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Emotional Regulation, Big Five Personality Traits and Cognitive Styles: Differentiating State-Trait Influences on Emotional Regulation

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ABSTRACT

The role of emotions, specifically emotional regulation, is a hotly contested research area that functions to reveal the core nature of affective-cognitive psychological processes. Specifically, understanding the influences that determine emotional regulation strategy selection in individuals is of particular importance. In this study, the state-trait distinction often applied to specific clinical symptoms is applied in terms of its influence on ER strategy selection. Personality (big five traits) and cognitive styles (vulnerabilities and strengths) are compared to determine which process decides an individual's regulatory capacities and strategies. The initial prediction that personality would be the largest influence was not founded, but novel connections were discovered between personality and cognitive vulnerabilities/strengths along with a replication of previously found links between personality and emotional regulation. Implications of the findings of state-trait influences as well as future directions are discussed.

Emotional Regulation, Big Five Personality Traits and Cognitive Styles:

Differentiating State-Trait Influences on Emotional Regulation

A Thesis

Presented to

The Faculty of the Department of Psychology

Abilene Christian University

In Partial Fulfillment

Of the Requirement for the Degree

Master of Science in Clinical Psychology

By

Levi Draper

May 2021

This thesis, directed and approved by the committee for the thesis candidate Levi Draper, has been accepted by the Office of Graduate Programs of Abilene Christian University in partial fulfillment of the requirements for the degree

Master of Science in Psychology

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5-12 -2021
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ACKNOWLEDGMENTS

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CHAPTER I

INTRODUCTION AND REVIEW OF LITERATURE

Emotional Regulation

Emotional regulation is a broadly recognized construct (Cisler et al., 2010; Kobylińska & Kusev, 2019), of importance in clinical (Cisler et al., 2010; Joorman & Stanton, 2016), neurological (Martin & Ochsner, 2016; Wager et al., 2008), and academic settings (Merkebu, 2020), as well as in daily life (Daniel et al., 2020). Specifically, *emotional regulation (ER)* can be broadly defined as the overt attempt to actively change or influence emotional experiences (Cisler et al., 2010; Eftekhari & Kusev, 2019). Everyday examples of ER arise when individuals consciously choose to focus on shifting thoughts in a more positive and helpful or negative and unhelpful fashion. While theoretical debates abound as to the more specific definitions of ER (Cisler et al., 2010), a general census agrees on the functionality of ER, such as adaptive/maladaptive environmental interaction (Korpela et al., 2018) and situational modification (Korpela et al., 2013, Lowe & Ziemke, 2011). Additionally, poor ER has shown to be a contributing factor for populations that face both chronic and acute stressors (Hatzenbuehler et al., 2018; Joorman & Stanton, 2016; Livingstone & Isaacowitz, 2015).

Numerous specific ER strategies (adaptive and maladaptive) have been identified, including mindfulness (Guendelman et al., 2017), cognitive reappraisal (Troy et al., 2018), distraction (Strauss et al., 2016), avoidance and escape behaviors (Kashdan et al., 2006), emotional suppression (Dunn et al., 2009), problem-focused coping (Cisler et al.,

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2010), and substance use (Choopan et al., 2016). The vast majority of these strategies involve implicit or explicit attempts to redirect an emotional experience—especially one of high intensity (Wadlinger & Isaccowitz, 2011). In short, during times of stress, anxiety or depression, ER strategies are how individuals choose to handle their emotions in their daily lives. Overall, ER has been presented in the literature as a loosely defined, heavily debated, and increasingly relevant factor in human psychological functioning (Kobylińska & Kusev, 2019).

Psychological Impacts of Emotional Regulation

Emotional regulation and its related strategies share a common tie with many other well-being indicators in that individuals can demonstrate both positive and negative applications of ER (Aldao et al., 2014; Conklin et al., 2015). Individuals who exhibit positive emotional regulation tendencies show increased academic and occupational success (Merkebu, 2020), improved overall well-being and higher socio-economic status (Côté et al., 2010), and show more resistance to the development of internalizing and externalizing psychopathologies (Compas et al., 2013; Eftekhari et al., 2009; Naragon-Gainey et al., 2018). Alternatively, individuals who demonstrate poor ER abilities and ER strategy implementation show an increased risk for anxiety (Cisler et al., 2010), depression (Joorman & Stanton, 2016), and generalized psychological vulnerability (Kashdan et al., 2006). Developmentally, ER abilities have been shown to increase with age and effortful focus in order to improve overall adaptable and flexible functioning (Compas et al., 2013; Kobylińska & Kusev, 2019), though predispositions have also been noted to play a major role in ER development and implementation (Hofer & Allemand, 2017). The nature and nurture debate rages in ER research as well as the genetic and

environmental effects on an individual's ER ability (McRae et al., 2017), but the particular psychological mediators such as big five personality traits (Barańczuk, 2019) and social-cognitive styles of thinking (Bolier et al., 2013; Hong, 2013) have been shown to play significant roles in both the outcomes and selection of ER strategies.

Theoretical Definitions of Emotional Regulation

The literature surrounding emotional regulation theories is broad and covers many domains of research from environmental factors (Korpela et al., 2018) to dispositional/ personality traits (Naragon-Gainey & Watson, 2016; Naragon-Gainey et al., 2018) to stimuli (Kobylińska & Kusev, 2019).

Discriminating Emotion and Emotional Regulation

Emotion and emotional regulation are often tightly linked phenomena, and their conceptual, functional and theoretical separation has been hotly debated in the literature (Gross & Barrett, 2011). For example, emotion and ER have often been studied as separate and independent constructs (Cisler et al., 2010). With that said, defining emotion and ER independently has driven the debate down to core physiological and neurological processes (Dunn et al., 2009; Loeffler et al., 2019; Martin & Ochsner, 2016) as well as general life functioning (Côté et al., 2010). Exploring this core distinction in ER and emotion falls outside the bounds of the current study, but recognizing the functional distinction of ER from emotion is of primary importance to the current study (Peña-Sarrionandia et al., 2015; Von Scheve, 2012).

Studies conflict over whether ER (positive or negative) is more attributable towards cognitive and effortful processes or more innate, dispositional factors (Dunn 2009: Cisler et al., 2010). Therefore, emotion typically serves as an immediate

phenomenological and content-driven reaction (Barrett et al., 2007), whereas ER is the response or redirection (automatic or effortful) of emotions (Gross & Barrett, 2011; Troy et al., 2018).

Clinical Relevance of Emotional Regulation

Clinically relevant domains of ER strategies generally fall into the broad categories of overt cognitive and behavioral implications (Joormann & Gotlib, 2010), substance use (Choopan et al., 2016), and regulation of mood disorders (Joorman & Stanton, 2016; Kashdan et al., 2006). Increased expressive suppression along with low levels of cognitive reappraisal have been shown to have an impact on a wide range of psychopathologies (Eftekhari et al., 2009). Additionally, ER ability has been shown to have clinical utility when measured in therapeutic outcomes of social anxiety (Aldao et al., 2014), reduction of substance use craving (Choopan et al., 2016), minimizing experiential avoidance (Kashdan et al., 2006), and improving reports of perceived affective state and well-being (Korpela et al., 2018). For an example of clinical utility, ER was linked to improved overall psychological flexibility (Kobylińska & Kusev, 2019), increased cognitive control and acceptance (Troy et al., 2018), and improved experiential presence (Guendelman et al., 2017). While the ER debate of state-trait influence remains a contentious factor in understanding ER in a clinical context (Cisler et al., 2010;), its application and relationship to therapeutic outcomes has been well received (Joorman & Stanton, 2016; Kashdan, 2006).

Emotional Regulation and Multi-Layered Neurological Functioning

A brief review of relevant neurological findings of ER is included to demonstrate the multi-layered and multiple-faceted nature of ER. General agreement has been

observed that the prefrontal cortex (PFC), orbital frontal cortex (OFC) and the anterior cingulate cortex (ACC) play major roles in modifying and adjusting emotional arousal (Cisler et al., 2010; Martin & Ochsner, 2016). Subsequently, emotional arousal and emotional regulation have been identified as distinct neurological phenomena that recruit different neurological areas (Milad et al., 2007). Within the context of ER, the PFC plays the generally accepted role of maintaining goal-directed activity by inhibiting other neural structures (Milad et al., 2007; Wager et al., 2008), which is in accordance with behavioral and cognitive functional observations of ER (Daniel et al., 2020; Lowe & Ziemke, 2011). These findings illuminate further the idea that ER and ER strategies cooperate on multiple levels of human experience and have road-stretching impacts across many fields of psychological study.

Emotional Regulation and State-Trait Distinctions: Broadening the Focus

The broader purpose of this study will be both to replicate and connect previous research that has shown three specific factors to be implicated in the functioning of emotional regulation: big five personality traits (Barańczuk, 2019), cognitive vulnerabilities (Hong, 2013) and cognitive strengths (Bolier, 2013). The next section will consist of a brief review of big five theory and the specific influence big five traits have been shown to have on both ER and specific ER strategy selection (Barańczuk, 2019). Then the review will describe the impact that social-cognitive vulnerabilities have been shown to have in determining both the outcomes and effectiveness of ER and ER strategies (Hong, 2013), along with the impact of cognitive strengths as well. Overall, reconciling the clinical and personality literature when it comes to the state-trait

influences affecting ER has been a major theme in recent years (Hughes, 2020), and this study aims to aid in that goal.

Personality Traits and Emotional Regulation

The following sections will outline the big five personality traits and consider clinical and personality psychology, the big five personality traits and emotional regulation, and individual trait differences in emotional regulation strategies.

Overview of the Big Five

While many theories of personality have been proposed throughout the history of psychology, one of the predominant and widely accepted theories of personality currently studied is the big five inventory (also called the five factor model) of personality traits (Hughes, 2020). For the purposes of my study, I will focus on how the big five traits themselves—neuroticism, extraversion, openness, consciousness and agreeableness—are directly related to individual strategies of emotional regulation and the extent to which ER strategies correlate with personality.

Big five personality traits have been demonstrated across studies concerning the individual differences that arise in how individuals express themselves, interact in the world, and manifest differences in behavior and responses (Fleeson & Gallagher, 2009). Debate still remains as to whether personality traits directly manifest in outward behavior and mental processes or whether personality is simply a measure of the perceptual state of human beings (Fleeson & Wilt, 2010). Regardless, the influence of the big five traits has had a major impact on the field of personality psychology and has started to mold clinical research models as well (Malouff et al., 2005; Miller, et al., 2004). Additionally, big five personality traits have been observed across a wide variety of cultures,

languages, and settings (Terracciano & McCrae, 2006), lending credence to their universal applicability in describing human functioning. The atheoretical and factor driven nature of big five traits have also given the personality model a psychometrically sound measure of individual difference (McCrae et al., 2011). Furthermore, big five personality constructs have begun to be observed on neurological and physiological bases, lending further support to the important influence big five traits play on multiple levels of functioning (Li et al., 2017). The big five has been established as a reliable and valid measure of personality, and with this comes the ability to gain insightful information into the interplay between personality and clinical functioning (i.e., emotional regulation).

Clinical and Personality Psychology

Clinical and personality psychology research both hold a vested interest in describing, predicting, and optimizing human functioning in emotional, cognitive, and behavioral domains. One specific area where these dynamic branches touch is in the state-trait distinction that has arisen in both personality and clinical research. A classic example of the state-trait distinction is the differentiation of anxiety-sensitivity that occurs in state form: an individual's anxiety in response to specific environment stressors, or a trait form: an individual's threshold for anxiety (Ladd & Gabrieli, 2015; Saviola et al., 2020). Predictably, clinical research tends towards a more state-oriented focus, whereas personality research tends towards the trait-oriented focus, but the divide is not always so clear-cut (Ladd & Gabrieli, 2015). The next section will discuss more regarding cognitive styles (a state influence), but for now the focus will remain on the

relevance of trait-specific influences that affect ER in both clinical and practical domains.

Relevance to Clinical Diagnostic Criteria and Treatment

The *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM–5*; American Psychiatric Association, 2013) currently specifies a series of personality disorders as well as several mood-specific behavioral and regulation disorders. The predominant view clearly remains that personality is not only a clinically relevant diagnostic category with implications for treatment, but that personality itself is a means by which one can conceptualize, diagnose, and treat various clinical disorders (Husain et al., 2020; Malouff et al., 2005; Miller et al., 2004). The inclusion of personality in the *DSM–5* lends credence to the findings that personality traits do exert an influence on clinically relevant outcomes (Malouff et al., 2005), and that, when in the context of clinical disorders, the influence by which personality traits affect ER ability is of necessary consideration (Husain et al., 2020). In addition to the purpose of this study, relevant literature has shown personality trait models are directly implicated in assessing and treating psychologically disordered functioning along multiple dimensions (Barańczuk, 2019; Hughes et al., 2020; Malouff et al., 2005)).

Non-Clinical Influences of Personality on Psychological Functioning

In addition to assessment and treatment of psychological functioning, personality investigations of state-trait distinctions hold personality has specific implications in defining the subjective reports of overall well-being (Gutiérrez et al., 2005) and daily positive emotional experiences (Michelle et al., 2006). As Michelle et al. (2006) observe, while the specific factors onto which positive emotion loads have become debated, the

consensus remains that dispositional traits hold heavy influence on positive life experiences. Personality traits also seem to play an intricate role in understanding motivated behavior and goal pursuit in multiple areas of life functioning (McCabe & Fleeson, 2015). Overall, the explanatory power that personality factors play in understanding both how and why people function supports the conclusion that personality is an important construct in explaining positive and negative life functioning.

Big Five Personality Traits and Emotional Regulation

While the literature has begun to connect personality and clinical/functional accounts of human behavior (Barańczuk, 2019; Husain et al., 2020; Malouff et al., 2005; McCabe & Fleeson, 2015), investigations continue to examine the specific relevant functions of personality and ER. In the domain of big five personality traits, understanding individual traits, overall trait profiles, and the relevant effect each trait exerts on one another in the context of human functioning are topics left heavily unexplored. The current study will focus on replicating this link between big five traits and the functioning of ER, with an emphasis on understanding how these traits exert influence on individual abilities and tendencies of ER.

Individual Trait Differences in Emotional Regulation Strategies

Two recent meta-analyses conducted by Hughes et al. (2020) and Barańczuk (2019) compare the effect that individual traits have on personality and the effect to which individual ER strategies are implicated in various big five personality traits. Hughes et al. (2020) provide a comprehensive meta-analysis differentiating personality and emotional regulation to understand personality as a means to frame ER strategies as seeking to establish a desired affective state (DAS) following regulation. In other words,

ER strategies and the goal by which they depend on is directly related to the frame which is set by the personality trait. Take the relevant example Hughes et al. (2020) presents regarding how trait neuroticism affects the framework by which DAS is set and achieved. In the case of trait neuroticism, the common adaptive usage for this trait would be for a high neuroticism individual to align their regulatory goal (DAS) with their prominent personality trait in order to increase performance by relying on their innate fear of failure. The specific example given is an individual encouraging test performance by aligning the personality trait neuroticism and a "fear of failure" mindset with the DAS (eliminating the fear of failure). Thus, the desired outcome (positive test performance) aligns with the DAS (reducing fear of failure), which is set by high trait neuroticism (innate fear of failure; Hughes et al., 2020). Support for this association of trait set regulatory goals has been well cited as an appropriate frame for the impact of personality on ER in the literature (Eftekhari et al., 2009; Fleeson & Gallagher, 2009; Fleeson & Wilt, 2010; Malouff et al., 2005).

All big five personality traits have also been shown to have effects on ER strategies, their frequency of usage, and their level of effectiveness in coping (Barańczuk, 2019). The meta-analysis conducted by Barańczuk (2019) identified three primary traits—neuroticism, extraversion, and conscientiousness—as having the greatest effect on both ER strategy selection and ER effectiveness, though openness and agreeableness are statistically relevant contributors as well. While the study expounded upon several types of ER strategies and the specific usage, the two primary measures by which most ER strategies fall is in the realms of cognitive reappraisal and emotional suppression. Cognitive reappraisal, which includes constructs such as problem solving and cognitive

restructuring, was positively correlated with both high extraversion and high

conscientiousness, and general outcomes showed these traits to have the strongest levels

of positive ER functioning. Emotional suppression, generally correlated with a decrease

in ER functioning across studies (though not always as in the case of

extraversion/openness and support seeking), was positively correlated with high

neuroticism. Openness and agreeableness were associated most frequently with positive

reappraisal strategies and negatively correlated with emotional suppression. Overall, the

most adaptive personality configuration involved low neuroticism and high extraversion,

consciousness, openness, and agreeableness contributing to either positive or negative ER

functioning. These general conclusions reached by Barańczuk (2019) provide an avenue

towards examining these trait and behavior relationships in order to differentiate the

influences of trait and state distinctions on ER functioning.

<div align="center">

Cognitive Styles, Emotional Regulation and Personality

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Having reviewed the literature surrounding big five personality traits and ER the

focus will now shift to the connection of the third major variable of this study: cognitive

styles and their contribution to ER functioning.

Socio-Cognitive Vulnerabilities

Social-cognitive (SC) vulnerabilities refer to a unique strand of research focusing

on the cognitive frameworks individuals use to interpret environmental situations (Hong,

2013). Classically, cognitive vulnerabilities were studied exclusively as mechanisms by

which various psychopathologies were developed and maintained (du Pont et al., 2019;

Hankin et al., 2009). Recently, much of the literature surrounding SC vulnerabilities and

cognitive vulnerabilities makes only semantic distinctions between the two factors, and

all reviews of SC vulnerabilities appear to share similar methods of measurement and common goals. The "social" element of SC vulnerabilities is often introduced to account for the contextual factors that influence the processes of cognitive processes and vulnerabilities, so this study will work specifically with SC vulnerabilities and discuss relevant cognitive vulnerability findings as well.

Studying the impact of cognitive vulnerabilities themselves has a long-standing tradition and research experience in the field of cognitive psychology and cognitively based therapies (Hankin et al., 2009), but debates in the literature have remained as to the scope and relevance cognitive vulnerabilities play in understanding psychopathologies and emotional regulation functioning (Hong, 2013; Hong & Cheung, 2015; Hong & Paunonen, 2011; Maxwell et al., 2019). Traditional examples of cognitive vulnerabilities include factors such as ruminative cognitive style, intolerance to uncertainty, fear of negative evaluation and poor self-control, to name a few. The common thread connecting these various measures is a focus on the recurring structures individuals use to both interpret and interact within their environment (Hong & Cheung, 2015).

Clinical Significance of Social-Cognitive Vulnerabilities

SC vulnerabilities have been identified as involved in the etiology and maintenance of internalizing disorders such anxiety (Hong & Cheung, 2015; Ouimet et al., 2009), depression (Balsamo et al., 2013;), and emotional dysregulation (du Pont et al., 2019). In this sense, SC vulnerabilities have proven to be a reliable framework in both understanding and describing the development and maintenance of psychopathological symptoms, especially across the period of adolescence and young adulthood (Hankin et al., 2009). Traits such as rumination, attentional biases, and intolerance of uncertainty all

play a role in mediating this transition from cognitive styles to classical dysregulated emotional states (Hong & Paunonen, 2011; Maxwell et al., 2019). While the link between SC vulnerabilities and emotional regulation ability has strong clinical and theoretical evidence, the exact mechanisms by which SC vulnerabilities interact with personality to produce regulatory goals and strategies is largely unexplored.

An additional caveat regarding the clinical implications of SC vulnerabilities is that recent research has supported the idea that specific SC vulnerabilities are not linked to specific pathologies; rather the effect is more generalized across pathology (Hong & Cheung, 2004). A meta-analytic review conducted by Hong and Cheung (2014) found that specific cognitive vulnerabilities are more reliably fed into psychopathology based on the intensity of the cognitive vulnerabilities, not simply the type of vulnerability. Some studies have also found this more generalized effect of cognitive vulnerabilities to be indicative of the role that SC vulnerabilities play in state-based assessments of situational variables rather than baseline levels of temperamental reactivity (Naragon-Gainey & Watson, 2016). With these findings in mind, fleshing out the particulars of how individuals regulate emotions in habitually patterned ways is framed well in making state-trait distinctions of the influences on ER.

State-Trait Distinctions of Social-Cognitive Vulnerabilities and Personality

A large focus of current research connecting the personality and clinical literatures has been to understand how predisposed temperamental traits relate to cognitive vulnerabilities and the ways in which these areas interact (du Pont et al., 2019; Hong, 2013; Hong & Cheung, 2015; Hong & Paunonen, 2011; Naragon-Gainey & Watson, 2016).

Emotional Regulation and Social-Cognitive Vulnerabilities

This distinction between state-trait areas of emotional regulation has been shown to be of utility in the clinical literature (Maxwell et al., 2019), but the relevant contribution of states (i.e., social-cognitive vulnerabilities) and trait-based (i.e., big five personality traits) emotional regulation strategies is a relevant factor of this study. Emotional regulation has clear links to internalizing symptomatology, and SC vulnerabilities have been shown to contribute significantly to both the etiology and maintenance of these disorders (Alloy et al., 2012; Hong & Cheung, 2015; Reilly et al., 2012). Incongruence between emotional states, individuals' goals, and environment allows for a variety of regulatory responses (Barańczuk, 2019), but both what individuals choose to attend to in their environment and how they regulate those reactions are of primary importance.

Emotional regulatory strategies are typically regarded as having either distinctly positive or negative outcomes (Hughes et al., 2020; du Pont, 2019; Naragon-Gainey & Watson, 2016), but situational complexity often means there is much more nuance at work (Kobylińska & Kusev, 2019), and SC vulnerabilities provide a key element of this conversation. Hong (2013) identified several SC vulnerabilities as potentially playing an intermediate role between personality and psychopathology, but the most prominent effects were often seen in disorders where high emotionality was involved. Personality is often linked with affective-cognitive processes (Hong & Paunonen, 2011), but studies have mostly focused on these implications in broad-arching clinical symptoms (Hong, 2013), not on specific emotional regulation abilities or selections. The next step in this research vein is to focus on the means not only by which individuals manifest specific

types and levels of regulation, but also the means of influence on regulatory abilities, goals, and subsequent strategy selection.

Cognitive Strengths, Personality and Emotional Regulation

In addition to socio-cognitive vulnerabilities, another facet of cognitive patterns will be considered: cognitive strengths. Positive psychology has long posited that understanding the practical implications of how adaptive, flexible psychological states improve overall human well-being is vital (Bolier, 2013). Further, there have been additional indications that positive psychological traits can have impacts on emotional and social developmental issues (Fredrickson, 2001). Differentiating whether positive psychological patterns are mutually exclusive to negative cognitive patterns or simply must vie for available cognitive space has often been debated (An et al., 2017; Nikitin & Freund, 2009; Schimmack, 2001), but the implications of positively focused strengths is becoming increasingly clear: they have definitive and productive impacts on human functioning (Wood et al., 2011). While cognitive strengths improve overall human functioning and have shown links with some big five traits (i.e., agreeableness and consciousness; Chirico et al., 2021), the mechanisms by which these changes occur are still far from easily discerned (Shiota et al., 2006). Goals, predispositions, environmental patterns and social interactions all combine to affect the production and utility of positive cognitive patterns (Baggozzi, 1997).

Positive cognitive strengths and dispositions seem to show higher levels of differentiation in populations that appear emotionally well regulated and adaptive in action (Shiota et al., 2014), whereas negative dispositions often collapse into a single uniform negative affectivity (Watson & Clark, 1984). Even among the big five, the

majority of negative affectivity is expected to load onto neuroticism measures with the other four dimensions remaining as positive factors, but even these findings produce a need for further nuance (Barańczuk, 2019). The four "positive" big five dimension—openness, extraversion, agreeableness and conscientiousness—all have the ability to become pathologized and lead to maladaptive patterns of behavior (Oltmanns & Widiger, 2018). In these instances, the implications for individuals and ER ability remain similarly to above: to what degree can positive cognitive patterns and adaptable trait expressions be separated from their mutual influence? The debate surrounding whether positive cognitive frameworks are simply related to disposition, products of environment, active thought processes, or matters of attention continues (Fredrickson & Branigan, 2005). Understanding the impacts positive strengths hold for regulating emotions, improving adaptable patterns, and increasing overall flexible and adaptive responses leaves these cognitive strengths in a place of high research utility (Carl et al., 2013).

Perceptual States and Motivating Frameworks: Influences on Emotional Regulation

To understand the broader implications that dispositional, innate factors play as an interpretive structure, I will next compare the theoretical link between big five traits and SC vulnerabilities. To add this conceptual layer, a broader frame in which to view the influence of personality traits on environmental and affective reactions is to note personality as a motivated perceptual state (McCabe & Fleeson, 2015). While this thesis has reviewed the implications in which state-trait distinctions hold for personality research, there also is the means by which personality can be viewed as a relational, motivated and perceptual structure through which people understand and interact with their environment (Fleeson & Gallagher, 2009). While big five traits are considered more

statistically derived than theoretically derived (McCrae et al., 2011), the common theme

by which personality measures are understood theoretically is through these perceptual

frameworks (Malouff et al., 2005; McCabe & Fleeson, 2015). Such frames can often be

described as interacting in a dynamic system similar to the well-known construct of state-

trait distinctions, and the mechanism by which moment-to-moment cognitive frameworks

(SC vulnerabilities) and more cross-situational, motivated perceptions (big five traits)

interact is the larger-scale issue at hand.

　　While the trait distinction of emotional regulation has shown productive utility in

influencing momentary emotional experience (Maxwell et al., 2019), distinguishing

patterns of emotional regulation between moment-to-moment cognitive interpretations

and motivated dispositional structures remains of import. Specifically, cognitive

vulnerabilities may be a factor which determines the degree to which psychopathology

can be developed, but it may not be the underlying structure which predisposes

individuals to a particular pathology. This brings the discussion full circle to the present

study which seeks to differentiate the effects that SC vulnerabilities, cognitive strengths

and personality traits exert on emotional regulation ability and the extent to which these

effects account for variance in emotional regulation ability.

CHAPTER II

METHODS

The Present Study

Having reviewed the literature surrounding emotional regulation, big five personality traits, and cognitive styles, the focus will now shift to the current study: differentiating the effects of cognitive styles and big five personality traits on emotional regulation ability. Emotional regulation was defined as the mechanisms by which individuals choose to influence their emotional states, with two broad levels of regulation strategies falling under cognitive reappraisal and emotional suppression. While regulation strategies typically are viewed through adaptive or maladaptive lens (Barańczuk, 2019), the present study will seek to establish links between the three previously listed variables and to determine the influences on emotional regulation.

Specifically, the purposes of the study will be: 1) to replicate the link between big five personality traits and emotional regulation, 2) to replicate findings indicating cognitive vulnerabilities/strengths and emotional regulation connections, 3) to determine if there is a connection between big five personality traits and cognitive vulnerabilities/strengths, and 4) if a connection exists, to determine if big five personality traits alone account for effects on emotional regulation or whether social-cognitive vulnerabilities add an additional explanatory factor.

Predicted correlations are that low levels of neuroticism and high levels of extraversion, conscientiousness, agreeableness and openness will be significantly

correlated with more frequent usage of cognitive reappraisal and lower levels of emotional suppression. A positive correlation is predicted between the SC vulnerabilities of rumination, intolerance to uncertainty, fear of negative evaluation, and poor self-control, with negative correlations between these vulnerabilities and cognitive reappraisal. High neuroticism and low extraversion, conscientiousness, openness, agreeableness is expected to have a significant positive correlation to social-cognitive vulnerabilities. Additionally, cognitive strengths are expected to be positively correlated with cognitive reappraisal, extraversion, conscientiousness, openness and agreeableness with negatively correlated with neuroticism and expressive suppression Finally, big five personality traits are predicted to account for the majority of the variance when compared to socio-cognitive vulnerabilities in influencing an individual's emotional regulation.

Participants

Participants were recruited from various undergraduate psychology courses to complete a survey assessing emotional regulation strategies, big five personality traits, social-cognitive vulnerabilities and cognitive strengths. All undergraduates were offered extra credit opportunities by their respective professors for completing surveys. Participants were 84% female, 63% white, 21% Hispanic/Latino and had an average age of 19.4 years.

Assessment Instruments

SPSS was utilized to analyze data. Pearson correlations were run for all above predictions between variables, and a partial correlation was used to assess the relationship between emotional regulation strategies and big five personality traits while controlling for cognitive styles.

Emotional regulation was assessed using the Emotional Regulation Questionnaire (Gross & John, 2003). The Emotional Regulation Questionnaire (ERQ) measures an individual's ability to regulate emotions given two common emotional regulation techniques, cognitive reappraisal and emotional suppression. It is a 10-item scale that assesses two subscales of cognitive reappraisal (6 items) and emotional suppression (4 items). The ERQ is measured using a 1 to 7 Likert scale where the anchor points are 1 = Strongly Disagree and 7 = Strongly Agree. Some example items include "when I want to feel more positive emotion (such as joy or amusement), I change what I am thinking about" (cognitive reappraisal) and "I control my emotions by not expressing them" (emotional suppression). Cronbach's alpha for cognitive reappraisal (α = .89-90) and expressive suppression (α = .76-.80) is sufficient. High content validity and defined two-factor structure has been supported as well.

Big five personality traits were assessed using a shortened version of the Big 5 Inventory (Soto & John, 2017). The Big 5 measures an individual's dispositional personality traits along five separate dimensions—extraversion, neuroticism, openness, conscientiousness and agreeableness. This shortened version of the Big 5 Inventory contained 30 items and assessed the five subscales previously mentioned with 6 items assessing each trait. Big five traits are measured using a 1 to 5 Likert scale where 1 = Disagree Strongly and 5 = Agree Strongly. All items are meant to be read with the preface "*I am someone who*" followed by a brief descriptive statement which participants will be asked to indicate how strongly something is representative. Some sample items include "Tend to be quiet" (extraversion), "Is fascinated by art, literature or music" (openness), and "Is emotionally stable, not easily upset" (neuroticism). Average

Cronbach's alpha for all trait scales are sufficient (α = .77; range α = .73-.78). High content validity reported.

SC vulnerabilities were measured using a variety of scales all aimed at measuring one of three aspects of social-cognitive vulnerabilities—depression, anxiety, or self-control—as they have been commonly assessed and found psychometrically relevant to emotional regulation in extant literature (Hong, 2013). One scale is the Ruminative Response Style scale, derived from the Response Style Questionnaire (Treynor et al., 2003), which is a 10-item scale measuring how prone someone is to depressive thoughts regarding themselves and social interactions. This scale was measured on a 1 to 4 Likert where 1 = Almost Never and 4 = Almost Always. Some example items include "Think 'why do I always react this way?'" and "Think about a recent situation and how it could have gone better." Cronbach's alpha (α = .90), test-retest reliability (.69) and high criterion validity with the Beck Depression Inventory are present.

Two scales assessed an individual's social-cognitive vulnerabilities in regard to anxiety. The first scale is the Brief Fear of Negative Evaluation (BFNE) Scale (Leary, 2013), which is a measure designed to evaluate an individual's anxious cognitions during social interactions and events. The BFNE is a 12-item scale that is reported as a 1 to 5 Likert scale where 1 = Not at all characteristic of me and 5 = Extremely characteristic of me. Sample items include "I worry about what other people think of me even when I know it won't make a difference" and "I am afraid that people will find fault with me." Cronbach's alpha (α = .97) was high along with sufficient construct and criterion validity. A second scale assessing anxiety was the Intolerance of Uncertainty (IU) - Short Form scale (Carleton et al., 2007), which measures an individual's cognitive sensitivity in

regards to unknown outcomes. The 12-item IU scale is ranked on a 1 to 5 Likert scale where 1 = Not at all characteristic of me, and 5 = Entirely characteristic of me. Items such as "Unforeseen events affect me greatly" and "I can't stand being taken by surprise" appear on the scale. Cronbach's alpha (α = .94) was sufficient along with good convergent and discriminant validity with similar measures.

A scale measuring social-cognitive vulnerabilities regarding self-control was the Brief Self Control (BSC) Scale (Manapat et al., 2019), which is a measure designed to indicate an individual's ability to exert control over and interrupt behavioral responses. This 13 item BSC scale is ranked on a 1 to 5 Likert scale where individuals report to what extent a response reflects their behavior where 1 = Not at all and 5 = Very much. Sample items include "I am good at resisting temptation" and "I refuse things that are bad for me" (reverse coded). Cronbach's alpha (α = .89) was sufficient, along with strong construct and criterion validity.

Cognitive strengths were measured utilizing two separate positive cognitive style variables: gratitude and optimism. Gratitude was measured using the Gratitude Questionnaire (McCullough et al., 2002), which is a measure designed to indicate the positive cognitions and gratitude-oriented focus of individuals daily life. The 6-item GQ scale is ranked on a 1 to 6 Likert scale where individuals indicate their agreements with each item where 1 = Strongly Disagree and 6 = Strongly Agree. Sample items include "I have so much to be thankful for" and "I am grateful to a wide variety of people." Cronbach's alpha (α = .76-.84) was sufficient along with strong construct and criterion validity. An additional cognitive strength of optimism was assessed using a scale called the Life Orientation Scale (Scheier et al., 1994), which is designed to indicate an

individual's optimistic view in everyday life activities. This 10-item scale is ranked on a 1 to 5 Likert scale where individuals indicate their level of agreement with each item where 1 = I disagree a lot and 5 = I agree a lot. Sample items include "In uncertain times, I usually expect the best" and "If something can go wrong for me, it will" (reverse coded). Cronbach's alpha ($\alpha = .78$) was sufficient along with strong face and construct validity.

CHAPTER III

RESULTS

Descriptive Statistics

Descriptive statistics for all scales measuring emotional regulation strategies, big

five traits, social-cognitive vulnerabilities and cognitive strengths can be found in Table

1.

Table 1

Descriptive Statistics of Scales Measuring Emotional Regulation Strategies, Big Five

Traits, Social-Cognitive Vulnerabilities and Cognitive Strengths

	Mean	*SD*
Emotional Regulation Strategies		
Cognitive Reappraisal	29.69	6.17
Expressive Suppression	14.29	5.12
Big Five		
Openness	21.33	4.59
Conscientiousness	22.31	4.96
Extraversion	19.68	5.10
Agreeableness	23.68	4.20
Neuroticism	17.32	5.37
Cognitive Vulnerabilities		
Rumination	24.70	5.83
Fear of Negative Evaluation	36.54	8.05
Intolerance of Uncertainty	33.26	8.80
Self-Control	42.55	8.16
Cognitive Strengths		
Optimism (Life Orientation)	20.62	4.69
Gratitude	36.16	5.47

Emotional Regulation and Big Five Traits

The first of four initial goals in the study was to replicate links between big five traits and emotional regulation strategies as reported in a meta-analysis by Barańczuk (2019). The positive emotional regulation strategy of cognitive reappraisal was predicted to be negatively correlated with neuroticism and positively correlated with openness, conscientiousness, extraversion and agreeableness. Additionally, the negative emotional regulation strategy of expressive suppression was predicted to be positively correlated with neuroticism and negatively correlated with openness, conscientiousness, extraversion and agreeableness. The correlations between emotional regulation strategies and big five traits can be seen in Table 2. As can be seen in Table 2, a positive correlation between cognitive reappraisal and openness, conscientiousness, extraversion and agreeableness were demonstrated, as well as a negative correlation with neuroticism. Additionally, as seen in Table 2, a negative correlation between conscientiousness, extraversion and agreeableness and expressive suppression was demonstrated. Surprisingly, a link was not found for the traits neuroticism and openness.

Table 2

Summary of Correlations Between Emotional Regulation Strategies and Big Five Traits

	Emotional Regulation	
Big Five:	Cognitive Reappraisal	Expressive Suppression
1. Openness	.21**	.08
2. Conscientiousness	.26**	-.21*
3. Extraversion	.22*	-.24**
4. Agreeableness	.27**	-.17*
5. Neuroticism	-.20*	.04

*p < .05   **p < .01

Big Five Traits and Cognitive Vulnerabilities

A second goal of the current study was to demonstrate novel links between big five traits and cognitive vulnerabilities. The initial prediction was that neuroticism would be positively correlated with the social-cognitive vulnerabilities of ruminative style, fear of negative evaluation, intolerance of uncertainty and poor self-control. Additional predictions were that openness, conscientiousness, extraversion and agreeableness would be negatively correlated with rumination, fear of negative evaluation, intolerance of uncertainty and poor self-control. The summary of correlations between the big five traits and cognitive vulnerabilities can be seen in Table 3. Results were mixed, but several novel correlations did occur between the big five traits and the cognitive vulnerabilities. As can be seen in Table 3, a weak, negative correlation was found between rumination, conscientiousness, extraversion. A strong, positive correlation between rumination and neuroticism was established as well. Additionally, the fear of negative evaluation had a strong, positive relationship with neuroticism and a weak, positive correlation with agreeableness. The intolerance of uncertainty had a weak to moderate, negative relationship with conscientiousness and extraversion and a strong, positive relationship between neuroticism and intolerance of uncertainty. Self-control demonstrated the highest number of correlations: a strong, positive correlation with conscientiousness; a weak-to-moderate, negative correlation with neuroticism; and weak-to-moderate, positive correlations with agreeableness and extraversion.

Table 3

Summary of Correlations Between Big Five Traits and Cognitive Vulnerabilities

Big Five:	Rumination	Fear of Negative Evaluation	Intolerance of Uncertainty	Self-Control
1. Openness	.16	.06	.02	-.01
2. Conscientiousness	-.20*	.06	-.06	.58**
3. Extraversion	-.20*	.12	-.27**	.30**
4. Agreeableness	-.10	.21*	-.29**	.23*
5. Neuroticism	.50**	.50**	.52**	-.29**

*p < .05   **p < .001

Big Five and Cognitive Strengths

In addition to the predictions regarding cognitive vulnerabilities, cognitive strengths were assessed and compared to big five traits as well. Predictions were that the cognitive strengths of optimism and gratitude would be positively correlated with openness, conscientiousness, extraversion and agreeableness, whereas neuroticism would be negatively correlated. The summary of correlation between the big five traits and cognitive strengths can be seen in Table 4. As can be seen in Table 4, conscientiousness, extraversion, and agreeableness all had moderate to strong correlations to optimism. Optimism and neuroticism had a strong, negative correlation as well. Gratitude held weak to moderate positive correlations with openness, conscientiousness, extraversion and agreeableness. Finally, neuroticism had a strong, negative correlation with optimism and no significant relationship to gratitude.

Table 4

Summary of Correlations Between Big Five Traits and Cognitive Strengths

Big Five:	Optimism (Life Orientation)	Gratitude
1. Openness	.14	.18**
2. Conscientiousness	.25**	.38**
3. Extraversion	.33**	.22*
4. Agreeableness	.42**	.35**
5. Neuroticism	-.48**	-.05

p < .05   **p* < .01

Emotional Regulation and Cognitive Styles

A third aspect of the study was to replicate tentative links that have been established between cognitive patterns and emotional regulation strategies (i.e., cognitive reappraisal and expressive suppression). Predictions were that cognitive reappraisal would be negatively correlated and expressive suppression positively correlated with rumination, fear of negative evaluation, intolerance of uncertainty, and self-control. Additionally, optimism and gratitude were predicted to be positively correlated with cognitive reappraisal and negatively correlated with expressive suppression. The summary of correlations can be seen in Table 5. As can be seen in Table 5, there was, unexpectedly, no significant relationship between any cognitive vulnerabilities and cognitive reappraisal or expressive suppression. However, there were significant correlations between optimism and both emotional regulation strategies. Optimism was moderately, positively correlated with cognitive reappraisal and weakly, negatively correlated with expressive suppression. No relationship existed between gratitude and either emotional regulation strategy.

Table 5

Summary of Correlations Between Emotional Regulation Strategies and Cognitive

Vulnerabilities and Strengths

	Emotional Regulation	
	Cognitive Reappraisal	Expressive Suppression
Cognitive Vulnerabilities		
1. Rumination	-.08	.12
2. Fear of Negative Evaluation	-.01	.09
3. Intolerance of Uncertainty	-.14	.04
4. Self-Control	.14	-.15
Cognitive Strengths		
5. Optimism (Life Orientation)	.32**	-.19*
6. Gratitude	.15	-.14

*p < .05   **p<.001

Emotional Regulation, Big Five Traits and Cognitive Vulnerabilities

The fourth and final goal of the study was to determine whether big five traits still had a significant relationship with emotional regulation strategies when controlling for cognitive vulnerabilities. The prediction was that when cognitive vulnerabilities were controlled for the previous predicted correlations between big five and cognitive vulnerabilities would remain significant indicating big five traits accounted for the majority of variance in emotional regulation strategy selection. The result of the partial correlation can be seen in Table 6. While some results indicated in the table were significant, no link between emotional regulation and cognitive vulnerabilities was found and therefore the correlations indicated below are spurious.

Table 6

Partial Correlations Between Emotional Regulation Strategies and Big Five Traits

Controlling for Cognitive Vulnerabilities

	Emotional Regulation	
Big Five:	Cognitive Reappraisal	Expressive Suppression
1. Openness	.22**	.07
2. Conscientiousness	.21*	-.16
3. Extraversion	.16	-.21*
4. Agreeableness	.21*	-.18*
5. Neuroticism	-.16	-.06

*p < .05   **p < .001

Emotional Regulation, Big Five Traits, and Cognitive Strengths

In addition to an assessment of cognitive vulnerabilities, cognitive strengths were assessed in relationship to the big five and emotional regulation. A goal of this study was to assess the relationship of the big five traits with emotional regulation independently of cognitive vulnerabilities. However, no significant relationships were observed between cognitive vulnerabilities and emotional regulation, and yet, while cognitive strengths were not the focus of the study, a relationship was established between big five traits, emotional regulation, and cognitive strengths. Consequently, partial correlations were conducted to assess the relationship between emotional regulation strategies and big five traits while controlling for cognitive strengths. The partial correlation matrix can be seen in Table 7. As observed in Table 7, a weak, positive relationship was established between cognitive reappraisal, openness and conscientiousness when controlling for gratitude and optimism. Additionally, expressive suppression was weakly, negatively correlated with extraversion.

Table 7

Partial Correlations Between Emotional Regulation Strategies and Big Five Traits

Controlling for Cognitive Strengths (Optimism and Gratitude)

	Emotional Regulation	
Big Five:	Cognitive Reappraisal	Expressive Suppression
1. Openness	.17	.13
2. Conscientiousness	.19*	-.15
3. Extraversion	.13	-.18*
4. Agreeableness	.15	-.08
5. Neuroticism	-.05	-.05

*p < .05

CHAPTER IV

DISCUSSION

Emotional Regulation

Emotional regulation is the ability of an individual to regulate their emotional

states in the aim of various goals (Cisler et al., 2010; Eftekhari et al., 2009; Kobylińska &

Kusev, 2019). ER is functionally viewed as a conscious effort process by which

individuals choose to either redirect or control emotional states (Cisler et al., 2010).

While the relationship between ER and emotion has demonstrable connections, the exact

distinctions driven have debates towards core physiological/neurological processes

(Martin & Ochsner, 2016). Practically, the psychological relevance of ER has been

shown to impact daily adaptive and maladaptive patterns (Conklin et al., 2015).

Academic functioning (Merkebu, 2020), occupational success (Compas et al., 2013;

Eftekhari et al., 2009; Merkebu, 2020; Naragon-Gainey et al., 2018) and a psychological

flexibility mindset (Compas et al., 2013; Kobylińska & Kusev, 2019) all point to the

utility of defining certain ER strategies as being an adaptive psychology process, whereas

maladaptive ER strategies can lead to numerous negative outcomes and an overall

increased risk of psychopathology (Kashdan et al., 2006). In short, ER serves as a critical

focal point in determining how well individuals not only live their lives but continually

adapt to ever present external/internal stressors.

More generally, ER is important theoretically in its relationship to the production

of emotion, the valence of the emotion, and the perceptual and cognitive filters which

alter ER's emotional goals and subsequent strategy selection (Daniel et al., 2020;

Korpela, 2018). As previously discussed, ER strategies may be either adaptive or

maladaptive in their outcomes, but regardless of the strategy outcomes the theory

explored here are the relevant factors which come into individuals' decisions regarding

ER strategy selection. Specifically, the state-trait distinction that has been applied to

clinical concepts such as anxiety has been used in this study to understand how state-trait

factors influence ER. In particular, the big five personality traits (a trait influence;

Barańczuk, 2019), cognitive vulnerabilities (a state influence; Hong, 2013), and cognitive

strengths (a state influence; Wimberly, 2008) serve as the key influencing variables under

consideration. Fleshing out how these state-trait factors direct and influence an

individual's ER strategy selection is a tentative step in combing the clinical and

personality psychology literatures.

The Relevance of State-Trait Influence

Personality constructs and cognitive patterns have long been of interest in the

field of psychology but have only recently started to receive attention as mutually

influencing factors (Hong, 2013; Hong & Paunonen, 2011; Naragon-Gainey & Watson,

2016). Personality constructs not only describe affective-cognitive-behavioral patterns of

human interactions but also provide insight into the specific motivations and goals of

individuals' choices across time, making it a significant contributor to understanding ER

(Fleeson & Gallagher, 2009). On the other side remains the clinically oriented state-focus

on thought patterns that occur in the here and now and color one's perceptions of

emotional experiences (du Pont et al., 2019; Hankin et al., 2009). When these two factors

combine, there are two strong influences that could be contributing to the perception,

action, and goals set during ER regulation strategy selection. Regarding this study, ER is perceived as a tool that is influenced by these state-trait factors. Beginning to flesh out the nuances of this particular relationship is a step in understanding how one's disposition, emotions, and cognitive capacities interact to alter, direct and ultimately regulate one's emotional state.

Specifically, this study sought to focus on the particular issues of understanding two differing state-specific psychological functions: the cognitive vulnerabilities of rumination, poor self-control, intolerance of uncertainty and fear of negative evaluation, and the cognitive strengths of optimism and gratitude. These particular cognitive styles have been identified in the literature as holding implications not only for broad level psychological health and flexibility (Hong & Paunonen, 2011; Maxwell et al., 2019), but also for understanding the key links to how individuals choose to regulate their emotional states. Additionally, the trait-dependent features of the big five—neuroticism, openness, conscientiousness, extraversion and agreeableness—have also been shown to have key implications for understanding how individuals choose to regulate their emotions (Barańczuk, 2019). Both of these particular features of emotional regulation help to better illuminate the driving force behind what causes individuals to pivot between either utilizing emotional experiences in an adaptive, resilient fashion or in a suppressive, psychologically in flexible paradigm.

In overview, the study attempted to replicate previously found research and find novel connections between emotional regulation strategies, cognitive styles, and personality traits. The emotional regulation strategies considered were a documented positive emotional regulation strategy—cognitive reappraisal—and a negative emotional

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regulation strategy—expressive suppression. Brief examples of cognitive reappraisal are when individuals are able to actively change, reframe or redirect thoughts towards a more positive emotional experience, or direct their emotional arousal towards constructive responses. Expressive suppression is typically involved when individuals choose to actively suppress any outward emotional expression - whether positive or negative - in order to "cram down" and avoid the emotional reaction. Both of these ER strategies have been distilled as two key ingredients of understanding the conscious functions of ER, and have been utilized in studies across time (Alloy et al., 2012).

Participants in the study were undergraduates from a small, Christian university who responded to a survey with measures assessing each of the previously mentioned cognitive styles and personality traits along with measures for both ER strategies— cognitive reappraisal and expressive suppression. The predicted outcomes were that expressive suppression would correlate positively with all cognitive vulnerabilities as well as positively correlating with neuroticism. Additionally, cognitive reappraisal was predicted to be positively correlated with the cognitive strengths (gratitude and optimism) along with the remaining four personality traits (openness, extraversion, conscientiousness, and agreeableness). Previous studies have shown these four traits of the big five tend to load onto various positive ER strategies (Barańczuk, 2019). The final prediction was that whenever the influence of cognitive vulnerabilities was controlled for the correlations between personality traits and emotional regulation strategies would hold to demonstrate that personality traits exhibited a significant influence on ER strategy selection independent of cognitive style.

Overview of Results

As results indicate, the study's findings were not complete but provided a nuanced and unique picture. Correlations between ER strategies and personality traits were replicated and novel correlations between personality traits and cognitive styles (vulnerabilities and strengths) were demonstrated (see Tables 2, 3, and 4). The primary issue occurred in that cognitive vulnerabilities, contrary to predictions, did not show any significant relationship to personality traits (see Table 5). However, both of the positive cognitive styles of optimism and gratitude did demonstrate a significant relationship with nearly all personality traits (except for the relationship between gratitude and neuroticism and openness and optimism; see Table 4). Due to the failure of significant correlations to arise between cognitive vulnerabilities and personality traits the study was unable to examine the correlation between personality traits and ER strategies while controlling for cognitive vulnerabilities. The surprising find, while not an initial goal of the study, was that cognitive strengths, personality traits and ER strategies all had significant relationships. Again, while not the initial prediction, a partial correlation was run between ER strategies and big five traits controlling for cognitive strengths. The results of that analysis indicated that, while most correlations attenuated below significance, there were positive, weak correlations between cognitive reappraisal and openness/conscientiousness along with negative, weak correlations between expression suppression and extraversion that remained significant (see Table 7). These observations suggest that the relationship between ER and big five traits is not a clear distinction and may instead indicate traits and states "add up" to influence ER. Most correlations became significantly weaker after eliminating cognitive strengths, but the fact some significant relationships did remain

gives credence to the likelihood that personality traits do significantly impact ER. Personality may even act as a "base" on top of which cognitive styles are formulated, learned and changed in order to influence regulatory ability. The exact nuances remain to be explored, but the mutual contribution cognitive factors and dispositional traits have on each other indicates understanding the cross-section of these elements holds key theoretical and clinical impacts.

The original goal of the study was to determine the influence of personality and cognitive factors of ER strategy selection, and the results indicate a nuanced relationship. Specific implications, limitations and future directions will be discussed below, but readers will note three specifically surprising results:

- Personality traits had no relationship with cognitive vulnerabilities despite the suggestions of previous findings (Hong, 2013; Hong & Cheung, 2015; Hong & Paunonen, 2011; Maxwell et al., 2019).

- Optimism held significant, weak-to-moderate relationships with both ER strategies, and nearly all nearly all cognitive styles were correlated with the personality traits.

- Novel links were established between cognitive vulnerabilities and big five traits. Further implications for these findings will be discussed next.

Theoretical Implications

Differentiating cognitions, ER strategies and personality traits has become an increasingly hot area of research and debate as has been discussed (Barańczuk, 2019; Hong, 2013). Theoretical implications abound in regard to the exact mechanism of individuals ability to regulate their emotions, how much independent volition is involved

in ER generally, and the extent to which individual environments and personalities moderate these actions (Webb et al., 2012). Regardless, the implications for understanding the connections between socio-cognitive vulnerabilities and personality traits reveal that there are personality links to typical pathological symptology. Regarding the specific cognitive vulnerabilities in this section, understanding their connection to personality traits provides an avenue for integrating the research of clinical and personality psychology. Fleshing out the nuance contained within the personality/clinical dichotomy (reframed in this study as state-trait) holds important areas of research for both clinicians and personality research alike. As the field of psychology evolves to continue incorporating these psychometric, neurological and psychological sound variables will be of primary importance to the field of psychological research.

Clinical Implications

Findings of the current study indicate that the context of clinical factors could play a much larger role than many clinicians may have considered. Particularly, when considering client outcomes and treatment plans it may be helpful for clinicians to assess positive cognitive styles in addition to more commonplace negative emotionality measures (i.e., Beck Depression Inventory, Anxiety Inventory, MMPI). Understanding what strengths an individual holds in particular - especially in relation to their personality structure - may help clinicians better understand why certain strategies for regulating emotions work for some clients over other strategies. The goals may be the same—to effectively regulate emotions—but depending upon an individual's unique personality configuration, the exact mechanisms by which that goal is accomplished could be personalized to each individual client.

Limitations

Limitations of the study were of note in regard to a fairly homogeneous demographic population of participants (84% female, 63% white), clinical focus of cognitive vulnerabilities measures, and the self-report nature of the survey. Participants were a majority white, female respondents who, as a majority, endorsed relatively low levels of cognitive vulnerabilities with a high endorsement of cognitive strengths. Considering the clinical nature of the cognitive vulnerabilities (Hong, 2013), a likely well-adjusted, high-functioning college-age group may be prone to endorse less pathological symptology and more positive cognitive capacities. If the study predictions had been flipped, the nature of the cognitive strengths, personality traits and ER strategies could have been more properly investigated. Regardless, with a likely reliance on non-clinical populations considerations of participant-measure match would be an improvement in the study.

Self-report was also an issue in the study, as individuals did not have set experimental environments. Regulating environmental impacts was beyond the studies scope, but considering the nature of the state-trait distinctions on an individual's ability to regulate the state-specific environment settings of the participants could be reasonably assumed to alter testing reliability and validity. Additionally, as mentioned above the demographic homogeneity of individuals provides only a narrow lens in which to view the interactions of personality, cognitions and ER strategies. A more diverse sample size—demographically and clinically—could lead to great findings regarding these particularly nuanced interactions.

Future Directions

Investigating the role which personality traits and cognitive styles play on individuals ER ability will remain an important and nuanced conversation as the cognitive, clinical and personality fields of psychology begin to merge together. As these seemingly disparate studies of human phenomenon have become understood and analyzed on a physiological, neurological, psychological, emotional, cognitive and behavioral level the various levels of complexity have started to emerge in understanding the complete picture of individuals emotional regulation capacities (Martin, & Ochsner, 2016). While the MMPI and NEO have stood as giants in the field of personality research for decades, their ability to cross over into not only the therapeutic and clinical context but actually affecting the understanding of treatment for individuals is becoming increasing paramount to the field of psychology. Specifically, as research grows connecting personality and clinical literature it will become necessary to flesh out exactly the types and effects that personality traits have on an individual's abilities to regulate their emotions. While cognitive factors have been shown to be clear pathways of change and indicators of a psychologically flexible mindset (Korpela et al., 2018), the effect and framing these cognitions operate in regarding individual personality is an area of fruitful future research.

As clinical, personality and cognitive research moves towards understanding the core processes of human functioning, understanding emotional and motivational development and differentiation will become increasingly important to understanding the future of emotional and personality development. Expanding the research study into more ER strategies and dispositions—mindfulness, attentional bias, acceptance, etc.—all

provide additional layers of nuance to understanding the nature by which individuals

regulate emotions. Additionally, big five personality trait measures have been both

broken down into 10 subfactors or the 2 major factors (plasticity and stability), and 6-

dimensional personality measures have shown strong reliability and validity as well

(Ashton & Lee, 2008). Due to the findings of the current study regarding cognitive

strengths there is further nuance to understanding the mutual co-occurrence between

cognitive styles and personality dispositions. The state-trait influence of ER holds fruitful

areas of research for clinical, theoretical and experimental realms of psychology and

investigating these relationships will be critical to the integration of personality and

clinical research.

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APPENDIX A

Institutional Review Board Approval Letter

ABILENE CHRISTIAN UNIVERSITY
Educating Students for Christian Service and Leadership Throughout the World

Office of Research and Sponsored Programs
320 Hardin Administration Building, ACU Box 29103, Abilene, Texas 79699-9103
325-674-2885

January 4, 2021

Levi Draper
Department of Psychology
ACU P.O. Box 28011
Abilene Christian University

Dear Levi,

On behalf of the Institutional Review Board, I am pleased to inform you that your project titled
"Emotional Regulation, Big 5 Personality Traits, and Social-Cognitive Vulnerabilities",

(IRB# 20-207   )is exempt from review under Federal Policy for the Protection of Human Subjects.

If at any time the details of this project change, please resubmit to the IRB so the committee can determine
whether or not the exempt status is still applicable.

I wish you well with your work.

Sincerely,

Megan Roth

Megan Roth, Ph.D.
Director of Research and Sponsored Programs

Our Promise: ACU is a vibrant, innovative, Christ-centered community that engages students in authentic spiritual and intellectual growth, equipping them to make a real difference in the world.

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APPENDIX B

Emotional Regulation Questionnaire

Instructions and Items:

We would like to ask you some questions about your emotional life, in particular, how you control (that is, regulate and manage) your emotions. The questions below involve two distinct aspects of your emotional life. One is your <u>emotional experience</u>, or what you feel like inside. The other is your <u>emotional expression</u>, or how you show your emotions in the way you talk, gesture, or behave. Although some of the following questions may seem similar to one another, they differ in important ways. For each item, please answer using the following scale:

1	2	3	4	5	6	7
strongly disagree			neutral			strongly agree

1. _____ When I want to feel more *positive* emotion (such as joy or amusement), I *change what I'm thinking about*.

2. _____ I keep my emotions to myself.

3. _____ When I want to feel less *negative* emotion (such as sadness or anger), I *change what I'm thinking about*.

4. _____ When I am feeling *positive* emotions, I am careful not to express them.

5. _____ When I'm faced with a stressful situation, I make myself *think about it* in a way that helps me stay calm.

6. _____ I control my emotions by *not expressing them*.

7. _____ When I want to feel more *positive* emotion, I *change the way I'm thinking* about the situation.

8. _____ I control my emotions by *changing the way I think* about the situation I'm in.

9. _____ When I am feeling *negative* emotions, I make sure not to express them.

10. _____ When I want to feel less *negative* emotion, I *change the way I'm thinking* about the situation.

Scoring:

Items 1, 3, 5, 7, 8, 10 make up the Cognitive Reappraisal facet.
Items 2, 4, 6, 9 make up the Expressive Suppression facet.

Scoring is kept continuous.
Each facet's scoring is kept separate.

APPENDIX C

Big Five Scale - 30 Items

The Big Five Inventory–2 Short Form (BFI-2-S)

Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who *likes to spend time with others?* Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement.

1	2	3	4	5
Disagree strongly	Disagree a little	Neutral; no opinion	Agree a little	Agree strongly

I am someone who...

1. ___ Tends to be quiet.
2. ___ Is compassionate, has a soft heart.
3. ___ Tends to be disorganized.
4. ___ Worries a lot.
5. ___ Is fascinated by art, music, or literature.
6. ___ Is dominant, acts as a leader.
7. ___ Is sometimes rude to others.
8. ___ Has difficulty getting started on tasks.
9. ___ Tends to feel depressed, blue.
10. ___ Has little interest in abstract ideas.
11. ___ Is full of energy.
12. ___ Assumes the best about people.
13. ___ Is reliable, can always be counted on.
14. ___ Is emotionally stable, not easily upset.
15. ___ Is original, comes up with new ideas.

16. ___ Is outgoing, sociable.
17. ___ Can be cold and uncaring.
18. ___ Keeps things neat and tidy.
19. ___ Is relaxed, handles stress well.
20. ___ Has few artistic interests.
21. ___ Prefers to have others take charge.
22. ___ Is respectful, treats others with respect.
23. ___ Is persistent, works until the task is finished.
24. ___ Feels secure, comfortable with self.
25. ___ Is complex, a deep thinker.
26. ___ Is less active than other people.
27. ___ Tends to find fault with others.
28. ___ Can be somewhat careless.
29. ___ Is temperamental, gets emotional easily.
30. ___ Has little creativity.

Please check: Did you write a number in front of each statement?
BFI-2 items copyright 2015 by Oliver P. John and Christopher J. Soto.

Scoring Key

Item numbers for scoring the BFI-2-S domain and facet scales are listed below. Reverse-keyed items are denoted by "R." Due to the limited reliability of the two-item facet scales, we only recommend using them in samples with approximately 400 or more observations. For more information about the BFI-2, visit the Colby Personality Lab website (http://www.colby.edu/psych/personality-lab/).

Domain Scales
Extraversion: 1R, 6, 11, 16, 21R, 26R
Agreeableness: 2, 7R, 12, 17R, 22, 27R
Conscientiousness: 3R, 8R, 13, 18, 23, 28R
Negative Emotionality: 4, 9, 14R, 19R, 24R, 29
Open-Mindedness: 5, 10R, 15, 20R, 25, 30R

APPENDIX D

Ruminative Response Style Scale (Short-Form)

Rumination Scale

People think and do many different things when they feel depressed. Please read each of the items below and indicate whether you almost never, sometimes, often, or almost always think or do each one when you feel down, sad, or depressed. Please indicate what you *generally* do, not what you think you should do.

1 almost never   2 sometimes   3 often   4 almost always

1. think about how alone you feel
2. think "I won't be able to do my job if I don't snap out of this"
3. think about your feelings of fatigue and achiness
4. think about how hard it is to concentrate
5. think "What am I doing to deserve this?"
6. think about how passive and unmotivated you feel.
7. analyze recent events to try to understand why you are depressed
8. think about how you don't seem to feel anything anymore
9. think "Why can't I get going?"
10. think "Why do I always react this way?"
11. go away by yourself and think about why you feel this way
12. write down what you are thinking about and analyze it
13. think about a recent situation, wishing it had gone better
14. think "I won't be able to concentrate if I keep feeling this way."
15. think "Why do I have problems other people don't have?"
16. think "Why can't I handle things better?"
17. think about how sad you feel.
18. think about all your shortcomings, failings, faults, mistakes
19. think about how you don't feel up to doing anything
20. analyze your personality to try to understand why you are depressed
21.go someplace alone to think about your feelings
22. think about how angry you are with yourself

Items # 5, 7, 10, 11, 12, 13, 15, 16, 20, 21 were utilized in a short-form version of the

"Rumination Scale." See (Treynor et al., 2003) article for reference.

APPENDIX E

Brief Fear of Negative Evaluation Scale

Brief Fear of Negative Evaluation Scale
Leary (1983)

Read each of the following statements carefully and indicate how characteristic it is of you according to the following scale:

1 = Not at all characteristic of me
2 = Slightly characteristic of me
3 = Moderately characteristic of me
4 = Very characteristic of me
5 = Extremely characteristic of me

_____ 1. I worry about what other people will think of me even when I know it doesn't make any difference.

_____ 2. I am unconcerned even if I know people are forming an unfavorable impression of me.

_____ 3. I am frequently afraid of other people noticing my shortcomings.

_____ 4. I rarely worry about what kind of impression I am making on someone.

_____ 5. I am afraid others will not approve of me.

_____ 6. I am afraid that people will find fault with me.

_____ 7. Other people's opinions of me do not bother me.

_____ 8. When I am talking to someone, I worry about what they may be thinking about me.

_____ 9. I am usually worried about what kind of impression I make.

_____ 10. If I know someone is judging me, it has little effect on me.

_____ 11. Sometimes I think I am too concerned with what other people think of me.

_____ 12. I often worry that I will say or do the wrong things.

From: Leary, M. R. (1983). A brief version of the Fear of Negative Evaluation Scale. *Personality and Social Psychology Bulletin, 9*, 371-376.

APPENDIX F

Intolerance of Uncertainty Scale

Intolerance of Uncertainty Scale - Short Form

(Carleton, Norton, & Asmundson, 2007)

Please circle the number that best corresponds to how much you agree with eac_

	Not at all characteristic of me	A little characteristic of me	Somewhat characteristic of me	Very characteristic of me	Entirely characteristic of me
1. Unforeseen events upset me greatly.	1	2	3	4	5
2. It frustrates me not having all the information I need.	1	2	3	4	5
3. Uncertainty keeps me from living a full life.	1	2	3	4	5
4. One should always look ahead so as to avoid surprises.	1	2	3	4	5
5. A small unforeseen event can spoil everything, even with the best of planning.	1	2	3	4	5
6. When it's time to act, uncertainty paralyses me.	1	2	3	4	5
7. When I am uncertain I can't function very well.	1	2	3	4	5
8. I always want to know what the future has in store for me.	1	2	3	4	5
9. I can't stand being taken by surprise.	1	2	3	4	5
10. The smallest doubt can stop me from acting.	1	2	3	4	5
11. I should be able to organize everything in advance.	1	2	3	4	5
12. I must get away from all uncertain situations.	1	2	3	4	5

Score:_____

Brief Self-Control Scale

Brief Self-Control Scale items   —

01   I am good at resisting temptation.

02*   I have a hard time breaking bad habits.

03*   I am lazy.

04*   I say inappropriate things.

05*   I do certain things that are bad for me, if they are fun.

06*   I wish I had more self-discipline.

07*   Pleasure and fun sometimes keep me from getting work done.

08*   I have trouble concentrating.

09   I am able to work effectively toward long-term goals.

10*   Sometimes I can't stop myself from doing something, even if
        I know it is wrong.

11*   I often act without thinking through all the alternatives.

12   I refuse things that are bad for me.

13   People would say that I have iron self-discipline.

* Indicates Reverse-Coded Items (Poor Self-Control)

Life Orientation (Optimism) Scale

Scale:

Please be as honest and accurate as you can throughout. Try not to let your response to one statement influence your responses to other statements. There are no "correct" or "incorrect" answers. Answer according to your own feelings, rather than how you think "most people" would answer.

A = I agree a lot
B = I agree a little
C = I neither agree nor disagree
D = I disagree a little
E = I disagree a lot

1. In uncertain times, I usually expect the best.
2. It's easy for me to relax.
3. If something can go wrong for me, it will. (R)
4. I'm always optimistic about my future.
5. I enjoy my friends a lot.
6. It's important for me to keep busy.
7. I hardly ever expect things to go my way. (R)
8. I don't get upset too easily.
9. I rarely count on good things happening to me. (R)
10. Overall, I expect more good things to happen to me than bad.

Scoring:

Items 3, 7, and 9 are reverse scored (or scored separately as a pessimism measure). Items 2, 5, 6, and 8 are fillers and should not be scored. Scoring is kept continuous – there is no benchmark for being an optimist/pessimist.

APPENDIX I

Gratitude Questionnaire - Six Item Form (GQ-6)

Using the scale below as a guide, write a number beside each statement to indicate how much you agree with it.

1 = strongly disagree
2 = disagree
3 = slightly disagree
4 = neutral
5 = slightly agree
6 = agree
7 = strongly agree

____1. I have so much in life to be thankful for.

____2. If I had to list everything that I felt grateful for, it would be a very long list.

____3. When I look at the world, I don't see much to be grateful for.*

____4. I am grateful to a wide variety of people.

____5. As I get older I find myself more able to appreciate the people, events, and situations that have been part of my life history.

____6. Long amounts of time can go by before I feel grateful to something or someone.*

*Items 3 and 6 are reverse-scored.