Trait Emotion Regulation		
Cognitive Reappraisal	.17** [.05, .30]	-.01 [-.11, .10]
Expressive Suppression	-.01 [-.13, .13]	.17** [.05, .30]
Acceptance without Judgement	.08 [-.01, .07]	-.18* [.02, .07]
Emotion Regulation Efficacy	.07 [-.05, .18]	-.19** [-.31, -.06]
Strategies to Cope with Stress		
Acceptance	.17* [.02, .31]	.07 [-.06, .18]
Active Coping	.13 [-.02, .26]	-.02 [-.17, .12]
Positive Reframing	.16* [.01, .29]	.03 [-.09, .15]
Seeking Instrumental Social Support	.26* [.15, .37]	.13* [-.01, .26]
Receiving Emotional Social Support	.21** [.05, 34]	.03 [-.12, .19]
Planning	.16* [.02, .30]	.07 [-.09, .19]
Self-Distraction	.08 [-.04, .21]	.07 [-.10, .18]
Substance Use	-.01 [-.15, .15]	.19** [.05, .31]

Note. CI = .95; PA = Positive Affect; NA = Negative Affect; *p* < .05. **p* < .01. ***p* < .001.

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Help and Hinder Theories, Wellbeing, and Depressive Symptoms

In the next set of analyses, we assessed whether, after adjusting for differences in baseline mood, help theory remained related to more happiness, more life satisfaction, more perceived social support, and fewer depressive symptoms, and whether hinder theory remained related to less happiness, less life satisfaction, and more depressive symptoms. To test this, we conducted separate hierarchical regression analyses for each Time 1 outcome variable. In each analysis, we entered baseline positive and negative mood at Step 1, and entered help and hinder theories at Step 2. In follow-up analyses, we controlled for beliefs about whether emotions could be regulated by entering them in the first step (along with baseline positive and negative affect) and entering help and hinder theories in the second step. Unless otherwise noted, entering emotion regulation efficacy as a covariate did not change the pattern or significance of results reported below.

Happiness. The two-predictor model (baseline positive mood and baseline negative mood) accounted for approximately 18% of the variance in happiness at Step 1. At Step 2, the four-predictor model (baseline positive mood, baseline negative mood, help theory, and hinder theory) accounted for approximately 20% of the variance. This improvement in the fit of the model was significant, $\Delta R^2 = 0.02$, $F(2, 272) = 3.81$, $p < .05$. The final regression equation predicting happiness was significant, $R = 0.45$, $F(4, 272) = 17.69$, $p < .001$. The more positive mood participants reported at baseline, the more happiness they reported, $\beta = 0.34$, $p < .001$, $t = 6.12$. The less negative mood participants reported at baseline, the more happiness they reported, $\beta = -0.29$, $p < .001$, $t = -5.14$. As expected, the less participants endorsed a hinder theory, the more happiness they reported, $\beta = -0.14$, $p < .05$, $t = -2.55$. Help theory was not related to

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happiness. However, when emotion regulation efficacy was included as a covariate, the association between hinder theory and experiencing less happiness was not statistically significant, $\beta = -0.09$, $p = .08$, $t = -1.76$.[1]

Life satisfaction. The two-predictor model (baseline positive mood and baseline negative mood) accounted for approximately 19% of the variance in life satisfaction at Step 1. At Step 2, the four-predictor model (baseline positive mood, baseline negative mood, help theory, and hinder theory) accounted for 20% of the variance. This improvement in the fit of the model was significant, $\Delta R^2 = 0.02$, $F(2, 275) = 3.12$, $p < .05$. The final regression equation predicting life satisfaction at Time 2 was significant, $R = 0.45$, $F(4, 275) = 17.65$, $p < .001$. The more positive mood participants reported at baseline, the more life satisfaction they reported, $\beta = 0.34$, $p < .001$, $t = 6.16$. The less negative mood participants reported at baseline, the more life satisfaction they reported, $\beta = -0.30$, $p < .001$, $t = -5.30$. As expected, the more participants endorsed a help theory, the more life satisfaction they reported, $\beta = 0.11$, $p < .05$, $t = 1.98$. Hinder theory was not related to life satisfaction. However, when emotion regulation efficacy was included as a covariate, the association between help theory and experiencing more life satisfaction did not reach conventional levels of statistical significance, $\beta = -0.10$, $p = .05$, $t = 1.95$.

Perceived social support. The two-predictor model (baseline positive mood and baseline negative mood) accounted for approximately 8% of the variance in social support at Step 1. At Step 2, the four-predictor model (baseline positive mood, baseline negative mood, help theory, and hinder theory) accounted for 12% of the variance. This improvement in the fit of the model was significant, $\Delta R^2 = 0.05$, $F(2, 272) = 7.35$, $p < .01$. The final regression equation predicting social support was significant, $R = 0.37$, $F(4, 272) = 10.67$, $p < .001$. The more positive mood

participants reported at baseline, the more social support they reported, $\beta = 0.19$, $p < .01$, $t =$ 3.26. The less negative mood participants reported at baseline, the more social support they reported, $\beta = -0.24$, $p < .001$, $t = -4.09$. As expected, the more participants endorsed a help theory, the more social support they reported, $\beta = 0.21$, $p < .001$, $t = 3.62$. Hinder theory was not related to social support.

Depressive symptoms. The two-predictor model (baseline positive mood and baseline negative mood) accounted for approximately 30% of the variance in depressive symptoms at Step 1. At Step 2, the four-predictor model (baseline positive mood, baseline negative mood, help theory, and hinder theory) accounted for approximately 36% of the variance. This improvement in the fit of the model was significant, $\Delta R^2 = 0.05$, $F(2, 272) = 11.46$, $p < .001$. The final regression equation predicting depressive symptoms use at Time 2 was significant, $R = 0.60$, $F(4, 272) = 24.33$, $p < .001$. The more positive mood participants reported at baseline, the fewer depressive symptoms they reported, $\beta = -0.24$, $p < .001$, $t = -4.77$. The more negative mood participants reported at baseline, the more depressive symptoms they reported, $\beta = 0.49$, $p < .001$, $t = 9.64$. Contrary to what was hypothesized, the more participants endorsed a help theory, the more depressive symptoms they reported, $\beta = 0.11$, $p < .05$, $t = 2.27$. This finding is explored further below. As expected, the more participants endorsed a hinder theory, the more depressive symptoms they reported, $\beta = 0.22$, $p < .001$, $t = 4.33$. However, when emotion regulation efficacy was included as a covariate, the association between hinder theory and experiencing more depressive symptoms was not statistically significant, $\beta = -0.04$, $p = .49$, $t = -0.70$.

Next, we ran follow-up analyses to determine if help and hinder theories predicted whether participants' depressive symptoms met the cutoff (≥ 10) for being clinically significant.

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We ran a partial correlation between help and hinder theories and the dichotomized variable representing whether participants did not meet the cutoff (coded as 0) or did meet the cutoff (coded as 1), controlling for baseline positive mood and baseline negative mood. Help theory endorsement was not correlated with experiencing clinically significant depressive symptoms (p = .17). The more participants endorsed a hinder theory, the more likely they were to report symptoms indicative of clinical depression, $r_{partial}$ = .13, $p < .05$. However, when emotion regulation efficacy was included as a covariate, the association between hinder theory and a greater likelihood of having symptoms indicative of clinical depression was not statistically significant, $p = .16$. In summary, the more participants endorsed a help theory, the more depressive symptoms they reported. One possibility is that people who view their emotions as helpful may consider their depressive symptoms, which included both emotions and behaviors, as important and thus attend to them and even share them with others, which could inadvertently prolong the duration of depressive symptoms. This is supported by the finding that emotional experiences are prolonged when people continue to think about them, or share them with others (Verduyn, Van Mechelen, & Tuerlinckx, 2011). However, help theory was not correlated with whether symptoms met the cutoff for clinical significance. The more participants endorsed a hinder theory, the more depressive symptoms they reported, which was expected, but this relationship was no longer significant when accounting for lower emotion regulation efficacy.

Discussion

In Study 2, we assessed the structural validity, generalizability (temporal stability), and external validity, including convergent and divergent validity, of the HHTE. The results of confirmatory factor analyses replicated the findings of Study 1, by showing that help and hinder theories are distinct constructs and that a two-factor structure showed a good fit to the data. This

is important because in two samples, the structure of the measure reflected the hypothesized help and hinder theory constructs.

We also assessed the temporal stability of help and hinder theory endorsement by administering the HHTE at two time points, approximately one month apart. The test-retest reliability coefficients were 0.48 for help theory and 0.51 for hinder theory. A coefficient of 0.70 or higher is a common standard for acceptable test-retest reliability. However, the reliability coefficients for several similar measures of the functionality of emotional states in the literature were also below 0.70. Specifically, the retest reliabilities were .85 and .28 for scales assessing valuation of positive affect and negative affect, respectively. The retest reliabilities for scales assessing perceived utility of positive and negative affect, retest coefficients were .65 and 57. The retest coefficients for scales assessing following/ignoring positive and negative affect ranged from .56 to .67, similar to previous findings (Gasper & Bramesfeld, 2006).

In future work, it will be important to determine how to improve the retest reliability of the help and hinder theory subscales. We administered online surveys, and retest reliability might be improved by in-person administration. Reliability may also be improved by modifying measure instructions and items to improve ease of comprehension. While only approximately 5% of participants assessed at Time 1 reported preferring to speak in a language other than English, it will be important to assess retest reliability among other representative samples, such as native English speakers, as well as community members and more ethnically diverse samples. It will also be important to assess reliability across a range of retest intervals (e.g., one week to six months; Watson, 2004), to explore whether beliefs about the functionality of emotion can change over time, or during transitional periods (e.g., adolescence, entering college). It may be important

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to account for daily levels of positive and negative feelings as well as stressful life events when assessing the temporal stability of help and hinder theories.

We found that several constructs about emotional experience converged with help and hinder theories in expected ways. The more participants viewed emotion as a help, the more baseline positive mood they reported, even after completing a filler task that was designed to be emotionally neutral. In contrast, the more participants viewed emotion as a hindrance, the more baseline negative mood they experienced, even after completing the neutral filler task. The more participants viewed emotion as a help, the stronger emotional reactions to events they reported. Being more accepting of one's emotional reactions may lead to experiencing one's emotions more intensely during events that evoke emotion. The extent to which participants viewed emotion as a hindrance, however, was not related to emotional reactions, suggesting that a hinder theory does not merely reflect more intense emotional reactions to negative events. These results replicated previous findings concerning baseline affect and emotional intensity (Karnaze & Levine, 2018).

Several constructs tapping beliefs about the functionality of specific emotional states converged with the view that emotion generally was a help. The more participants viewed emotion as a help, the more they valued positive feelings states. Surprisingly, help theory endorsement was not related to valuing negative feeling states. However, exploratory analyses on individual items from the Affect Valuation Scale showed that the more participants endorsed a help theory, the more they viewed positive and negative affect as being "meaningful" and "helpful." As expected, the more participants viewed emotion as a help, the more they viewed positive affect and negative as useful in terms of informational utility, motivation, and facilitating desirable behaviors. Thus, help theory endorsement converged with other measures

tapping endorsement of beliefs about specific emotional states as being meaningful and helpful/useful.

Several measures of individual differences and personality also converged with the view that emotion was a help, while other measures thought to be distinct from viewing emotion as a help diverged. As expected, the more participants viewed emotion as a help, the more they attended to and followed their positive and negative feelings, and the less likely they were to ignore their positive and negative feelings. In terms of personality, people who more strongly viewed emotion as a help tended to be more open to experience and more conscientious. Several constructs thought to be distinct from viewing emotion as a help diverged with help theory endorsement. As expected, viewing emotion as a help did not merely reflect a tendency to approach rewarding experiences (BAS orientation), a tendency to devalue cognition (need for cognition), or a tendency to present personal attributes in a positive way (social desirability), suggesting that help theory endorsement did not merely reflect a positive bias in self-presentation.

With respect to hinder theory, we found that several constructs tapping beliefs about the functionality of specific emotional states converged with the view that emotion generally was a hindrance. Although hinder theory endorsement was not correlated with valuing positive or negative feelings, it was correlated with specific items from the Affect Valuation Scale assessing how "pointless" both positive and negative feelings states were and how "disruptive" positive feelings states were. As expected, the more people viewed emotion as a hindrance, the less they paid attention to, and the more they ignored, positive feelings. A puzzling finding was that, greater hinder endorsement was associated both with ignoring negative feelings and with attending to/following them more. One possible reason for this ambivalence is that those who

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view emotion as a hindrance report using less effective strategies for regulating negative emotion (Karnaze & Levine, 2018). Thus, they may try to ignore negative feelings but find themselves nonetheless under their sway.

Several measures of individual differences and personality converged with the view that emotion was a hindrance, in expected ways, while other measures thought to be distinct from viewing emotion as a help diverged from the view that emotion was a hindrance. People who more strongly viewed emotion as a hindrance tended to be more neurotic. Further research is needed to determine whether neuroticism leads to a hinder theory, whether a hinder theory promotes neuroticism, or whether there is a bi-directional relationship between neuroticism and hinder theory. The finding that hinder theory was not related to self-reported emotional intensity suggests that a hinder theory is not just a result of having intense negative emotional experiences. As expected, viewing emotion as a hindrance did not merely reflect a tendency to avoid negative experiences (BIS orientation), a tendency to value cognition, or a tendency to present personal attributes in a positive way.

We also replicated findings from previous research showing that lay views about the functionality of emotion were related to self-reports concerning emotion regulation strategies (Karnaze & Levine, 2018). Specifically, the more participants viewed emotion as helpful, the more they used cognitive reappraisal to regulate their emotions in daily life. In contrast, the more participants viewed emotion as harmful, the more they used expressive suppression in daily life. In addition, viewing emotion as helpful was associated with acceptance, planning, and positive reframing, strategies which are similar to cognitive reappraisal. Thus, viewing emotion as a help is related to greater acceptance of stressful situations and more proactive strategies for dealing with stress. In contrast, viewing emotion as harmful was associated with substance use as a

strategy for coping with stress. Thus, people who view emotion as harmful might try to simply get rid of or alter how they feel rather than trying to address the issues (e.g., through acceptance, contemplation, or problem-solving) that gave cause for their feelings. Participants who viewed emotion as more of a hindrance reported being more negative in their assessment of their personal thoughts and feelings, and as being less able to change or control their emotions. While one could argue that a hinder theory would develop from less emotion regulation efficacy, and thus more intense negative emotional experiences, we did not find evidence to support this. Rather, the more participants endorsed a hinder theory, the less intense emotional reactions they reported. In summary, viewing emotion as a help was associated with more adaptive emotion regulation strategies, whereas viewing emotion as a hindrance was associated with substance use, less emotion regulation efficacy, and a tendency to make negative judgments about mental experiences, including emotions.

Emotion regulation has important implications for wellbeing (Gross, 2015), but help and hinder theories were related to some wellbeing outcomes even after adjusting for emotion regulation efficacy. Specifically, the more participants viewed emotion as a help, the more socially supported they felt, even when accounting for emotion regulation efficacy. This replicated findings from previous research (Karnaze & Levine, 2018) and is consistent with the finding that help theory endorsement was correlated with the coping strategies of seeking instrumental support from others and receiving emotional support from others. Taken together, these findings suggest that people who view emotion as helpful are more likely to reach out to others for help and to foster supportive relationships with others so that when they are in need, they have others to support them. Help theory endorsement was also associated with more happiness and life satisfaction. However, when controlling for emotion regulation efficacy,

which was positively associated with happiness and life satisfaction, the association between help theory and life satisfaction only trended toward conventional levels of statistical significance. Interestingly, help theory endorsement and efficacy were not correlated. It will be important to further examine the relationships between viewing emotions as helpful, emotion regulation, and life satisfaction using larger and more diverse samples, and longitudinal designs. While endorsing a help theory may be distinct from beliefs about whether one's emotions can be changed, endorsing a help theory may still contribute to greater wellbeing by promoting the use of several effective emotion regulation strategies, including recruiting more social support, which in turn predict greater wellbeing.

Contrary to hypotheses, viewing emotion as a help was associated with more depressive symptoms though not with clinical depression. Viewing emotion as a hindrance was also associated with more depressive symptoms and was also correlated with reporting clinically-significant symptoms, but not when emotion regulation efficacy was included as a covariate. Because viewing emotion as a hindrance was correlated with less emotion regulation efficacy, it will be important to determine whether viewing emotion as a hindrance decreases emotion regulation efficacy which in turn predicts more depressive symptoms. It is also possible that being less successful at emotion regulation leads to greater endorsement of the view that emotion hinders, so experimental and longitudinal designs are needed to investigate the direction of causality between hinder theory and worse emotion regulation efficacy.

General Discussion

Western scholars, media and discourse have portrayed emotion generally as helpful or harmful to reasoning and wellbeing, and research shows that people vary in the extent to which they endorse these views. We propose that lay theories about the functionality of emotion overall

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should shape emotional experience and the ways in which people try to regulate their emotional responses, with important consequences (Gross, 2015). In previous work, we found that endorsing a help theory was related to better reasoning and wellbeing, and endorsing a hinder theory was related to worse wellbeing, but we assessed help and hinder theories using items from other measures which did not fully capture the ways in which emotion can be viewed as facilitating, or being at odds with rational thinking and good decision-making, which is often expressed in lay beliefs about emotion. Therefore, we developed a new measure of lay theories about the functionality of emotion. This is an important first step in examining how a help theory about emotion could confer benefits, and how a hinder theory about emotion might lead to worse outcomes.

To create the new measure, we first consulted theories concerning the functions of emotion, ethnographic accounts of lay theories, and previously published measures of beliefs about the functionality of specific emotional states. From this review, we generated items along three different dimensions that emotion may help or hinder: goal attainment, decision-making, and wellbeing. The final four-item help theory and four-item hinder theory subscales showed good structural validity (factor loadings, model fit indices) using confirmatory factor analyses in two studies. The measure showed one-month test retest reliability that was comparable to the one-month test-retest reliabilities for other measures assessing beliefs about the functionality of specific positive and negative emotional states. Future research is needed to determine whether the population we studied (college students) may experience less temporal stability in their lay theories about the functionality of emotion compared to older samples, or if future modifications to the measure could improve test-retest reliability.

We also found evidence for external validity by showing how help and hinder theories converged with, or were divergent with, other measures in theoretically expected ways. As expected, the more participants endorsed a help theory, the more they viewed positive feelings (joy, contentment, interest) and negative feelings (anger, downcast, nervousness) as meaningful and helpful. The more participants endorsed a help theory, the more they reported attending to and following their positive feelings and experiencing more intense emotional reactions. Help theory endorsement was also associated with more conscientiousness and openness to experience. In assessing divergent validity for help theory, we found support for the predictions that help theory endorsement would not be correlated with other measures that were theorized to be distinct constructs: approach motivation; neuroticism; need for cognition; and social desirability.

In contrast, the more participants endorsed a hinder theory, the more they viewed positive feelings (joy, contentment, and interest) and negative feelings (anger, downcast, and nervousness) as being pointless, and the more they viewed positive feelings as disruptive. The more participants endorsed a hinder theory, the more they reported ignoring their positive and negative feelings, as was expected, but those who more strongly endorsed a hinder theory also reported attending more to their negative feelings. Hinder theory was also related to neuroticism and trait anxiety, with weak and moderate associations, respectively. In assessing divergent validity for hinder theory, we found as expected that hinder theory endorsement was not correlated with emotional intensity, need for cognition, avoidance motivation, or social desirability.

The current investigation replicated our previous finding that help theory endorsement was related to use of cognitive reappraisal to regulate emotion, and more social support and

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happiness, and that hinder theory endorsement was related to use of expressive suppression to regulate emotion, less social support, and less emotion regulation efficacy. Moreover, we found that help theory endorsement was associated with other adaptive coping strategies (acceptance, planning, positive reframing, seeking instrumental social support, receiving emotional social support) and that hinder theory was associated with a less adaptive strategy (substance use, judgement/nonacceptance of thoughts and feelings).

Limitations and Future Directions

In developing the HHTE, we wanted to capture people's beliefs about the extent to which emotion overall (i.e., both positive and negative emotions) are helpful or a hindrance. Follow-up questions indicated that some people were interpreting the help and hinder theory statements as referring to mostly positive emotions or negative emotions when they rated their agreement with the statements. Therefore, future work will need to modify the measure instructions so that all participants are interpreting help and hinder theory items as referring to both positive and negative emotions, even if they tend to think more about positive or negative emotions when considering a dimension of helpfulness or harmfulness. Another limitation of the present investigation is that participants completed many individual difference measures as part of the study. Limiting the length of surveys would reduce participant fatigue and drop-out, and potentially increase test-retest reliability.

It will also be important to replicate the structure of the HHTE in other samples, such as community samples and more ethnically diverse samples. Obtaining larger samples will be important to test measurement invariance, or whether different groups (e.g., male and females; ethnic groups) interpret the measure in similar ways. In future work, researchers can further assess external validity for the HHTE. For instance, one way to examine whether help theory

endorsement leads to specific emotion regulation strategies (e.g., acceptance) is to experimentally induce a help theory about emotion and then examine the effects on responses to stimuli that typically evoke negative emotions. Future research should also examine whether help and hinder theories prospectively predict better wellbeing.

Conclusions

In conclusion, we developed a new measure of lay theories about the functionality of emotion. We demonstrated that the model representing help and hinder theories about emotion as distinct constructs replicated across two samples of college students. Scores for the help theory subscale of the HHTE reflect the extent to which people view both positive and negative emotions as meaningful and helpful. Help theory endorsement does not simply reflect the tendency to pursue goals to obtain rewards, or the view that cognitive effort as less important. Hinder theory endorsement reflects the extent to which participants view both positive and negative emotions as pointless and view positive emotions as disruptive. Hinder theory endorsement does not simply reflect the tendency to ignore one's feelings, differences in emotional intensity, or a greater need for cognition. Thus, both help and hinder theory scores were related to, and distinct from, other measures in theoretically expected ways, providing evidence for external validity (i.e., convergent and discriminant validity). Both help and hinder theory scores also predicted emotion regulation and wellbeing outcomes in theoretically expected ways, providing further evidence for external validity. This new measure is a first step toward determining whether a help theory about emotion overall gives people an advantage by predisposing them to: feel better about their emotional reactions and thus experience greater wellbeing over time; better regulate their emotions; and receive more social support. It also makes the unique contribution of tapping beliefs about the harmful nature of emotion overall,

which is a first step toward determining whether a negative view about emotion puts people at risk by predisposing them to: feel worse about their emotions; experience less social support; use less-effective strategies to regulate their emotions; and experience worse wellbeing over time.

Footnote

[1]An exploratory mediation analysis using Preacher and Hayes's (2008) bootstrapping method (1,000 resamples) showed that the more participants endorsed a hinder theory of emotion, the less happiness they reported ($b = -.28$, $SE = .11$, $t = -2.52$, $p < .05$), and this association was fully explained by perceived emotion regulation efficacy (Indirect effect = -0.092; $SE = .04$; 95% $CI = -0.19$ to -0.02). Specifically, the more participants endorsed a hinder theory, the less efficacy they reported ($b = -.22$, $SE = .08$, $t = -2.86$, $p < .01$). In turn, the less efficacy they reported, the less happiness they reported ($b = .43$, $SE = .09$, $t = 4.98$, $p < .001$). After controlling for efficacy, the association between a hinder theory and happiness was not statistically significant ($b = -.19$, $SE = .11$, $t = -1.73$, $p = .08$).

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Supplementary Materials

Supplementary Table 1

Initial Help and Hinder Theory about Emotion Items

Facet	Help Theory Item	Hinder Theory Item
Emotion is motivating/ disruptive	7- Emotion helps people achieve their goals	20-Emotion prevents people from achieving their goals
	5-Emotion helps people solve problems	19-Emotion creates problems for people
	32-Emotion gives people energy to succeed	8- Emotion drains people's energy
	29-Emotion helps people focus on what's important	17- Emotion distracts people from what's important
	6-Emotion helps people avoid harm	30-Emotion gets people into trouble
	31-Emotion motivates people's plans to succeed	18-Emotion disrupts people's plans to succeed
Emotion is informative/ irrational	11- Emotion is a source of wisdom	26-Emotion is a source of foolishness
	9- A person's emotions reveal what they value	25-When people feel emotion they cannot be objective
	27- Emotion helps people make good decisions	15-Emotion leads people to make poor decisions
	10-People's emotions help them know what's right and wrong	16- Emotion clouds judgment about right and wrong
	28-People need emotion to know what's beneficial or harmful	14-Emotion makes it hard to know what's beneficial or harmful
	12-Emotion helps people see situations clearly	13-Emotion interferes with rational thought
Emotion is essential for life satisfaction/ a threat to life satisfaction	4- Emotions have value	36-Emotions serve no purpose
	34-Emotion is a strength that humans have	23-Emotion is a weakness that humans have
	21- People need emotion to live a fulfilling life	3- Emotion prevents people from living a fulfilling life
	2- Emotion helps people connect to others	33-Emotion alienates people from others
	24-Emotion helps people have good relationships	35-Emotion interferes with having good relationships
	22-Emotion gives life meaning	1-Emotion makes life confusing

Supplementary Text 1

First Group of Individual Differences Measures

[1]The personality dimension of neuroticism was assessed with the Big Five Inventory (John & Srivastava, 1999). Participants rated their agreement with statements that could describe them (e.g., "I See Myself as Someone Who…Gets nervous easily") using a scale from 1 (*Disagree strongly*) to 5 (*Agree strongly*).

[2]Participants completed the Affect Valuation scale (Luong et al., 2015) by rating how often they experienced positive states (joy, contentment, interest) and negative states (anger, nervousness, downcast) as pleasant, helpful, appropriate, and meaningful, and (reverse-coded) as disruptive, unpleasant, inappropriate, and pointless. Ratings were made on a scale from 1 *(almost never or never)* to 7 *(almost always or always).* The average ratings for the positive affective states are used as an assessment of positive affect valuation. Average ratings for the negative affective states are used as an assessment of negative affect valuation.

[3]The Short Form of the Need for Cognition scale measured the tendency to use and enjoy effortful cognition (Cacioppo, Petty, Feinstein, & Jarvis, 1996). Participants indicated to what extent eighteen statements were characteristic of them (e.g., "I would prefer complex to simple problems") using a scale from 1 (*extremely uncharacteristic*) to 5 (*extremely characteristic*).

[4]Participants completed the Center for Epidemiologic Studies Depression Scale (Devins & Orme, 1985) by indicating how often they felt symptoms during the past week (e.g., "I could not 'get going'") using a scale from 1 (*Rarely or none of the time [Less than 1 day]*) to 4 (*All of the time [5-7 days]*).

[5]Participants completed the trait anxiety scale of the State-Trait anxiety inventory (Spielberger, 2010) by rating how they general felt (e.g., "I feel nervous") using a scale from 1 (*Almost never*) to 4 (*Almost always*).

[6]The Range and Differentiation of Emotional Experience Scale (Kang & Shaver, 2004) assessed the complexity with which participants experience emotions. Higher scores indicate that participants experienced a broader range of emotions as well as more differentiated emotions.

[7]The Emotional Approach Coping Scale (Stanton, Kirk, Cameron, & Danoff-Burg, 2000) assessed participants' engagement in emotional processing ("I take time to figure out what I'm really feeling") and expression ("I let my feelings come out freely") of their emotions to cope with stressful events, using a scale from 1 (*I usually don't do this at all*) to 5 (*I usually do this a lot*).

Second Group of Individual Differences Measures

[1]To assess religiosity, participants answered three questions about how important religion was to them: "How important is your religion to you?" (scale: 1 (*not at all*) to 9 (*extremely*)); "Other than occasional weddings, baptisms, or funerals, thinking back over the past 6 months, how many times do you attend religious services during an average month?" (scale: 1 (*not at all*) to 7 (*several times a day*)); and "Thinking back over the past 6 months, how many times did you engage in religious practices (such as reading religious texts or praying) during an average month?" (scale: 1 (*not at all*) to 7 (*several times a day*)). I standardized each score (created a z-score) and used the average of the three standardized scores as a measure of religiosity.

[2]To assess political ideology, participants answered the question, "When considering your political beliefs, do you usually think of yourself as conservative or liberal?" using scale from 1 (*Strongly conservative*) through 4 (*Neither*) to 7 (*Strongly liberal*). Higher scores

indicated more liberal, and less conservative political ideology. Participants were also asked how important their political affiliation and political party were to them, using a scale from 1 (*not at all*) to 9 (*extremely*).

[3]Participants completed the BIS/BAS scales (Carver & White, 1994) to assess orientation to approach rewards (behavioral activation system) and to avoid punishment (behavioral inhibition system). The average of participants' responses to the four-item BAS Drive scale (e.g., "When I want something I usually go all-out to get it.") was used to assess approach orientation. The seven-item BIS scale (e.g., "Criticism or scolding hurts me quite a bit.") was used to measure avoidance orientation.

[4]The Life Orientation Test assessed dispositional optimism (e.g., "I always look on the bright side of things" and "If something can go wrong for me, it will," reverse coded). The rating scale was 0 (*strongly disagree*) to 4 (*strongly agree*).

[5]Participants completed the Perceived Affect Utility Scale (Chow & Berenbaum, 2012) that included three subscales assessing the extent to which their positive and negative affective states were informational (e.g., "feeling ashamed lets me know that I am not living up to my expectations"), motivational (e.g., "feeling proud motivates me to achieve my goals and expectations"), and functional (e.g., "feeling humble makes me behave in a way that is consistent with the person I want to be"). The scale included three affective states that were positive in valence and centered on the self (e.g., pride), three that were positive and centered on others (e.g., respectfulness), three that were positive and low-arousal (e.g., relaxed), and three that were positive and high-arousal (e.g., excited). The scale included three affective states that were negative in valence and centered on the self (e.g., jealousy), three that were negative and centered on others (e.g., guilt), three that were negative and low-arousal (e.g., sleepy), and three

that were negative and high-arousal (e.g., hostile). The rating scale went from 1 (*never*) to 5 (*all the time*). The average rating for the 24 positive affects was used to assess perceived utility of positive affect, and the average rating for the 24 negative affects was used the assess perceived utility of negative affect.

[6]Participants completed the Affect Valuation Index (Tsai, Knutson, & Fung, 2006), which included a scale assessing how much of time participants would ideally like to feel 15 different positive and 15 negative affective states during a typical week, and then how of much of the time they actually feel those states during a typical week, using a scale from 1 (*Never*) through 3 (*Half o the time*) to 5 (*All of the time*). To assess the discrepancy between ideal and actual affect, the average of the ideal affect ratings was entered as a predictor variable in analyses, while the average of the actual affect ratings was entered as a covariate.

[7]The Following Affective States Test (Gasper & Bramesfeld, 2006) included four items in each of the four subscales that assessed the extent to which participants: pay attention to and follow positive feelings ("When I am feeling good about something, I often pursue it"), ignore positive feelings ("I do not let my pleasant moods influence my behavior"), pay attention to and follow negative feelings ("I tend to pay more attention to my negative moods than my positive moods"), and ignore negative feelings ("When making a decision one should never be influenced by their negative feelings"). The rating scale ranged from 0 (*strongly disagree*) through 3 (*neither agree nor disagree*) to 6 (*strongly agree*). [8]The Impulse Strength factor of the Berkeley Expressivity Questionnaire (Gross & John, 1995) assessed the strength of participants' emotional reactions.

Supplementary Table 2

Internal Reliability and Test Retest Reliability between Time 1 and Time 3

Variable	Alpha	~3 Week Retest Correlation
1. Help Theory	.74	.48***
2. Hinder Theory	.64	.51***
3. PA Valuation	.75	.85***
4. NA Valuation	.64	.28***
5. PA Utility	.85	.65***
6. NA Utility	.84	.57***
7. Following PA	.75	.60***
8. Ignoring PA	.75	.57***
9. Following NA	.70	.67***
10. Ignoring NA	.74	.56***
11. Regulation Efficacy	.77	.58***

Note. Measures assessed were Help and Hinder Theories, Valuation of Positive and Negative Affect Scales, Perceived Utility of Positive and Negative Affect Scales, Following Affect Scales Test, and Implicit Theories about Emotion Scale.

***$p < .001$.

Acknowledgements

CHAPTER 4:

VIEWING EMOTION AS HELPFUL INCREASES EMOTIONAL ACCEPTANCE IN RESPONSE TO A DISTRESSING FILM CLIP

Abstract

Does viewing emotion as valuable benefit people when they must cope with distressing events? The present study manipulated people's views about the value of emotion and assessed the effects on their subjective emotional reaction, physiological reactivity, and emotional acceptance during a distressing film and their recovery after the film. Participants were randomly assigned to a condition encouraging the view that emotion is helpful or to a control condition. They then answered questions about the extent to which they personally viewed emotion as helpful or harmful, watched a distressing film clip, and rested for four minutes. Self-reported negative emotion did not differ between conditions. Relative to the control condition, however, participants in the help theory condition showed higher skin conductance and reported greater emotional acceptance during the distressing film. After the distressing film, participants in the help theory condition reported suppressing their negative feelings less than control participants and indicated that their current mood was less affected by the film. Moreover, participants in the help theory condition, but not in the control condition, showed a decrease in skin conductance in the period after the film. Thus, believing that emotion has value may promote acceptance of emotional experience and physiological recovery after distressing events.

Viewing Emotion as Helpful Increases Emotional Acceptance

in Response to a Distressing Film Clip

When people react to distressing events – such as feeling frightened by a reckless driver, sad about the loss of a friendship, or angered by a rude coworker – their implicit theories about whether emotion is a help or a hindrance may affect how they respond and their overall emotional experience. If people believe that emotions, even unpleasant ones, such as anger or fear, are helpful for achieving their goals, they should be more accepting of their reaction. In contrast, if people believe emotions are destructive, they should try to get rid of or change their reaction (Karnaze & Levine, 2018). Paradoxically, the added burden of alarm about their distress may serve to prolong it. To test this, the current investigation manipulated people's views about the value of emotion and assessed how much they allowed themselves to experience their emotional reactions to a distressing event or tried to alter their reactions. We hypothesized that people led to endorse the view that emotions are functional would be more accepting of their emotional reaction and over time less emotionally and physiologically affected by distressing events.

Viewing Emotion as Helpful or a Hindrance

Emotions can be helpful and they can also be a hindrance. Many academic theories of emotion are based on the assumption that humans evolved to have emotions because they guided cognition and behavior in ways that helped ancestral humans solve recurring problems, such as confronting an enemy (e.g., anger), avoiding pathogens (e.g., disgust), recovering from loss (e.g., sadness), or finding a mate (e.g., desire; e.g., Simon, 1967; Gross, & Barrett, 2011; Tooby, Cosmides, Sell, Lieberman, & Sznycer, 2008). However, even if emotions evolved because they increased human survival and reproductive fitness, this is not to say that any given emotional

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experience is helpful for an individual. Sometimes people experience emotions too intensely or too frequently, which can interfere with effective decision-making and obtaining goals, causing added distress and contributing to mental health problems (Kring, 2008). Lay people's theories of emotion reflect both of these perspectives. Ethnographers have documented lay theories that emotion is helpful because it helps people to lead meaningful lives, form lasting relationships, and engage in prosocial behaviors, as well as lay theories that emotion is a hindrance because it interferes with rational thinking, makes people lose control, and is a weakness (e.g., Lutz, 1986). Both perspectives are common, but people show individual differences in the extent to which they believe that specific types of emotions are helpful (e.g., Chow & Berenbaum, 2012) or harmful (e.g., Manser), and that emotion overall helps or hinders (Karnaze & Levine, 2018). Some focus on how emotion helps while others focus on how emotion hinders.

Beliefs that emotion helps versus hinders are associated with different outcomes. People who view emotion as helpful report more positive emotional experience and wellbeing. For instance, in a daily diary study, participants who more strongly valued negative emotional states (feelings of anger, nervousness, downcast), showed weaker links between daily negative emotion and poor mental health (Luong, Wrzus, Wagner, & Riediger, 2016). In other studies, the more people viewed emotion as helpful for reasoning and wellbeing, the more social support and greater happiness they reported. In contrast, the more they viewed emotion as hindering reasoning and wellbeing, the less social support (Karnaze & Levine, 2018) and more depressive and anxiety symptoms they reported (Dissertation, Chapter 3, Study 2). People who more strongly believed that emotion constrains behavior reported more anxiety and depressive symptoms (Veilleux et al., 2015) and those who more strongly believed that emotion hijacks behavior reported more anxiety (De Castella et al., 2014).

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One might expect people who have more intense emotional reactions to view emotion as more of a hindrance. However, in past research we found that the self-reported intensity of people's emotional reactions was not related to the extent to which they viewed emotion as a hindrance (Dissertation, Chapter 3, Study 2). Moreover, viewing emotion as helpful was related to greater, not less, self-reported emotional intensity (Dissertation, Chapter 3, Study 2; Karnaze & Levine, 2018). Thus, negative outcomes may result from viewing emotion as a hindrance rather than from experiencing more intense emotion. Similarly, positive outcomes may result from viewing emotion as helpful rather than from experiencing less intense emotion.

Viewing Emotion as Helpful and Emotional Acceptance

Believing that emotion is functional may enhance people's wellbeing by shaping their appraisals of their own emotional responses. People who view emotion as functional should appraise their own emotional reactions as valuable, and thus be more accepting of how they feel and less inclined to try to change or get rid of their feelings. In our previous research, the more people viewed emotion overall as helpful, the more they reported using acceptance to cope with stressful experiences (Dissertation, Chapter 3, Study 2). We also found that people who viewed emotion overall as helpful reported experiencing more intense emotional reactions (Karnaze & Levine, 2018). People who are led to view emotion as helpful should be more accepting of their emotional responses to distressing events and thus more fully experience them, resulting in more intense emotional and physiological reactions during such events. After distressing events have passed, however, people who accept their emotions should feel less distressed *about* their reactions, resulting in less distress overall.

Research support for this view is mixed. In one study, participants diagnosed with anxiety and mood disorders were instructed either to accept whatever they felt while watching a

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distressing film or to suppress their emotions. Compared to those instructed to suppress their feelings, those instructed to accept them did not report any difference in negative emotion experienced during the film but did report experiencing less negative emotion during the post-film recovery period (Campbell-Sills, Barlow, Brown, and Hofmann, 2006). In contrast, some studies have shown that acceptance of negative emotion has the ironic effect of decreasing overall negative emotional and physiological reactivity during distressing events. For instance, people who were instructed to accept their feelings during sadness- and fear-inducing films, without trying to control or avoid them, showed decreased subjective distress and electrodermal activity compared to those who were instructed to simply watch the films (Wolgast, Lundh, & Viborg, 2011). However, the instructions to accept their emotions included the explanation that "[s]truggling against your natural emotional reaction can actually intensify and prolong your distress." Participants may have interpreted this message as meaning that distress was a negative outcome to be avoided during the study. Thus, the instruction to accept may have been confounded with encouraging the implicit view that negative emotion was harmful. A meta-analysis found that acceptance did not influence negative affect more than other emotion regulation strategies (e.g., suppression, distraction, reappraisal; Kohl, Rief, & Glombiewski, 2012). Thus, there have been mixed findings concerning whether acceptance leads to more or less intense negative emotion and reactivity during and after a distressing event.

Based on our previous findings that a help theory about emotion was linked to more acceptance (Dissertation, Chapter 3, study 2) and more intense emotional reactions (Karnaze & Levine, 2018), we propose that during distressing events, people who view emotion as helpful should experience more intense emotional and physiological reactions because they value those experiences and allow them to unfold. Then, after the distressing events have passed, people who

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view emotion as helpful should experience less intense emotional and physiological reactions, or more recovery, because they do not view their reactions as problematic and thus do not prolong their distress. Once events have passed, they can recover more quickly and be more emotionally engaged as they encounter different events. Even people who tend to accept their feelings in daily life, however, encounter situations in which they need to regulate or change their emotions to obtain their goals. Our previous work also showed that viewing emotion as a help was associated with use of emotion regulation strategies that are typically effective – cognitive reappraisal and positive reframing – whereas viewing emotion as a hindrance was associated with expressive suppression, a strategy that is less effective in many situations (Karnaze & Levine, 2018; Dissertation, Chapter 3, Study 2). These strategies may also contribute to people's recovery after distressing events.

In summary, previous research on self-reported emotional experience suggests that people who view emotion as a help, rather than a hindrance, may initially experience more intense negative emotion in response to a distressing event (Karnaze & Levine, 2018, Dissertation, Chapter 3, Study 2). However, they should also view their emotional response as valuable, be more accepting of it, and put less effort into changing it. After a distressing event, people who view emotion as helpful should be more adept at employing effective strategies (e.g., reappraisal, positive reframing) for regulating their emotional reactions to the event, whereas those who view emotion as harmful should be less adept as regulating their emotional reactions (Karnaze & Levine, 2018, Dissertation, Chapter 3, Study 2). To date, however, research linking beliefs about the overall functionality of emotion and regulation has been correlational. To our knowledge, no study has investigated the causal links between beliefs about the functionality of emotion and emotional and physiological responses, and regulation, following a distressing

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event. To test the hypothesis that endorsing a help theory about emotion promotes greater acceptance during distressing events, and reduced emotional and physiological reactivity after distressing events, the current study manipulated people's beliefs about the functionality of emotion.

Effects of Manipulating People's Beliefs about Emotions

To date, researchers have not manipulated people's beliefs about the overall functionality of emotion. In some studies, however, researchers have examined the effects of inducing positive beliefs about specific emotions or features of emotion. Researchers encouraged positive beliefs about benefits of specific feeling states (e.g., the physiological arousal elicited by stressful situations) by exposing participants to media reports that cited scientific findings (e.g., Crum, Salovey, & Achor, 2013; Jamieson, Mendes, Blackstock, & Schmader, 2010) or portrayed people's experiences of benefiting from their feelings (Tamir, Bigman, Rhodes, Salerno, & Schreier, 2015). Researchers have also changed beliefs about emotion by having people elaborate on the benefits of specific feeling states through writing about their own experiences (Chow & Berenbaum, 2016).

The findings are generally are consistent with the view that believing that emotion is functional has positive results for emotional experience. For example, people who were led to view physiological arousal as adaptive showed greater cardiac efficiency (Jamieson, Nock, & Mendes, 2012) and lower inflammation (John-Henderson, Rheinschmidt, & Mendoza-Denton, 2015) in response to lab and real-world stressors (Jamieson, et al., 2010). In another study, undergraduates wrote about an ongoing stressful situation. Those instructed to accept how they felt as valid and adaptive exhibited less heart rate reactivity during the writing session and faster recovery afterward, compared to those who were instructed to evaluate the appropriateness of

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their feelings (Low, Stanton, & Bower, 2008). Instructing people that gratitude was useful also improved wellbeing (Chow, & Berenbaum, 2016).

These studies manipulated participants' theories about the functionality of specific features (e.g., physiological arousal) or types of emotion (e.g., anxiety). It is also important to manipulate theories about the functionality of emotion generally, because viewing emotion as generally adaptive may help people accept how they feel in response to distressing events and recover more quickly regardless of their specific emotional reaction to an experience (e.g., anger, anxiety), or how they construe their reaction to the experience (e.g., as emotion, as stress, or as physiological arousal). Thus, in the present study, we manipulated participants' beliefs about the functionality of emotion generally and examined the effects on emotional and physiological reactivity and recovery, and emotion regulation strategies, in response to a distressing stimulus.

Examining Emotional and Physiological Reactivity to Film Clips

To assess the effects of participants' beliefs about emotion on their response to a distressing stimulus, we showed participants a distressing film clip. Research indicates that viewing emotional films in the lab effectively elicits emotion in a standardized way. When taken from feature-length films or other media driven by a narrative, film clips can engage participants with scenarios that resemble real-life experiences. A meta-analysis showed that sadness-inducing films and anxiety-inducing films increased sadness and anxiety, respectively, with medium effect sizes. Anger-inducing films increased reports of anger compared to neutral films, with a small effect size, but did not consistently induce more anger than sadness or anxiety. This suggests that films intended to evoke anger often produce mixed emotions (Lench, Flores, & Bench, 2011).

In addition to self-reported emotion, researchers have assessed physiological reactivity to films by measuring electrodermal activity (EDA) which serves as an index of sympathetic

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nervous system activity. EDA is commonly measured using a pair of electrodes placed on the hands or feet, which are densely populated with eccrine sweat glands. These glands are primarily involved in thermoregulation but are also responsive to psychological stimuli, as they are innervated by the sympathetic nervous system (Dawson, Schell, & Filion, 2007). Under conditions of normal room temperature and thermoregulatory states, EDA changes reflect psychological arousal, which is an important component of negative emotion. When a small current is passed through two electrodes that are placed on the skin surface and the voltage is held constant, one component of EDA known as skin conductance level (SCL), or tonic level of electrical conductivity, can be measured in units of microsiemens (μS).

Researchers have demonstrated skin conductance changes in response to a variety of emotional films. For instance, anger-inducing films increased SCL. Sadness-inducing films that depicted impending loss (though not loss that had already occurred) also increased SCL (Kreibig, 2010). Disgust-eliciting films (e.g., bloody injuries) consistently increased SCL (Kreibig, 2010). In summary, although people show variability in the specific negative emotions induced in response to certain types of films (e.g., anger-inducing films), film clips provide a standardized and ecologically valid way to evoke negative emotion. Thus, films have been used to examine the effects of emotion regulation instructions on emotional and physiological reactivity (e.g., Wolgast, Lundh, & Viborg, 2011) and to assess spontaneous emotion regulation strategies (e.g., Ehring, Tuschen-Caffier, Schnülle, Fischer, & Gross, 2010).

The Present Study

In the present study, we first attempted to manipulate participants' beliefs about whether emotion is helpful or harmful for reasoning and wellbeing. Participants in a control condition were encouraged to view verbal ability as helpful. We then examined whether manipulating

participants' beliefs about emotion influenced their emotional and physiological response to a distressing film clip and the strategies they used to regulate their response. We hypothesized that, during the distressing film, participants encouraged to view emotion as helpful, compared to those in the control condition, would: (a) report more intense negative emotion; (b) exhibit greater sympathetic nervous system activity (SCL); and (c) report more acceptance of their emotional response. We hypothesized that after the distressing film, participants encouraged to view emotion as helpful would: (a) engage in more cognitive reappraisal to regulate emotion and positive reframing about the contents of the film; and (b) exhibit more recovery in mood and average SCL. In contrast, we hypothesized that during a distressing film, participants encouraged to view emotion as harmful, compared to those in the control condition, would report more experiential avoidance of their emotional response. We also hypothesized that after the distressing film, participants encouraged to view emotion as harmful would: (a) engage in more expressive suppression to regulate emotion; and (b) exhibit less recovery in mood and average SCL.

Method

Participants

Undergraduates ($N = 193$) were recruited from the psychology subject pool and via flyers at the University of California, Irvine for a 1.5-hour study on responses to multimedia. Participants from the subject pool were compensated with course credit for their participation and those recruited via flyers were compensated with $10 cash. All participants were informed that their participation was voluntary and they that could withdraw at any time. A power analysis of previous studies assessing emotion regulation and skin conductance responses to film clips, conducted with the program G*Power Statistical Power Analyses, showed that 180 participants

(60 per condition) were required to obtain power of .80. We recruited participants during the

Spring term of 2018, and continued data collection through the end of the Fall 2018 term to

obtain the target sample size. Because the experimental condition prompts required students to

provide open-ended responses, we excluded data from 10 participants who did not complete at

least one of the two open-ended questions asking about how emotion was helpful or harmful.

One participant withdrew from the study after watching the distressing film clip. Two

participants were excluded from analyses of physiological reactivity due to a computer program

recording error, and two participants were excluded from analyses due to experimenter error

when troubleshooting computer program errors. The mean age of participants was 20.55 years

($SD = 2.61$, range = 18 to 36 years). The majority of participants were female ($n = 153$).

Participants reported their race-ethnicity as Asian ($n = 84$), Hispanic/Latino ($n = 56$), White ($n = 30$), African American ($n = 4$), Mixed Race ($n = 9$), or other ($n = 10$).

Design

Participants were randomly assigned to one of three conditions: an experimental

condition designed to induce a help theory about emotion, an experimental condition designed to

induce a hinder theory about emotion, or a control condition. Participants in the experimental

conditions read and summarized mock Scientific American editorials arguing that experiencing

emotion helps or hinders the pursuit of goals, physical health, mental health, and relationship

satisfaction. Participants in the control condition read and summarized mock Scientific American

editorials arguing that verbal ability helps the pursuit of goals, physical health, mental health,

and relationship satisfaction.

Procedure and Measures

The study was conducted in a laboratory in the Department of Psychological Science at

the University of California, Irvine. Participants first provided informed consent and completed demographic questions including questions about caffeine and medicine consumption. They were then seated in a corner with two adjacent desks, each of which had a computer. Film clips and questions during the post-film periods were administered via a computer set up with E-Prime® 2.0 software so that start and stop times could be marked in the physiological data. The rest of the questionnaires, and the experimental manipulation, were administered via a computer set up with a Qualtrics survey so that user-friendly question scales and images for the manipulations could be displayed. Each participant's area was surrounded by cardboard room dividers which formed a cubicle. The investigator instructed participants that they would rotate their chair between the two monitors in the session.

Physiological measures. The investigator fitted each participant with a respiratory transducer snugly over their clothes and attached two silver-silver chloride electrodes to the palm of the hand that participants did not use for the computer mouse. Respiration and skin conductance were measured continuously throughout the session. E-Prime was programmed to send time markers to the EDA data file at the start and stop of each of the following events: a one-minute baseline recording; the emotionally neutral film, the distressing film; the post-distressing film period during which participants retrospectively rated their emotion and regulation during distressing film; and the four-minute recovery period where participants were instructed to rest for a few minutes as the program "recalibrated". The timing of recording EDA data, and other dependent variables, can be seen in Table 1. At the start of the study, and periodically throughout the study, the computer screen had instructions reminding participants to: sit with straight posture and a relaxed hand with the palm facing up (to reduce movement-related noise in physiological data) and to remain relaxed (to reduce breathing-related noise in

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physiological data).

Table1

Timing of Study Measures

Measures	Time period			
	Neutral film	*Distressing Film*	*Post-Film Period*	*Rest period (4 min)*
Self-reported emotion (assessed at the end of each time period)	Positive emotion Negative emotion Valence Activation	Positive emotion Negative emotion Valence Activation	---	Positive emotion Negative emotion Valence Activation
Physiological reactivity (mean of multiple assessments across each time period)	SCL	SCL	SCL	---
Emotion regulation (assessed at the end of each time period)	---	Acceptance Suppression Reappraisal Reframing	---	Acceptance Suppression Reappraisal Reframing

Physiological data reduction. Respiration and EDA data were processed with BioLab

Acquisition Software. A rolling filter was applied to the EDA data after recording. To reduce

spurious EDA activity, the EDA Analysis 3.1.2 program was used to visually inspect EDA data.

Artifacts due to changes in respiration were transformed using the spline interpolation function

to reduce noise (MindWareTech). EDA Analysis 3.1.2 computed average SCL for the duration

of each of the events: baseline recording, neutral film, distressing film, post-distressing film

period, and four-minute recovery period.

After being fitted with the physiological equipment, participants completed the measures

described below in the order listed, along with several filler tasks which involved answering

questions about their film preferences and films that they had previously viewed.

Baseline questionnaires. Participants answered questions about their year in college, major, sleep quality from the previous night, and current day's stress level. They then completed measures of personality (John & Srivastava, 1999) and optimism (Scheier, Carver, & Bridges, 1994; which were not analyzed in the present study), and filler tasks about their film preferences. Participants also completed the following measures of empathy and social desirability:

Empathy. Participants completed The Toronto Empathy Questionnaire (Spreng, McKinnon, Mar, & Levine, 2009), which assesses the ability to perceive others' feeling states with 16 statements (e.g., "I can tell when others are sad even when they do not say anything") using a scale from 0 (*never*) to 4 (*always*; $\alpha = .62$).

Social Desirability. Participants completed The Balanced Inventory of Desirable Responding (Paulhus, 1984). The 20-item impression management subscale was used to assess the tendency to present oneself as having positive characteristics. Participants rated their agreement with each statement using a scale from 1 (*not true*) to 7 (*very true*; $\alpha = .74$).

Neutral film. Participants were then instructed to switch to the E-Prime computer, where they were reminded to sit in a relaxed position during a one-minute baseline recording period. Next, we measured participants' baseline emotional and physiological state while they watched a neutral film. Watching a film clip with neutral content, compared to seated rest, has the advantage of achieving lower cardiovascular activity levels (Piferi, Kline, Younger, & Lawler, 2000). A neutral film clip also has the advantage of including dynamic auditory and visual stimuli, allowing for more control of these features when assessing emotional and physiological reactivity to an emotional film. To assess baseline physiological activity, participants watched a brief film clip depicting nature scenes, which has elicited neutral emotional states in previous

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research (Rottenberg, Ray, & Gross, 2007).

Baseline emotion ratings. After watching the neutral film, participants were asked, "What was the greatest amount of the following emotion you experienced while watching the film?" This question was adapted from the post-film questionnaire developed by Rottenberg, Wilhelm, and Gross (2007). Participants rated positive affect items (compassion, happiness, interest, pride; $\alpha = .78$) and negative affect items (anger, anxiety, confusion, contempt, disgust, embarrassment, fear, guilt, sadness, shame, unhappiness; $\alpha = .80$), using a scale from 1 (*not at all / none*) to 5 (*somewhat / some*) to 9 (*extremely / a great deal*). Participants were then asked whether they experienced any other emotion during the film and rated their valence. They also rated the pleasantness of their feelings during the film, from 1 *(extremely unpleasant)* through 5 *(neutral)* to 9 *(extremely pleasant)*, and activation from 1 *(relaxed/calm)* through 5 *(neutral)* to 9 *(alert/energetic)*. They also answered the question, "How much did watching the film affect your mood during the film?" using a scale from 1 *(not at all)* to 9 *(a great deal)*.

Experimental manipulation. On the Qualtrics computer, participants who had been assigned to the help or hinder theory conditions read and summarized brief article excerpts citing scientific research demonstrating that experiencing emotion [helps / hinders] the pursuit of goals, physical health, mental health, and relationship satisfaction. Participants were then prompted to write about how their own personal experiences of pleasant and unpleasant emotions as [helpful / harmful] in their transition to life as a college student. They were then asked to give advice about how emotion is [helpful / harmful] to an incoming college freshman, Taylor, who was assigned to live in a triple dormitory room in the upcoming fall quarter. In the control condition, participants read and summarized brief article excerpts citing scientific research demonstrating that verbal ability is helpful to pursuing goals, physical health, mental health, and relationship

satisfaction. Participants were then prompted to write about how their own personal experiences of how oral and written communication were helpful to the transition to life as a college student, and give advice about how verbal ability is helpful, to an incoming college freshman, Taylor, who was assigned to live in a triple dormitory room in the upcoming fall quarter.

Help and Hinder Theories about Emotion scale. After the experimental manipulation, participants were told: "Earlier, you read some passages about whether emotion is helpful or harmful. Your personal experience might lead you to agree or disagree with what you read. Next, we are interested in your own personal views about the extent to which emotion is helpful or harmful. We want to know what you think, rather than what the experts think."

They then completed the Help and Hinder Theories about Emotion Scale (Dissertation, Chapter 3, Study 2) which included four statements expressing the view that emotion overall helps reasoning or wellbeing (e.g., "Emotion is a source of wisdom"), and four statements expressing the view that emotion hinders reasoning or wellbeing (e.g., "Emotion makes life confusing") using scale from 0 (*almost never*) through 2 (*sometimes*) to 4 (*almost always*). When at least half of the target samples had been obtained in each condition, we ran preliminary analyses to determine whether the manipulations were increasing endorsement of help or hinder theories about emotion relative to the control condition. The help theory manipulation successfully increased help theory endorsement, and decreased hinder theory endorsement, relative to the control condition and the hinder theory condition. However, the hinder theory manipulation did not successfully increase hinder theory endorsement, or decrease help theory endorsement, relative to the control condition (p's > .41). Therefore, for the remainder of data collection through the end of the academic term, participants were randomly assigned only to the help theory condition and the control condition.

Distressing film. On the E-Prime computer, participants watched a four-minute emotionally distressing film clip. The clip, from the film *Cry Freedom,* depicted soldiers shooting and killing school children. The film clip has been validated in previous research and shown to elicit anger, disgust, fear, and sadness (Rottenberg, Ray, & Gross, 2007). We selected a clip that elicits a range of negative emotions because it provides an ecologically valid way to assess how a help theory might lead people to engage with and emotionally react to distressing events, as well as regulate negative emotional reactions.

Distressing film emotion ratings. Immediately after the film, participants rated the greatest intensity of their positive ($\alpha = .48$) and negative emotional responses ($\alpha = .76$) to the distressing film using the same questions and scales used for the neutral film. They also answered the same questions about emotional valence and activation, and the degree to which to the distressing film affected their current mood.

Emotion regulation during the distressing film. Participants then rated the degree to which they used emotion regulation strategies while watching the film. They were first told: "People show different responses to films like the one that just played. Sometimes people can respond to films in more than one way. This next set of questions asks about how you responded to the film that just played. There are no right or wrong answers, we are just interested in how you personally responded." Participants then rated statements developed by Tull, Jakupcak, & Roemer (2010) to assess acceptance of emotions ("I let myself feel whatever I was feeling") and expressive suppression ("I tried to not show my feelings on my face"), and a statement adapted from their reappraisal item ("I tried to think differently about the events in order to change how I was feeling about the film"), using a scale from 1 (*not all all*) through 5 *(somewhat)* to 9 (*very much*). Participants also rated statements, developed for this study, assessing experiential

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suppression ("I tried not to feel how I was feeling" and "I tried to stop my emotions"; $\alpha = .91$; reappraisal (e.g., "I tried to view the events of the film in a different way in order to feel differently"; for both reappraisal items, $\alpha = .81$); distraction ("I tried to think about something other than the film to change how I felt" and "I tried to take my mind off the film to feel differently"; $\alpha = .85$); and exploratory items ("I tried to feel differently about the film," "I tried to reduce the intensity of my feelings" and "I tried to not feel distressed) using the same scale.

Post-film period SCL. Because SCL reactivity can decrease quickly, we examined SCL during the post-film period, when participants rated their experienced emotion and regulation used during the distressing film, as a measure of physiological recovery.

Rest period. After participants rated their affect and emotion regulation during the distressing film, they were instructed to rest for few minutes while the recording program recalibrated. The program advanced to the next screen after four minutes.

Emotion and emotion regulation during the rest period. Immediately after the rest period, participants answered the same questions as after the two films concerning the degree to which they felt positive ($\alpha = .62$) and negative emotions ($\alpha = .93$), emotional valence and activation. Participants also rated, "How much did watching the last film affect your current mood?" 1 (*not at all*) to 9 (*a great deal*), and "During the past 4 minutes, after the last film ended, how much of the time did you spend thinking about the film?" 1 (*none of the time*) through 4 (*half of the time*) to 7 (*the entire time*). Participants then rated the extent to which they used emotion regulation strategies "during the past 4 minutes, after the last film ended". Alphas are provided for strategies assessed with more than one item: acceptance, experiential suppression ($\alpha = .85$), reappraisal ($\alpha = .87$), expressive suppression, distraction ($\alpha = .90$), and exploratory items.

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On the Qualtrics computer, participants then answered questions assessing the extent to which they thought about the losses, obstruction of justice, and immoral acts that occurred during the film, using a scale from 0 (*not at all / none*) through 3 (*somewhat / some*) to 9 (*a great deal / extremely*). Using the same scale, participants then answered 10 questions about the extent to which they thought about each of the following, during the past 4 minutes, after the last film ended: how to make the world a better place; what they could do to make things better for people like the students in the film; what could be learned from the events to prevent similar future events; how to improve educational opportunities; how to uphold justice, law, and order; how to prevent police brutality; and how to reduce racial/ethnic discrimination ($\alpha = .97$).

Interest in non-profit organizations. Participants viewed a page listing 12 non-profit organizations at the university along with brief descriptions of their mission and services. They were told that if they were interested in signing up for an organization's mailing list to receive more information about the organization or how to donate, or join as a volunteer, they could check the box to the right of the organization.

Demographics and follow-up questions. Participants completed demographics questions, including questions about political orientation and religiosity. They were also asked follow-up questions concerning any comments they had about the study, what they thought the study was about, their familiarity with the events depicted in the distressing film, and how violent the distressing film was compared to what they watch in a typical week (scale: 1 – "much less violent" to 7 "much more violent") because it could affect their emotional or physiological response to the film.

Happy film clip. To induce a more positive mood near the end of the study, participants watched a brief video clip of a baby laughing while ripping up pieces of paper.

Debriefing. Participants who were assigned to the hinder theory condition then viewed each of the help theory condition article excerpts. They were instructed to think about what advice they would give to the incoming freshman student about how emotion is helpful. All participants were debriefed and told that the article excerpts they read were not published, but created for the study, and that the scientific research suggests that emotional experience can have both positive and negative consequences.

<div align="center">

Results

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Preliminary Analyses

As a reminder, after we found that the hinder theory manipulation did not influence how much participants endorsed a hinder theory or a help theory relative to the control condition, we focused subsequent data collection on the help theory and control conditions. Table 2 shows mean endorsement of a help theory and a hinder theory by experimental condition in the final sample. The results of a MANOVA showed differences by condition in help theory endorsement, $F(2, 190) = 7.94$, $p < .001$, $\eta^2 = .08$, and hinder theory endorsement, $F(2, 190) = 4.35$, $p < .05$, $\eta^2 = .04$. Follow-up t-tests showed that participants in the help theory condition endorsed a help theory more than those in the control condition, $t(158) = 3.22$, $p < .01$, $d = .09$, and those in the hinder theory condition, $t(88.58) = 4.05$, $p < .001$, $d = 08$. Participants in the help theory condition endorsed a hinder theory less than those in the control condition, $t(158) = -2.33$, $p < .05$, $d = .07$, and those in the hinder theory condition, $t(102) = -2.64$, $p < .01$, $d = .06$.

Table 2

Participants' Endorsement of Help Theory and Hinder Theory Following the Experimental
Manipulation

Measure	Help Theory Condition ($n = 71$)			Hinder Theory Condition ($n = 33$)			Control Condition ($n = 89$)		
	M	*(SD)*	*Range*	*M*	*(SD)*	*Range*	*M*	*(SD)*	*Range*
Help Theory	3.74_a	(.64)	2.00-5.00	3.30_b	(.43)	2.50-4.25	3.40_b	(.65)	1.25-5.00
Hinder Theory	2.95_a	(.60)	1.50-4.75	3.27_b	(.55)	2.25-4.25	3.17_b	(.61)	1.75-4.75

Note. Means with different subscripts differed at $p < .05$ in a MANOVA by condition on help theory endorsement.

We also conducted preliminary analyses of whether participants' emotional responses, physiology, or emotion regulation strategies differed in the hinder condition versus the help or control condition. The results of one-way ANOVAs by condition (help theory, hinder theory, control) showed that participants in the hinder theory condition did not differ significantly from those in the help theory or control conditions on any measure of emotional response, physiology, or emotion regulation. In addition, participants in the hinder theory condition did not differ from those in the help theory or control conditions on the emotion regulation strategies of reappraisal, expressive suppression, distraction, or positive reframing (all p's > .11). The results of these analyses are available in Supplementary Materials in Table S1 (emotion measures), Table S2 (physiology measures), and Table S3 (emotion regulation measures). Because the hinder theory manipulation did not successfully influence hinder theory endorsement or any outcome variable, we compared participants in the help theory and control conditions in subsequent analyses.

Emotional Response to the Distressing Film

  Negative emotion. We conducted a 2 (condition: help vs. control) x 3 (time: neutral film, distressing film, four-minute rest period) mixed model ANOVA on mean negative emotion. A significant main effect of time was found, $F(2, 302) = 614.23$, $p < .001$, $\eta^2 = .80$ and the data showed significant linear, $F(1, 151) = 57.24$, $p < .001$, $\eta^2 = .23$, and quadratic trends, $F(1, 151) = 1383.51$, $p < .001$, $\eta^2 = .90$. Overall, negative emotion increased from the neutral film ($M = 1.76$, $SD = 0.88$), to the distressing film ($M = 6.10$, $SD = 1.30$), and decreased during rest ($M = 2.82$, $SD = 1.75$), $F(2, 302) = 614.23$, $p < .001$, $\eta^2 = .80$. Contrary to our hypothesis, participants in the help theory condition did not differ in negative emotion during the distressing film or the rest period compared those in the control condition, $F(1, 151) = 1.07$, $p = .30$. No interaction between time and condition was found, $F(2, 302) = 0.15$, $p = .86$, $\eta^2 = .01$. Thus, inducing a help theory did not affect participants' self-reported emotional response during the distressing film or the four-minute rest period. The results did not change when including as a covariate how violent participants rated the distressing film as compared to media they normally viewed.

  Mood. We conducted a 2 (condition: help vs. control) x 2 (time: distressing film, four-minute rest period) mixed model ANOVA on the extent to which participants reported that the distressing film affected their mood. There was a significant main effect of time, $F(1, 150) = 13.20$, $p < .001$, $\eta^2 = .08$. There was no significant main effect of condition, $F(1, 150) = 1.13$, $p = .29$, $\eta^2 = .01$, but there was an interaction between time and condition, $F(1, 150) = 5.96$, $p = .02$, $\eta^2 = .04$. The results of t-tests showed that the conditions did not differ in the extent to which they felt the distressing film affected their mood during the film, $t(151) = 0.01$, $p = .99$, but participants in the help theory condition felt their mood after the rest period was less affected by the distressing film than those in the control condition, $t(151) = 2.06$, $p = .04$. However, when

including the violence rating for the distressing film as a covariate in a one-way ANOVA, the difference in reports that mood after rest was affected by the distressing film was not statistically significant, $p = .06$.

In summary, participants overall reported feeling more intense negative emotion during distressing film than during the neutral film or during the rest period after the distressing film. Participants in the help theory and control conditions did not differ in self-reported negative emotion at any time point. Participants in the help theory condition reported that the distressing film affected their mood less during the recovery period than did those in the control condition, though this difference trended toward statistical significant after adjusting for how violent participants rated the film.

**Physiological Response to the Distressing Film**

Preliminary analyses of skin conductance level (SCL) showed that, the higher participants' SCL during the neutral film, the higher their SCL during the distressing film, $r(156) = .88, p < .001$. In addition, the more participants rated the distressing film as violent compared to what they normally watched, the higher SCL they displayed during the distressing film, when controlling for SCL during the neutral film, $r_{partial}(153) = .17, p = .03$. Therefore, we included violence ratings as a covariate in analyses of SCL.

We conducted a 2 (condition: help vs. control) x 3 (time: neutral film, distressing film, post-film period) mixed model ANCOVA (covariate: distressing film violence rating) on mean SCL. Because the data did not meet the assumption of sphericity, the Huynh-Feldt correction was used. There was no significant main effect of time, $F(1.74, 267.20) = 3.12, p = .05, \eta^2 = .02$, or condition, $F(1, 67.58) = 2.31, p = .13, \eta^2 = .02$. There was a significant interaction between

time and condition, $F(1, 154) = 5.72$, $p = .02$, $\eta^2 = .04$. Mean SCL over time by condition is displayed in Figure 1.

Figure 1

Skin Conductance Over Time by Condition
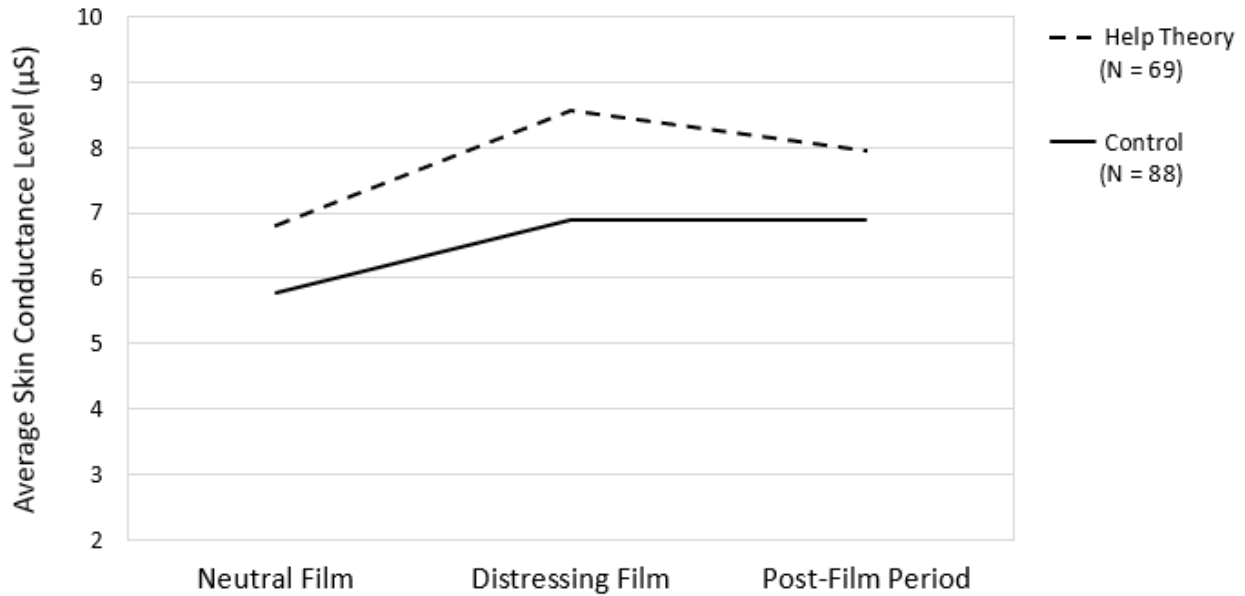
We proceeded to conduct separate analyses to test our hypotheses that being assigned to the help theory versus control condition would increase SCL during the distressing film and decrease SCL after the distressing film. First, we conducted an ANCOVA with condition as the between subjects factor and SCL during the neutral film and violence rating as covariates. A significant main effect was found for condition, $F(1, 153) = 4.37$, $p = .04$, $\eta^2 = .03$.[1] Significant main effects were also found for the covariates, neutral film SCL, $F(1, 153) = 532.70$, $p < .001$, $\eta^2 = .78$, and violence rating, $F(1, 153) = 5.72$, $p = .02$, $\eta^2 = .04$. We conducted the same analysis to determine if the conditions differed in SCL during the post-film period. Main effects

were found for neutral film SCL, $F(1, 153) = 415.12$, $p < .001$, $\eta^2 = .73$, and violence rating,

$F(1, 153) = 13.15$, $p < .001$, $\eta^2 = .08$, but not for condition, $F(1, 153) = 0.51$, $p = .48$, $\eta^2 = .03$.

Finally, we tested our hypothesis that inducing a help theory would improve recovery in

SCL from the distressing film to the rest period. We conducted a *t*-test by condition on the

difference between SCL during the distressing film versus after the distressing film. The results

showed that participants in the help theory condition showed a greater decrease in SCL from

distressing film to the post-film period ($M = .59$, $SD = 1.96$) than did participants in the control

condition ($M = -.01$, $SD = 1.71$), $t(155) = -2.04$, $p = .04$.

In summary, leading participants to endorse a help theory about emotion increased SCL

during the distressing film, relative to those in the control condition, after accounting for baseline

SCL and how violent participants rated the distressing film. Leading participants to endorse a

help theory about emotion decreased SCL more from the distressing film to rest period. Thus,

while participants led to view emotion as a help were more physiologically reactive during the

distressing film but showed more recovery after the film.

Emotion Regulation

Preliminary analyses showed that findings concerning emotion regulation did not change

when including violence ratings for the distressing film as a covariate, so results are presented

without this covariate. Figure 2 displays mean acceptance and experiential suppression by

condition over time.

Figure 2

Emotion Regulation Strategies During the Distressing Film and After the Distressing Film by

Condition
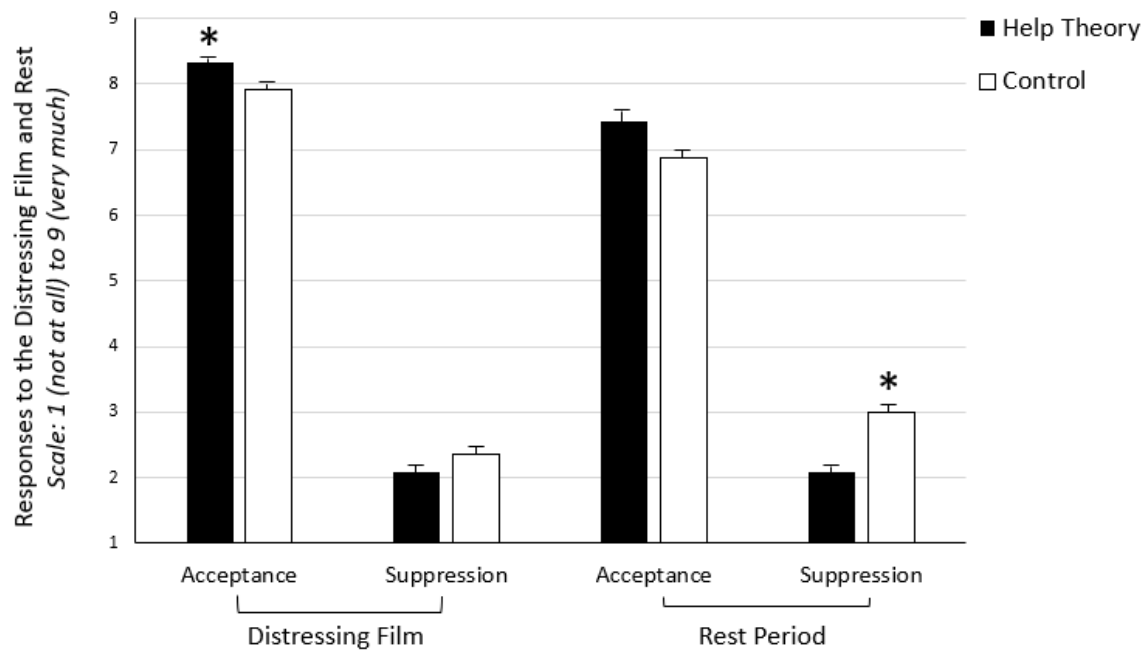
Acceptance. We first assessed whether the help theory manipulation increased

acceptance during the distressing film. We conducted a Welch ANOVA on acceptance by

condition because the Levene Test showed that the data violated the assumption of homogeneity

of variance, $F(1, 151) = 8.57$, $p < .01$. As predicted, participants in the help theory condition

reported accepting their emotions more during the distressing film than did those in the control

condition, $F(1, 148.68) = 4.85$, $p = .04$. We also assessed whether the help theory condition

increased acceptance during the rest period. The results showed no main effect of condition, $F(1,$

$151) = 2.64$, $p = .11$, $\eta^2 = .02$.

Experiential suppression. We first assessed whether the help theory condition decreased

experiential suppression during the distressing film. There was no main effect of condition, $F(1,$

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151) = 0.76, $p = .39$, $\eta^2 = .01$. We then assessed whether the help theory condition decreased

suppression after the distressing film. The Levene's Test showed that the data violated the

assumption of homoscedasticity, $F(1, 151) = 9.96$, $p < .01$, so we conducted a Welch ANOVA.

As predicted, participants in the help theory condition reported suppressing their emotions less

than those in the control condition during the rest period, $F(1, 150.214) = 8.77$, $p < .01$.

Reappraisal and positive reframing. Contrary to our hypotheses, the results of

independent samples *t*-tests showed no differences between the help theory and control

conditions in reappraisal or positive reframing during the distressing film or during the rest

period, all *t*s < 1.15, *p*s > .25.[2]

In summary, leading participants to endorse a help theory about emotion increased

emotional acceptance during the distressing film and decreased experiential suppression after the

film, relative to those in the control condition. However, the help theory manipulation did not

influence reappraisal or positive reframing about the topics of the distressing film.

Discussion

Lay beliefs about the functionality of emotion are important. If people believe emotions

have value, they should be more accepting of their own reactions to events because they view

their emotions as helping them to pursue their goals. Acceptance may initially lead to more

intense reactions, but over time people should feel less distressed, in part because they are not

distressed *about* their reactions. Thus, viewing emotion as helpful should lead people to feel less

distressed over time and to experience greater emotional wellbeing. To test this, we attempted to

manipulate people's views about the functionality of emotion. This is the first study to examine

the effects of influencing people's views about the functionality of emotion overall (i.e., both

positive and negative emotions) on their emotional, physiological, and regulatory responses to a

distressing experience.

We successfully encouraged participants to more strongly endorse the view that emotion

overall is helpful for reasoning and wellbeing. This was done by instructing participants to read

about the benefits of both positive and negative emotions (versus the benefits of verbal ability in

the control condition). Participants were also instructed to write about personal experiences

where positive and negative emotions were helpful in their transition to life as a college student

(versus personal experiences with oral and written communication in the control condition).

Finally, participants were instructed to provide advice to an incoming freshman student about the

benefits of both positive and negative emotions for transitioning to life as a college student at

their university (versus the benefits of both oral and written communication in the control

condition). Following this experimental manipulation, participants more strongly endorsed the

view that emotion helps reasoning and wellbeing. In contrast, the experimental manipulation

encouraging participants to view emotion overall as hindering reasoning and wellbeing was not

successful. Because of the potential value of encouraging the view that emotion is helpful, we

proceeded to compare participants in the help theory and control conditions.

Self-Reported Emotion and Physiological Reactivity

All participants watched a film depicting an incident in the 1970s in which soldiers shot

at and killed black South African school children who were peacefully protesting. Participants

had been informed that the film was based on historical events. Participants perceived these

events as highly distressing, and self-reports of negative emotion did not differ as a function of

condition at any time point. After the rest period, however, participants in the help condition

reported that their mood was affected less by the distressing film than did those in the control

condition. Relative to participants in the control condition, participants in the help condition showed greater skin conductance during the distressing film. Importantly, skin conductance decreased more, from the distressing film to the post-film period, for participants in the help condition than for those in the control condition.

While we found skin conductance differences between condition, we did not find differences in reported negative emotion. Skin conductance and subjective emotional experience are not always correlated (Mauss, Levenson, McCarter, Wilhelm, & Gross, 2005). Skin conductance is a marker of the sympathetic nervous system, or the fight-or-flight system, which responds to perceived threat. Encouraging participants in the help theory condition to value emotional experience may have led them to empathize more with the protagonists (schoolchildren in the distressing film) and thus feel more threatened by the actions of the soldiers. The finding that being assigned to the help theory condition increased SCL reactivity during the distressing film, relative to control condition, is consistent with previous findings that people who more strongly view emotion as a help report that they react more strongly to events (Dissertation, Chapter 3, Study 2; Karnaze & Levine, 2018). The finding that skin conductance decreased more from the distressing film to the post-film period for the help theory condition suggests that those participants recovered more quickly. Physiological reactivity to an event is a separate construct from physiological recovery after the event, and research suggests that the ability to recover from an event may be more important for physical health and wellbeing outcomes (Linden, Earle, Gerin, & Christenfeld, 1997; McEwen, 1998). Future research should examine whether viewing emotion as helpful speeds physiological recovery in other types of situations, and whether more recovery is in turn associated with better outcomes.

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Emotion Regulation

We also examined the effects of inducing a help theory of emotion on the strategies participants used to regulate their feelings during and after the distressing film. Across conditions, participants reported high levels of acceptance during the film ($M = 7.92$, scale: 1 to 9). As hypothesized, however, participants who were encouraged to view emotion as helpful reported greater acceptance of how they were feeling during the distressing film than did participants in the control condition. The level of acceptance participants reported during the rest period did not differ by condition. Participants in the help theory condition also reported engaging in less experiential suppression during the four-minute rest period relative to control participants, though not during the distressing film itself. Contrary to hypotheses, encouraging a view that emotion is helpful did not increase cognitive reappraisal or positive reframing.

The finding that inducing a help theory about emotion increased emotional acceptance during the distressing film extends our previous findings that endorsing a help theory was correlated with the coping strategy of acceptance (Dissertation, Chapter 3, study 2). Future research should determine whether viewing emotion as helpful leads people to accept their emotional reactions in other types of situations, such as being exposed to a negative interpersonal exchange. After the film, those in the help theory condition reported less suppression of emotion than did control participants. Relative to participants in the help condition, control participants were less accepting of their feelings during the film and remained more physiologically aroused afterwards. This may explain why they were more likely to report trying to rid themselves of emotions once the film had ended.

Concerning the emotion regulation strategies of reappraisal and positive reframing, it is possible that participants believed that thinking about the film in a different way to change their

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emotional response was not an appropriate reaction, or would lead to inauthenticity (Ford & Troy, in press). Across the six different emotion regulation strategies that we measured, participants were least likely to engage in cognitive reappraisal both during the distressing film and rest period. Similarly, participants in the help theory condition were not more likely than those in the control condition to reframe the topics of the distressing film (e.g., police brutality, racial/ethnic discrimination) in a more positive light by focusing on positive actions they could take in response to the film. Overall, participants reported thinking only moderately about the topics of the distressing film ($M = 3.71$, range: 1 to 7). They may have thought that positive action in response to the complex topics presented in the film would be difficult (Milyavsky, et al., 2018). Perhaps with more time to think about such complex issues, or the desire to do so, participants who more strongly view emotion as helpful might try to learn from the distressing events of the film and ultimately frame the film in a more positive light, by focusing on what they could do to help others.

Through exploratory analyses, we found that across conditions, participants who were more empathetic, and those who tried to not feel distressed during the distressing film, engaged in more positive reframing. Those who were more empathetic may have engaged in more positive reframing to promote positive outcomes and help relieve the suffering of people who experience negative experiences like those depicted in the film (e.g., police brutality, ethnic-racial discrimination). In contrast, those who wanted to feel less distressed may have engaged in positive reframing to relieve their distress. Future research could explore these possible motivations for engaging in positive reframing about a distressing event. Finally, contrary to our expectations, encouraging a help theory about emotion did not increase intentions to engage in

prosocial behaviors, or decrease expressive suppression or distraction, during the distressing film or recovery.

Limitations and Future Directions

Our aim was to examine the effects of endorsing a hinder theory as well as a help theory about emotion. However, preliminary analyses midway through data collection showed that the hinder theory manipulation was not successful and so we focused on the help and control theory conditions. It is possible that promoting a hinder theory is harder than promoting a help theory, as people who view emotions as helpful may be more resistant to the alternative viewpoint, especially if emotions have personally helped them. For example, one participant who was assigned to the hinder theory condition, and who later withdrew from the study, wrote, "[I] think emotions are good, feel your feelings…it[']s ok to have feelings." It should be noted that even though we wanted to examine the effects of hinder theory endorsement, we would not encourage endorsing a hinder theory outside of the lab, and we debriefed participants by telling them that emotional experience can have both positive and negative consequences. Near the end of the study, we also asked several questions about participants' thoughts and reactions to the study, as well as what they thought the study was about. No participant said that the article excerpts in the manipulation appeared to be manufactured, suggesting that they believed the arguments were credible, even if they did not agree with them. Future research might examine the extent to which help and hinder theories are malleable for different groups.

One might argue that demand characteristics explained why the help theory condition reported greater emotional acceptance than the control condition during the distressing film, and reported less experiential suppression during the four-minute rest period. However, participants in the help theory condition also showed greater SCL during the distressing film than those in the

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control condition. This finding suggests help theory condition participants were in fact more emotionally reactive, and allowed themselves to feel more, compared to those in the control condition, even if they did not subjectively report this. We also included a measure of social desirability before the experimental manipulation, and social desirability did not differ between conditions. These findings suggest that participants in the help theory were not simply providing responses they believed the researchers wanted to hear.

In the present study participants witnessed events that elicited negative emotion but participants may react rather passively to events depicted in films. Researchers could also induce negative emotion through personal interactions within the laboratory (e.g., a stress test) and examine whether inducing a help theory would promote recovery from negative emotion and sympathetic nervous system activity, and potentially improve performance and wellbeing. It is also important to examine the effects of help theory endorsement in situations where people need or desire to regulate their emotions in order to orient to a different task in the lab, or to learn from previous experiences in the lab to promote later task performance. Creating the need or desire to regulate emotions would help researchers help determine whether people who more strongly view emotion as helpful are more aware of their emotional state and thus better able to strategically regulate their responses to events during or even after they have occurred, perhaps through more effective emotion regulation strategies (e.g., reappraisal).

Future research should also investigate emotional and physiological reactivity during a longer recovery period to determine whether the greater emotional acceptance shown by participants in the help condition in turn promotes better outcomes such as the ability to turn attention to other tasks in the lab. Previous research suggests that more frequent acceptance predicts less intense negative emotional responses to stressors, which in turn predicts better

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wellbeing months later (Ford, Lam, John, & Mauss, 2018, study 3), so future work can also explore whether interventions to promote a help theory about emotion leads to more daily acceptance and better wellbeing. Research on the effects of a help theory about emotion should also examine potential mechanisms through which help theory leads to greater emotional acceptance and less experiential suppression.

Conclusion

In conclusion, we found that people can be encouraged to view both positive and negative emotion as helpful for reasoning and wellbeing. People who were led to view emotion as helpful showed more physiological reactivity to a distressing film clip, relative to controls, but showed more of a decrease in physiological reactivity shortly after the film, suggesting quicker recovery. Similarly, they reported that their mood after the film was less affected by the distressing film. In addition, people led to view emotion as adaptive reported more acceptance of how they felt during the distressing film. In the minutes after the film ended, they were less likely than controls to try to stop their emotions. Thus, believing that emotion has functional value may help people to be more accepting of their emotional responses to distressing events, and over time less emotionally and physiologically affected by such events.

Footnotes

[1]When violence rating was not included as a covariate, a trend was found for a main effect of condition, $F(1, 154) = 3.41$, $p = .07$, $\eta^2 = .02$. A follow-up analysis including the interaction between condition and violence rating showed no difference in the pattern or significance of results, and no significant interaction, $F6, 142) = 1.61$, $p = .15$.

[2]As a follow-up, we conducted exploratory regression analyses to determine whether any of the emotion regulation strategies used during the distressing film or empathy were related to positive reframing. In separate regressions, at Step 1, indicator variables for help theory condition and hinder theory condition (with control condition as the reference group) were entered. At Step 2, an emotion regulation item or empathy was entered. We found that across conditions, the more participants "tried to not feel distressed" during the distressing film, the more they engaged in positive reframing during the four-minute rest period, $\beta = 0.26$, $t = 3.60$, $p < .001$. The results of a separate analysis showed that the more empathetic participants said they were at the start of the study, the more they engaged in positive reframing about the topics of the distressing film during the four-minute rest period, $\beta = 0.19$, $t = 2.47$, $p < .01$.

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Supplementary Materials

Supplementary Table 1

Emotion and Mood by Condition

Emotion/Mood Variable	Help Theory Condition M(SD)	Hinder Theory Condition M(SD)	Control Condition M(SD)
Neutral Film			
Positive Affect	4.91$_a$(1.72)	1.95$_a$(1.95)	2.07$_a$(2.07)
Negative Affect	1.70$_a$(0.85)	1.65$_a$(0.90)	1.80$_a$(0.91)
Distressing Film			
Positive Affect	3.66$_a$(1.22)	3.62$_a$(1.26)	3.55$_a$(1.53)
Negative Affect	6.02$_a$(1.19)	6.39$_a$(1.57)	6.17$_a$(1.38)
Mood affected by Distressing Film	7.15$_a$(1.82)	7.00$_a$(2.08)	7.12$_a$(2.01)
Four-Minute Rest Period			
Positive Affect	2.28$_a$(1.50)	2.59$_a$(1.12)	2.58$_a$(1.48)
Negative Affect	2.68$_a$(1.78)	3.11$_a$(1.87)	2.93$_a$(1.73)
Mood affected by Distressing Film	5.08$_{ab}$(2.57)	5.41$_b$(2.38)	5.85$_{bc}$(2.11)

Note. Means with different subscripts differed at $p < .05$ in a one-way ANOVA (3 levels: help theory condition, hinder theory condition, control condition).

Supplementary Table 2

Physiological Reactivity by Condition

Skin Conductance Level (*μSiemens*)	*Help Theory Condition* M(SD)	*Hinder Theory Condition* M(SD)	*Control Condition* M(SD)
Neutral Film	$6.90_a(5.26)$	$7.06_a(4.35)$	$5.32_a(4.69)$
Distressing Film	$8.73_{ab}(5.39)$	$8.41_b(4.71)$	$6.84_{bc}(4.67)$
Post-Distressing Film Period	$8.01_a(5.45)$	$8.24_a(4.79)$	$6.75_a(4.56)$

Note. Means with different subscripts differed at $p < .05$ in a one-way ANOVA (3 levels: help theory condition, hinder theory condition, control condition).

Supplementary Table 3

Emotion Regulation by Condition

	Help Theory Condition	*Hinder Theory Condition*	*Control Condition*
Emotion Regulation	*M(SD)*	*M(SD)*	*M(SD)*
Distressing Film			
Acceptance	8.34$_{ab}$(0.99)	7.94$_{bc}$(1.66)	7.91$_c$(1.45)
Experiential Suppression	2.09$_a$(1.78)	1.89$_a$(1.74)	2.35$_a$(1.87)
Expressive Suppression	3.11$_a$(2.58)	2.69$_a$(2.22)	2.81$_a$(2.37)
Cognitive Reappraisal	1.93$_a$(1.50)	1.84$_a$(1.51)	2.09$_a$(1.73)
Distraction	2.03$_a$(1.77)	2.03$_a$(1.81)	2.21$_a$(1.84)
Four-Minute Rest Period			
Acceptance	7.43$_a$(2.20)	7.13$_a$(2.18)	6.87$_a$(2.05)
Experiential Suppression	2.08$_{ab}$(1.60)	2.30$_{bc}$(1.63)	2.99$_c$(2.21)
Expressive Suppression	2.64$_a$(2.49)	3.03$_a$(2.51)	3.10$_a$(2.33)
Cognitive Reappraisal	1.78$_a$(1.54)	1.75$_a$(1.54)	2.17$_a$(1.82)
Distraction	2.90$_a$(2.45)	3.27$_a$(2.63)	3.65$_a$(2.67)
Positive Reframing	3.59$_a$(1.87)	3.55$_a$(2.17)	3.94$_a$(1.89)

Note. Means with different subscripts differed at $p < .05$ in a one-way ANOVA (3 levels: help theory condition, hinder theory condition, control condition).

CHAPTER 5:

Epilogue

Epilogue

At least since the time of Ancient Greece, philosophers and psychologists have discussed both the merits and drawbacks of having emotions. These two views, that emotion is adaptive and functional, or maladaptive and harmful, are still found today in Western media and discourse (e.g., Lutz, 1986). Researchers have begun to explore whether believing that specific emotions are adaptive is related to performance, physical health, and wellbeing. However, we know little about people's overarching theories about the functionality of emotion generally (i.e., both positive/pleasant and negative/unpleasant emotion). People's broad theories about whether emotion is helpful or a hindrance should have important implications. First, these theories should have implications for how people experience emotion. They should shape how people react to, and recover after, stressful events. This is important because both stress reactivity and recovery can have consequences for performance, physical health, and wellbeing (Leger, Charles, & Almeida, 2018; Linden, Earle, Gerin, & Christenfeld, 1997; McEwen, 1998). Second, lay theories about the functionality of emotion should have implications for how people try to regulate their emotional reactions to events when they need to do so. This is important because research has established that ways in which people try to regulate emotions has implications for performance, physical health, and wellbeing (Gross, 2015). This dissertation explored these gaps in the literature by investigating how help and hinder theories about emotion were related to emotional experience and emotion regulation.

Chapter 2 first demonstrated that beliefs about the degree to which emotion is helpful or harmful did indeed relate to emotional experience and emotion regulation. Viewing emotion as helpful predicted reports of having more intense emotional reactions. In the context of a stressful situation, viewing emotion as helpful predicted better performance on a timed reasoning task.

Chapter 2 also demonstrated that endorsing a help theory predicted more frequent use of a relatively effective emotion regulation strategy, cognitive reappraisal, which in turn predicted more social support and happiness. In contrast, endorsing a hinder theory predicted more frequent use of a less effective emotion regulation strategy, suppression of emotional expression, which in turn predicted less social support. Thus, Chapter 2 suggests that viewing emotion overall as helpful rather than harmful has protective effects for reasoning under stress and emotional wellbeing.

In Chapter 2, help and hinder views were assessed using items from separate measures assessing beliefs about the overall functionality of emotion. A new measure was needed to capture the dimensions along which people believe emotion is helpful or harmful, based on academic theories and lay beliefs about emotion. Chapter 3 describes development of a measure representing the extent to which emotion helps/hinders: (1) the pursuit of goals; (2) decision-making; and (3) and general wellbeing. The goal was to create a succinct measure that was easy for researchers administer. The Help and Hinder Theories about Emotion Scale (HHTE) showed good structural validity and adequate test-retest reliability. The help theory and hinder theory subscales were not correlated with each other, suggesting that people can hold both views, as is evident in ethnographic accounts and popular media (Lutz, 1986). The subscales showed evidence for convergent validity, or being correlated with theoretically related constructs. For example, help theory endorsement was correlated with viewing both pleasant and unpleasant feelings as valuable and meaningful. Hinder theory endorsement was correlated with viewing both pleasant and unpleasant feelings as pointless. The subscales also showed evidence for divergent validity, or being weakly or not correlated with theoretically distinct constructs. For

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example, neither theory was correlated with approach/avoidance motivation or with need for cognition.

Chapter 3 also replicated the finding from Chapter 2 that participants who more strongly endorsed a help theory felt more socially supported. Chapter 3 also demonstrated that help theory endorsement was related to a wider range of relatively adaptive emotion regulation strategies beyond cognitive reappraisal (as was found in Chapter 2): acceptance, positive reframing, planning, and seeking and receiving social support. In addition to being associated with expressive suppression (as was found in Chapter 2), hinder theory endorsement was related to less-effective strategies, substance use and nonacceptance/judgment of thoughts and feelings.

Next steps in further HHTE construct validation should include efforts to increase generalizability, external validity, and substantive validity (John & Soto, 2007). To improve test-retest reliability, researchers can administer the HHTE in person, and to test test measurement invariance, researchers can administer the HHTE to different populations (e.g., male and females, East Asian Americans and European Americans). To further assess external validity, or the degree to which the HHTE relates to other measures or criteria in theoretically expected ways, researchers can determine whether people who more strongly endorse a help theory are more likely to view their own emotions and others' emotions as helpful responses to various situations. Finally, research can also assess substantive validity, or the degree to which the HHTE relates to processes in expected ways. For instance, people can be instructed to elaborate on the ways in which their emotions have been helpful or harmful (as they were as part of the experimental manipulations in Chapter 4), which should then increase help or hinder theory endorsement, respectively.

Chapters 2 and 3 found correlational associations between help and hinder theories and emotion regulation. Therefore, Chapter 4 examined whether encouraging a help or hinder theory in the lab would influence emotional experience and regulation in response to a distressing stimulus. Increasing help theory endorsement increased physiological reactivity to a distressing film and acceptance of emotional experience during the film. During a post-film rest period, participants who were led to endorse a help theory were less likely to try to suppress their emotions, reported that their mood was less affected by the film, and showed more physiological recovery. The hinder theory manipulation was unsuccessful. Chapter 4 presented the first study to experimentally manipulate beliefs about the degree to which emotion overall is helpful and suggests that when people who value emotions encounter distressing situations, they allow themselves to more fully experience their emotional reactions in the moment. Perhaps by valuing their emotional reactions, they feel less distressed by their reactions, which allows them to recover more quickly physiologically. Even if people have intense emotional and physiological responses to distressing events, their ability to recover from such events can benefit later mental and physical health (Leger et al., 2018; Linden et al., 1997; McEwen, 1998). Further research is needed to determine whether these findings generalize to other types of distressing events, such as interpersonal conflicts or stressful events experienced in the field. If a help theory about emotion improves recovery from such events, then it could confer long-term benefits.

Future Directions

Taken together, findings from this dissertation show that people who view emotion as more of a help than a hindrance report feeling better overall. As mentioned earlier, there are at least two ways in which a help theory can contribute to better wellbeing and a hinder theory can contribute to worse wellbeing. First, these theories can shape feelings *about* feelings. When

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people view emotion as helpful, they initially feel more intense emotional reactions to negative events, as shown in Chapter 4, but ultimately feel less distressed by their reactions, which may result in less intense emotional reactions over time. Moreover, when people view emotion as helpful, they may be more accepting of how others feel. As such, they may benefit from behaviors that are conducive to establishing trust, open communication, and maintaining quality relationships, such as: attending to others' feelings, actively listening to others concerns and emotions, and valuing others' emotional reactions without trying to control or change them. Research could test these possibilities by encouraging a help theory about emotion, as was done in Chapter 4, and examining the effects on social interactions in the lab or existing social relationships.

In contrast, when people view emotion as harmful, they may feel distressed *about* their emotional reactions to negative events, which may result in more intense and prolonged negative emotional states. To test these ideas, future research could experimentally manipulate a hinder theory about emotion and examine emotional responses to personal events, such as a social interaction or a stressful task. The attempt to encourage a hinder theory in Chapter 4 was unsuccessful. In that study, participants viewed and summarized media portraying emotion overall as harmful, based on the purported experiences of others and on scientific research conducted on others, and it involved sharing personal experiences when emotions were harmful. Future attempts to experimentally manipulate a hinder theory might be successful if they can convince individuals that their own emotional experiences, purportedly assessed by experts or a computer program, are categorized as more harmful than helpful (e.g., De Castella, K., Platow, Tamir, & Gross, 2018, study 2). Careful debriefing would be needed to assure participants that their emotions can result in both positive and negative outcomes.

Another important way that a help theory can contribute to better wellbeing and a hinder theory can contribute to worse wellbeing is through emotion regulation. Help theory endorsement was related to a wide range of relatively adaptive emotion regulation strategies in addition to cognitive reappraisal (Chapter 2): acceptance (Chapter 3, 4), positive reframing, planning, and seeking and receiving social support (Chapter 3). Acceptance and planning can help people recognize how situations result in certain emotional reactions and learn how to avoid similar situations in the future, or at least how to take a problem-focused approach to reduce distress. Cognitive reappraisal and positive reframing, more specifically, can help people to feel better about situations that are more difficult to change. Seeking and receiving social support can reduce distress as well as help people solve problems that caused their distress. While help theory endorsement was not related to a measure of emotion regulation efficacy (Chapter 2, 3), it should be noted that three of the four items in the measure referred to one's ability to "control" his or her emotions. People who view emotion as helpful may be less inclined to regard successful emotion regulation in terms of controlling their emotions, but rather changing their emotional responses to events over time. Therefore, it will be important to determine if people who endorse a help theory: (a) do experience greater emotion regulation success by using other indices of efficacy; and (b) report feeling more successful when using specific strategies (e.g., acceptance, reappraisal).

Hinder theory endorsement was related to the less-effective strategies of substance use and nonacceptance/judgment of thoughts and feelings (Chapter 3), and expressive suppression (Chapter 2, 3). Future research should test whether hinder theory endorsement prospectively predicts more substance use and nonacceptance/judgment of feelings, which may in turn predict worse wellbeing (Aldao, Nolen-Hoeksema, & Schweizer, 2010). Future interventions could also

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encourage people who tend to endorse a hinder theory to understand how emotions generally evolved to aid survival and reproduction, even if specific emotions appear to be undesirable in a situation. If people who initially regard their emotions as generally harmful can learn to be less judgmental about their emotional experiences by recognizing that they are evolved responses, over time they should feel better because they feel less alarmed by unwanted emotional experiences. Further, combining interventions to encourage more of a help-versus-hinder theory with emotion regulation training (e.g., Denny & Ochsner, 2014) could encourage people to be more strategic in selecting emotion regulation strategies in daily life, rather than try to simply eradicate, numb, or ignore undesired feelings. If people who initially regard their emotions as harmful can learn to more effectively regulate their emotions, rather than try to get rid of them completely, over time they should feel better because they can regulate their emotions to more effectively pursue their goals.

This dissertation highlights the need to combine longitudinal and experimental studies to further examine the link between lay theories about emotion and emotional regulation and wellbeing. Future studies should use interventions to encourage a help theory about emotion prior to major life transitions (e.g., starting college, starting a new job, having a child, a major stressful life event, such as receiving a medical diagnosis), during which people show individual differences in socioemotional and physical health outcomes. Then, researchers can examine how a help theory prospectively predicts, or impacts, long-term wellbeing. Research focusing on major life transitions could also determine whether a hinder-versus-help theory prospectively predicts worse outcomes. If hinder theory endorsement predicts worse outcomes, researchers should try to understand how to mitigate its effects by identifying the mechanisms through which viewing emotion exerts its influence. If difficulties in emotion regulation, for instance, help

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explain why people who view emotion as harmful tend to experience lower wellbeing, then interventions could target beliefs about the functionality of emotion, beliefs about the malleability of emotion, or both.

It could be argued that people endorse a help theory as a result of experiencing less intense emotional reactions and fewer stressful life events. But the results of Chapter 4 show that increasing help theory endorsement led to more rather than less intense physiological reactivity. Nonetheless, future longitudinal research could address whether the relationship between help theory endorsement and stressful life events is bidirectional. It could also be argued that people endorse a hinder theory as a result of experiencing more intense emotional reactions to stressful life events. However, people who more strongly endorsed a hinder theory did not report having more intense emotional reactions (Chapter 2, 3). Nonetheless, future research should measure both subjective emotional and physiological responses to distressing events to determine whether people who more strongly endorse a hinder theory report less intense reactions and also experience less physiological reactivity.

Future studies should also seek to identify important developmental periods during which people are more likely to adopt a help or hinder theory, such as childhood, as potential points for intervention. Parents' beliefs about their own emotions and their children's emotions are related to their children's socioemotional adjustment (Katz, Maliken, & Stettler, 2012). Evidence suggests that the ways in which parents socialize the emotional experience of their children partly explains the relationship between their own beliefs about emotion and their children's emotion regulation styles (Meyer, Raikes, Virmani, Waters, & Thompson, 2014). There is also evidence that parents' emotion socialization styles can be improved to incorporate more validation of their children's emotional expressions and modeling of problem-focused coping

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(Wilson, Havighurst, & Harley, 2012). Future interventions could more explicitly encourage a help-versus-hinder theory among parents and children to promote children's emotion regulation efficacy and long-term socioemotional and physical health.

In conclusion, emotions evolved to solve problems. This is not to say that every emotional experience is helpful in each situation. Sometimes emotions are unpleasant and sometimes they can make it difficult to stay focused or succeed at important tasks. However, our beliefs about the value of emotion matter for achievement and emotional wellbeing. This dissertation suggests that it is more beneficial to view emotions as functional and informative than to view them as maladaptive and irrational. One way to better understand the benefits of emotion is to recognize that no matter how unpleasant or confusing a particular emotion may be, people can learn how to better regulate emotions over time. Endorsing a help theory rather than a hinder theory about emotion may help people be less affected by distressing events over time and be more socially connected, as well as motivate people to use more effective emotion regulation strategies, thus promoting overall emotional wellbeing.

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