What Do We Do Now? Examining Changes in Coping Strategies Among College Students Enrolled in a Wellness and Resilience Course Following the Onset of a Global Pandemic

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Abstract

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College students face many stressors and are at-risk of poor mental health and wellness outcomes. The global COVID-19 pandemic, increasing prevalence of childhood adverse experiences, and engagement in health-risk behaviors have amplified these concerns. Students need access to supports to cope with stress, regulate emotions, and help them to "bounce back" from these stressors now more than ever. This study investigated the outcomes of a 10-week skills-based wellness and resilience undergraduate course. Amid the onset of a global pandemic, this study examined change in emotion dysregulation, psychological capital, and health-risk behaviors from the beginning to the end of Spring quarter 2020 for students enrolled in this course. Results indicated significant improvements in psychological capital from pre to post intervention, suggesting efficacy for universal interventions targeting resilience skills. Implications of these findings, limitations, and directions for research are discussed.

Keywords: Resilience, wellness, emotion regulation, psychological capital, high risk behavior, higher education, college students, university students, universal mental health

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Chapter I: Introduction

The College Experience

College is a unique time in development when students learn new social and academic skills and are exposed to new ways of living through interactions with peers and faculty (Khrapatina et al., 2016). It is an opportunity for students to broaden social supports beyond their family systems, and acquire resources that increase their capacity to bounce back from challenging situations (Arnett, 2019; Okwori, 2021). It is a time in which students increase autonomy, responsibility, agency, and skills in both academic and personal pursuits (Conley et al., 2015).

Graduation from college has become increasingly important for young adults to unlock opportunities to earn higher wages and break cycles of intergenerational poverty (Arnett, 2019). Many benefits and positive outcomes are associated with obtaining a degree in higher education including increases in healthy lifestyles, opportunities to engage in fulfilling work, improved working conditions, and higher income (Bauldry, 2014; Mirowski et al., 2003). Obtaining a college education positively impacts vocational opportunities and serves as a bridge to economic and social mobility in adulthood (Hinojosa et al., 2019).

For some students, the college experience can present many stressors that can negatively impact functioning such as financial insecurity, academic and career pressures, loneliness, substance use, and interpersonal conflict, (Aselton, 2012; Conley, Travers et al., 2013; Hartley, 2010; Rosenthal & Wilson, 2008). College can be a very stressful experience (Brogden & Gregory, 2019) and financial stressors are common with nearly two-thirds of students reporting concerns over how to pay for their tuition (Eagan et al., 2014). Adding to the typical stressors of

academic life, college students experience significant changes in eating and sleeping patterns, increased responsibilities, and significant social changes (Ross et al., 1999).

College students face many challenges in pursuit of their academic success and these challenges are complicated by adverse childhood experiences and traumatic events (Brogden & Gregory, 2019; Hinojosa et al., 2019). Studies have found between 53-64% of students arrive to college with significant histories of childhood adversity, that negatively impact their social and academic functioning in college (Windle et al., 2018). Traumatic events are common among college students and studies have found 50% of students reported a traumatic event in their first year of college (Grasso et al., 2012) and 48% reported one or more traumatic events in the previous year (Brogden & Gregory, 2019). For students who experienced adversity within the context of their family structure, college is an important opportunity to broaden social supports and resources beyond their family systems (Okwori, 2021). Students with adverse childhood experiences (ACEs) have an increased risk of college dropout (Brogden & Gregory, 2019; Duncan, 2000) and unemployment (Liu et al., 2013). In addition, symptoms of depression, poor health, and family issues significantly predict barriers to academic success among college students (Hinojosa et al., 2019).

Given the challenges facing college students today, it is critical to develop effective coping strategies to overcome stressors and to avoid the downward spiral of ineffective coping responses, increased stressors, and poor mental health outcomes (Conley, Durlak et al., 2013; Conley, Travers et al., 2013; Gan et al., 2007; Hartley, 2010; Lam et al., 2007). This downward spiral, reinforced through learned helplessness and low self-efficacy, is especially concerning for students with low psychological wellbeing, an outcome that has become increasingly more common in college students (Auerbach et al., 2016; Fresco et al., 2006; Seligman, 2011).

Psychological Wellbeing Among College Students

The transition to college, traditionally occurring between adolescence and adulthood, is associated with significant decreases in mental health and wellness (Blanco et al., 2008; Kessler et al., 2005, 2007). Initial onset for the majority of mental health disorders occurs between the late teens and early 20's (Kessler et al., 2007). Many researchers have raised concerns regarding increased rates of mental health disorders in children, adolescents, and young adults in recent years (Auerbach et al., 2018; Kessler et al., 2008). Long before the pandemic, researchers noted significant increases in student stress, psychological distress (Robotham, 2008; von Keyserlingk et al., 2021), depression, anxiety, and suicidal behaviors among college students (Duffy et al., 2019; Winzer et al., 2014). Apart from the obvious negative health outcomes, these increases are particularly concerning given their impact on academic problems, student drop out, and academic failure (Mahmoud et al., 2012; Struthers et al., 2000).

Point prevalence of meeting diagnostic criteria for one or more mental health disorders is estimated at 20% among children in the US, and 31% among college students worldwide (Auerbach et al., 2018; Kessler et al., 2008). Auerbach and colleagues (2016) found a 20% prevalence rate of one or more mental health disorders within the past 12 months among a sample of 1,572 college students in 21 countries. Their study found 83% of students with disorders reported having received a diagnosis before entering college. In a subsequent study, Among a sample of 13,984 full-time college students across 8 countries, Auerbach and colleagues (2018) found 31% screened positive for at least one mental health disorder within the past 12 months.

Prevalence rates of depression have been reported as high as 30% among college students (Ibrahim et al., 2013). Depression among this population is associated with many negative

outcomes including problems with academics (Shim et al., 2019), physical, mental, and social wellbeing (Hersi et al., 2017), non-suicidal self-injurious behavior (King et al., 2015), and dropout rates (Eisenberg et al., 2009). During adolescence, suicidal thoughts and behaviors increase significantly (Mortier et al. 2018; Schwartz, 2006). Lifetime prevalence has been found to be as high as 53% for suicidal ideation, and 11.2% for suicide attempts (Mortier et al., 2018). Suicide remains the second leading cause of death among college students and universities face increasing pressures and responsibilities to prevent suicide among their students (Mortier et al. 2017; Schwartz, 2006).

High Risk Behaviors

With increases in independence in the college years comes additional opportunities for students to engage in risky behaviors (Schafer, 2021). This period is associated with increases in risky behaviors and these behaviors can be negatively impacted by a history of adverse childhood experiences (ACEs) (Huang, Yang et al., 2021). The developmental cascade model of ACEs states that downstream from the "cascade" of adversity often comes the development of ineffective coping and/or risky health behaviors, which lead downstream to poor health outcomes (Kendall-Tackett, 2002). Aligned with this model, college students may engage in risky behaviors in an effort to cope (often ineffectively) with the stressors of both the college experience and previous adverse experiences (Schafer, 2021). Alcohol may be used to dull, escape, or avoid difficult emotions, and risky sexual behaviors to cope with emotional turmoil, toxic stress, or childhood trauma (Schafer, 2021). This is further illustrated by increased risk of substance use behaviors and disorders among college students as compared to young adults who do not attend school (Blanco et al., 2008).

Ineffective coping strategies have been correlated with many risk factors including suicidal behaviors, and some colleges have turned to prevention programs to teach effective use of evidence-based coping skills (Abdollahi & Carlbring, 2017; DeCano, 2018; Edwards & Holden, 2001; Zhang et al., 2012). Given the stressors, age of onset and prevalence of mental health disorders, increased risks for students with a history of ACEs, and poor outcomes associated with ineffective coping, there have been increasing expectations for colleges to intervene and support students in learning effective coping strategies to prevent poor wellness outcomes among students (Auerbach et al., 2016; Conley et al., 2015; Schwartz, 2006).

The COVID-19 Pandemic

On March 10th, 2020 the World Health Association officially declared COVID-19 a global pandemic (WHO, 2020). The onset of the COVID-19 pandemic was followed by abrupt and rapid changes in daily life and many college students were forced to adapt to a new version of university life as academic responsibilities continued (Ihm et al., 2021; von Keyserlingk et al., 2021). Students' social lives drastically changed with state mandated stay-at-home orders and restrictions on social activities limited existing resources and social gatherings (von Keyserlingk et al., 2021). In an effort to reduce the spread of the COVID-19 virus, universities limited and suspended resources such as campuses, student housing, dormatories, cultural centers, gyms, and campus services such as libraries, and study spaces (Ehmke et al., 2022; von Keyserlingk et al., 2021). In a sample of 2,229 agricultural college students in the US, 6% reported housing insecurity and 9% reported food insecurity during the Spring semester of 2020 (Ehmke et al., 2022). Many of the industries that employ college students including food service and retail were greatly affected by the pandemic negatively impacting student's income (Ihm et al., 2021). Economic crisis following the COVID-19 lockdowns increased student concerns about future

vocational opportunities and financial stability (Rogowska et al., 2022). In a sample of 2,349 university students across 9 countries, a majority of students indicated that the pandemic had negative impacts on their economic status, social relationships, and vocational qualifications (Rogowska et al., 2021).

In general, transitions are stressful for adolescents and young adults (Taylor et al., 2014), and the transition to life and education within a global pandemic was especially stressful for students (von Keyserlingk et al., 2021). In addition, the pandemic occurred under the backdrop of significant racial tensions including demonstrations regarding the shooting of George Floyd, pandemic-related hate crimes (Ihm et al., 2021), as well as increases in microaggressions and discrimination against students of Asian descent (Hahm et al., 2021; Maleku et al., 2021). Students faced many stressors during the pandemic, and to adapt to their circumstances, many were forced to take on additional responsibilities leaving less time for their studies (von Keyserlingk et al., 2021). In a longitudinal study among 274 college students, von Keyserlingk and colleagues (2021) found increases from February to June of 2020 in student rated stress related to coursework ($\chi^2 = 12.4$, $p < 0.01$), study/life balance ($\chi^2 = 12.3$, $p < 0.01$), and procrastination ($\chi^2 = 13.1$, $p < 0.01$). Additionally, students with greater stress related to study/life balance pre-pandemic reported significantly greater stress related to study/life balance at the beginning ($\beta = 0.38$, $SE = 0.06$, $p < 0.05$), middle ($\beta = 0.40$, $SE = 0.06$, $p < 0.05$), and end ($\beta = 0.34$, $SE = 0.06$, $p < 0.05$) of the Spring quarter in 2020 (von Keyserlingk et al., 2021). It is not surprising that with the pandemic came increased concerns among researchers with regard to student mental health (Ehmke et al., 2022).

Students in particular have experienced significant negative psychological outcomes during the pandemic (Morales-Rodriguez et al., 2021). Since the start of the pandemic

researchers have noted increases in student stress and anxiety (Charles et al., 2021; Son et al., 2020; Wang et al., 2020), as well as decreases in wellbeing (Sibley et al., 2020). Throughout the pandemic, health providers and students reported increases in student levels of depression, anxiety, and suicidal thoughts (Amendola et al., 2021; Guintella et al., 2021; Holman et al., 2020; Rudenstine et al., 2021). Many studies have noted significant reductions in wellness indicators including subjective wellbeing, quality of life, life satisfaction, distress, loneliness, sleep, and psychological symptoms (Rogowska et al., 2022). Ehmke and colleagues (2022) noted that among college students, mental health and life satisfaction were negatively impacted by a lack of personal and environmental resiliency resources. Schad and colleagues (2022) reported racial disparities among medical students with regard to mental health outcomes from the fall semester of 2019 to the fall semester of 2020. Students who identified as belonging to historically excluded racial and ethnic groups experienced significantly greater levels of anxiety, depression, and suicidal ideation as compared to non-historically excluded (caucasian) groups (Schad et al., 2022). In addition, student worries about contracting the COVID-19 virus, social isolation, and loneliness negatively impacted psychological health (Ihm et al., 2021).

Given the significant and negative impact of the pandemic on student wellness, academic, and social outcomes, many researchers are calling for action to support student wellness (Ehmke et al., 2022; Ihm et al., 2021; Rogowska et al., 2022). Coping strategies that downregulate intense negative emotions and challenge negative thought patterns are especially crucial for increasing positive student outcomes related to the pandemic (Rogowska et al., 2022). Universities and students alike may benefit from multi-tiered supports driven by policy to provide services, resources, supports, and intervention during and following the COVID-19 pandemic (Ehmke et al., 2022).

Chapter II: Literature Review

Emotion

American philosopher and psychologist William James (1884; 1894) stated that emotions are adaptive tendencies to respond behaviorally and physiologically to situations that hold evolutionary significance, and individuals may or may not overtly express these tendencies. More recently, Gross (2014) stated emotions are whole-body, multifaceted phenomena that involve changes in subjective experience, behavior, and physiology through a process of evaluating a situation within the context of a particular goal.

With many alternative definitions, it is important to note the subtleties of the terminology most frequently used within the field of affect research. Emotions differ from feelings in that they motivate action in facial expression, body posture, and goal-directed behavior (Gross, 2014). Emotions arise both in the presence and absence of stressors and within everyday situations and experiences (Compas et al., 2017). Gross (1998) describes emotion as part of the overarching construct of affect, which consists of emotions (fluctuating emotional states), emotion episodes (stressors), moods (lasting emotional states), dispositional states, and personality traits. Affect regulation is any effort or action meant to influence a hedonic response (seeking pleasurable or avoiding aversive affective states) including coping, mood regulation, defenses, and emotion regulation (Gross, 2014). Coping is affect regulation that occurs following a stressor, whereas mood regulation alters longer duration emotions that are less influenced by behavior and context, and defenses are forms of unconsciously occurring affect regulation (Gross, 1998; 2014).

Problematic Aspects of Emotion

Gross & Jazaieri (2014) describe four problematic aspects of emotions that are directly related to psychopathology as defined by the Diagnostic and Statistical Manual of Mental Disorders 5th edition (DSM-5) (American Psychiatric Association, 2013). They state that emotions can be problematic with regard to emotional intensity, duration, frequency, and type. For example, specific phobias indicate problems with intensity and duration of fear, whereas schizophrenia may indicate problematic frequency and type of emotions such as fear related to delusions (Gross & Jazaieri, 2014).

Emotion Regulation

The term emotion regulation has many definitions with no clear consensus across authors (Compas et al., 2017). Naragon-Gainey and colleagues (2017) describe emotion regulation as any action performed with a goal of influencing emotions. Gross (1998) defines emotion regulation as the process of influencing when, how, and which emotions are experienced and expressed. The above definitions assume emotions are first generated and then an action or process is applied to regulate them (Tamir, 2011), yet some claim that emotions are inherently regulated and therefore are never present without some form of emotion regulation (Campos et al., 2004; Campos et al., 2011; Kappas, 2011). Regardless of stance on the distinction between these two terms, the study of emotion regulation remains of importance within the field (Thompson, 2011).

Concerns with Emotion Regulation

Howells (2018) describes several common emotion regulation concerns including thoughts as well as behaviors which are often interrelated. Children and adolescents with emotion dysregulation often negatively appraise emotional expression with thoughts such as

"crying shows weakness." They often adopt core beliefs that their emotions are not manageable despite their efforts, and that others including caregivers do not provide consistent, predictable, safe, and adequate care. These thoughts and beliefs may interfere with the ability to implement effective emotion regulation strategies. Behaviors such as self-harm, substance use, and risk taking are commonly applied by adolescents in attempt to manage intense emotions. Although these behaviors may be effective in short-term management, they often present long-term problems and lead to cycles of emotion dysregulation. These cycles often are reinforced by either avoidant or superficial interpersonal patterns, and controlling, clinging, or threatening behaviors. Cycles often result in interpersonal difficulties and social consequences can limit opportunities to develop more effective emotion regulation strategies in the future (Howells, 2018).

Problematic Aspects of Emotion Regulation

Gross & Jazaieri (2014) present three problems with emotion regulation including problems with awareness, goals, and skills. In the area of awareness, both hyperawareness and lack of emotional awareness can present problems with regard to emotion regulation. Panic disorder indicates a hyperawareness of anxiety causing panic attacks, whereas bulimia nervosa may indicate a hypoawareness of emotion impacting one's ability to effectively engage in adaptive emotion regulation strategies (American Psychiatric Association, 2013). Difficulty evaluating the short-term and long-term consequences of emotion regulation within the context of competing goals can be problematic for attaining goals. Bipolar disorder, for example, may impair the ability to downregulate positive pleasurable emotions to achieve long-term goals during manic episodes. Finally, selecting an ineffective emotion regulation strategy or ineffectively engaging in a well-selected strategy can present problems with emotion regulation. For example, agoraphobia indicates the overuse of avoidance of situation selection, and

attention-deficit/hyperactivity disorder may impair one's ability to effectively implement strategies as a result of inattention (Gross & Jazaieri, 2014).

Strategies and Psychopathology

Aldao and colleagues (2010) conducted a meta-analytic study which investigated the relationship of six emotion regulation strategies and symptoms of anxiety, depression, eating, and substance-related disorders. This meta-analysis of 114 studies included 241 effect sizes that were calculated into the same metric (*r*) for comparisons across studies. The total number of effect sizes that were included in each calculation was reported as *k*, and values less than 5 were considered as approximations as described by Hedges & Vevea (1998). Effect sizes of 0.10 were considered small, 0.25 medium, and 0.40 large as outlined by Cohen (1998). Several strategies were positively associated with psychopathology across all disorders including avoidance (*r*= 0.38, *k* = 37), rumination (*r* = 0.49, *k* = 89), and emotion suppression (*r* = 0.34, *k* =51). Other strategies were negatively associated with psychopathology including problem solving (*r* = -0.31, *k* = 42), and reappraisal (*r* = -0.14, *k* = 15). Acceptance was not significantly associated with psychopathology across disorders.

Several emotion regulation strategies were significantly and positively or negatively associated with specific disorders (Aldao et al., 2010). Avoidance was positively associated with anxiety (*r* = 0.37, *k* =13), depression (*r* = 0.48, *k* = 16), and eating disorders (*r* = 0.18, *k* = 7). Rumination was positively associated with anxiety (*r* = 042., *k* = 23), depression (*r* = 0.55, *k* = 56), eating disorders (*r* = 0.26, *k* = 3), and substance-related disorders (*r* = 0.21, *k* = 7). Suppression was positively associated with anxiety (*r* = 0.29, *k* = 19), depression (*r* = 0.36, *k* = 26), and eating disorders (*r* = 0.36, *k* = 6). Problem solving was negatively associated with anxiety (*r* = -0.27, *k* = 14), depression (*r* = -0.33, *k* = 26), and eating disorders (*r* = -0.29, *k* = 2).

Reappraisal was also negatively associated with anxiety (r = -0.13, k = 5) and depression (r = -0.20, k = 4). All of the significant associations between strategies and symptoms were in the predicted direction with negative associations for strategies labeled as adaptive and positive associations for strategies labeled maladaptive (Aldao et al., 2010). These results provide support for the relationship between emotion regulation strategies, negative wellness indicators and symptoms of mental health diagnoses.

Compas and colleagues (2017) conducted a meta-analysis of 212 studies and 80,850 participants investigating the association between the domains, factors, and strategies for coping and emotion regulation with symptoms of psychopathology in children and adolescents. The authors grouped over 400 coping strategies identified by Skinner and colleagues (2003) into 12 categories of coping and emotion regulation strategies and investigated the relationship between these strategies and internalizing and externalizing symptoms of psychopathology. The authors set a threshold for a minimum number of studies to calculate effect sizes for cross-sectional studies (k = 5) and longitudinal studies (k = 3) and k represented the number of studies. Eight effect sizes were calculated for cross-sectional studies and four effect sizes for longitudinal studies. The results of cross-sectional studies indicated significant ($p < 0.05$) and positive associations with internalizing symptoms and emotional suppression (r = 0.13, k = 10) and denial (r = 0.10, k = 12). In addition, avoidance was significantly ($p < 0.05$) and positively associated with internalizing (r = 0.17, k = 65) and externalizing symptoms (r = 0.09, k = 32). In longitudinal studies (k = 17) avoidance was significantly and positively associated with internalizing symptoms (r = 0.08, k = 4).

Overall results were less supportive of associations between regulation strategies and psychopathology. Fewer significant effect sizes were noted and significant effects were smaller

than those found in the previous study (Aldao et al., 2010). This may be due to measurement of dispositional versus situational affect regulation or the difficulty of measuring effective regulation strategies due to variables such as selection flexibility and situational context among others (Compas et al., 2017).

Wellbeing

As far back as World War II, the field of psychology has focused on identification and intervention of psychological symptoms and dysfunctional behavior rather than improving adaptive functioning and development regardless of an individual's symptoms (Seligman & Csikszentmihalyi, 2000). Recently, the field of public health has called for a more expanded definition of mental health including positive indicators of wellbeing to provide a more balanced view of overall functioning (World Health Organization, 2014). There is a call among researchers in positive psychology to better understand normal and adaptive behaviors, wellbeing, optimal performance, and realizing potential (Seligman et al., 2005).

In response to the traditional view of psychology, positive psychology calls for a shift in focus from the negative to a more rounded perspective of treating symptoms while at the same time building positive qualities (Seligman & Csikszentmihalyi, 2000). In addition to traditional psychological symptoms, positive psychology takes into account subjective wellbeing, life satisfaction, hope, optimism, and happiness in an effort to reduce symptoms and also build personal qualities and resources that contribute to positive quality of life (Seligman & Csikszentmihalyi, 2000). Subjective wellbeing (SWB) is an individual's evaluation of their own life satisfaction and includes affective and cognitive states (Rabenu et al., 2016). Andrews & Withey (1976) identified three components of SWB including positive emotion, negative

emotion, and life satisfaction. Therefore, subjective wellbeing is indicated by high life satisfaction, high positive affect, and low negative affect (Headey et al., 1993).

Broaden-and-Build Theory

Frederickson's (2001) broaden-and-build theory of positive emotions provides theoretical understanding for how positive affective traits are developed and maintained (Afzal et al., 2016). According to Frederickson (2001), just as negative emotions enhance an individual's chances of survival and reproduction by prompting a narrow repertoire of actions that protect one from potential danger, positive emotions increase an individual's chances of survival and reproduction by broadening thought-action repertoires. According to Frederickson (2001), positive emotions elicit thoughts and behaviors that encourage both approach and exploration of situations, and actively decrease the protective responses elicited by negative emotions. Engaging in broad thought and behavioral responses serves to build physical, social, intellectual, and psychological resources that can be later called upon and accessed in times of distress or danger. These resources long outlast momentary emotional responses and increase resilience in an upward spiral of successful coping, positive emotion, broadened cognitive and behavioral repertoires, and increased resources (Fredrickson, 2001).

Affect and Wellness Outcomes

Recent research provides support for the relationship between affect and emotion regulation (Uhl et al., 2019). Among a sample of 126 school children, emotion dysregulation was significantly associated with negative affect ($r = 0.25$, $p < 0.001$) and positive affect ($r = -0.22$, $p < 0.05$), and emotion dysregulation was significantly associated with symptoms of depression ($r = 0.20$, $p < 0.05$) (Uhl et al., 2019). Children with high negative affect may interpret events as stressful, and ineffectively engage in avoidant coping strategies (Uhl et al., 2019). In children,

negative affect is associated with avoidant coping strategies, and high positive affect is associated with problem solving and support seeking coping strategies (De Boo & Spiering, 2010; Lengua et al., 1999).

Many researchers have noted the association between negative affect and internalizing disorders such as depression and anxiety (Anderson & Hope, 2008; Lengua & Long, 2002). Although high negative affect is a feature of both anxiety and depression, low positive affect is associated only with the latter (Clark & Watson, 1991). High positive affect is negatively associated with depression (Anthony et al., 2002; Lengua et al., 1999; Phillips et al., 2002), and positively associated with many desirable outcomes such as work performance, social relationships, physical health, effective coping, and problem solving (Lyubomirsky et al., 2005). In children, emotion dysregulation was found to mediate the relationship between negative affect and symptoms of both depression ($R^2 = 0.65$, $F(5, 117) = 43.04$, $p < 0.01$) and anxiety ($R^2 = 0.54$, $F(5, 117) = 27.71$, $p < 0.01$), however it did not mediate the relationship between positive affect and internalizing symptoms (Uhl et al., 2019). Furthermore, trait resilience is positively associated with aspects of positive affect including positive mood ($r = 0.29$, $p < 0.0001$), eagerness ($r = 0.17$, $p < 0.05$), excitement ($r = 0.19$, $p < 0.05$), happiness ($r = 0.21$, $p < 0.05$) and interest ($r = 018.$, $p < 0.05$) (Tugade & Fredrickson, 2004).

Call to Action.

Given the associations between affect and poor wellness outcomes and the lack of current research, it is important for future research to investigate how emotion regulation impacts the relationship between affect and internalizing symptoms (Uhl et al., 2019). Future research examining the relationship of affect and emotion regulation across clinical and non-clinical samples is needed (Uhl et al., 2019). Interventions that target teaching emotion regulation

strategies may be effective for reducing the impact of risk factors such as affect from developing into anxiety and mood disorders later in life (Uhl et al., 2019).

Life Satisfaction

Recently, the relationship between life satisfaction and psychological wellbeing has gained much interest in the field of psychology (Diener et al., 1999; Fergusson et al., 2015). Life satisfaction is considered to be the cognitive appraisal component of SWB and is the subjective self-evaluation of an individual's quality of life, whereas positive and negative emotions are evaluations of recent states of affect (Antaramian, 2017; Diener, 1985). In addition to current or recent affective states, SWB includes life satisfaction, a reflective evaluation of one's general satisfaction with life (Veenhoven, 2006). Life satisfaction has been recognized by some researchers as the most stable component of SWB and a valuable indicator of perceived quality of life (Huebner et al., 2006). In the college population, increasing life satisfaction is especially important for reducing students' vulnerability to experiencing decreases in emotional wellbeing throughout this developmental period (Lightsey et al., 2013).

Life Satisfaction and Wellness Outcomes

Across the lifespan life satisfaction is associated with many positive outcomes. Among adults, it is positively associated with health and life expectancy (Siahpush et al., 2008), as well as vocational performance and satisfaction (Erdogan et al., 2012). Among adolescents, it is associated with increased academic performance and efficacy (Ng et al., 2015), student engagement (Lewis et al., 2011), and decreased behavior problems (Sun & Shek, 2013). In college students, life satisfaction is associated with student engagement and academic achievement (Renshaw & Cohen, 2014).

Among a sample of 357 university students, life satisfaction had a positive overall main effect across all educational outcomes (*Wilks'* lambda – 0.62, $F(20,302) = 4.12$. $p < 0.001$, $\eta^2 = 0.21$) (Antaramian, 2017). In addition, students within the high life satisfaction group (top 10% of the sample) significantly outperformed students with average life satisfaction on measures of intellectual engagement ($d = 0.73$), faculty engagement ($d = 1.03$), academic self-efficacy ($d = 1.07$), mastery approach goals ($d = 0.65$), performance approach goals ($d = 073$), and had lower stress ($d = -0.51$) as well as higher grade point averages ($d = 0.86$) (Antaramian, 2017). Factors such as student living environment, campus facilities, and perceived stress have been found to significantly predict life satisfaction in college populations (Alleyne et al, 2010).

Yigit and colleagues (2014) proposed that life satisfaction is dependent upon an individual's ability to adequately regulate their own emotions, and several studies support the relationship between these two constructs. Among a sample of 826 early adolescents, Ng and colleagues (2018) found higher use of expressive suppression ($\beta = -0.17$, $SE = 0.05$, $p = 0.001$) and lower use of cognitive reappraisal ($\beta = 0.41$, $SE = 0.05$, $p < 0.001$) emotion regulation strategies were associated with lower life satisfaction over time. Life satisfaction among young adults was significantly and positively associated with cognitive reappraisal strategies and negatively associated with social stress with small to medium effects noted (Jiang et al., 2021). These findings support that reappraisal strategies protect individuals from the negative effects of social stress on life satisfaction (Jiang et al., 2021). Although early research suggests a significant relationship between emotion regulation and life satisfaction, future research is needed to expand upon the understanding and implications of these findings (Yigit et al., 2014).

Life satisfaction is associated with positive and negative affect as well as the psychological capital resources of hope, efficacy, resilience, and optimism (Kortte et al., 2010).

Increases in psychological capital resources (Daukantaite & Bergman 2005; Kortte et al., 2010) and positive affect (Kortte et al., 2010) are associated with increases in life satisfaction. Among college students, Xue (2010) found that high optimism was positively associated with both life satisfaction and SWB. Life satisfaction is significantly associated with optimism and self-efficacy (Jiang et al., 2014), and trait negative affect is a significant and negative predictor of life satisfaction (Thompson et al., 2007). In addition, high life satisfaction coupled with high positive affect has been associated with positive social relationships (Oishi et al., 2007).

For decades, research has found that life satisfaction is negatively associated with several indicators of mental health (Headey et al., 1993). Among college students, researchers have noted an inverse relationship between perceived student stress and life satisfaction (Alleyne et al, 2010). Life satisfaction is strongly and negatively associated with depression and some researchers have gone so far as to claim that one cannot occur in the presence of the other (Headey et al., 1993). Anxiety is negatively associated with life satisfaction among college students (Paschali & Tsitsas, 2010), however, the association is moderate and high levels of both constructs may co-occur simultaneously (Headey et al., 1993).

Fergusson and colleagues (2015) completed a longitudinal study of 1,265 subjects from birth until age 35 and found life satisfaction was significantly and negatively associated with depression, anxiety, suicidal behavior, and substance dependence. Scores of life satisfaction for participants with one or more behavioral disorders were on average -0.30 standard deviations below those without a disorder. Life satisfaction scores for those reporting three or more disorders were an average of -0.60 standard deviations below those without mental health disorders. Furthermore, increased life satisfaction was associated with decreased behavioral health problems (β =-0.018, *S.E.* = 0.007, p = <0.05) and increased behavioral health problems

were associated with decreased life satisfaction (β = -0.496, *S.E.* = 0.222, p = <0.05). These results add to the substantial research supporting associations between life satisfaction and mental health, and the reciprocal nature of this relationship (Fergusson et al., 2015).

Psychological Capital

Psychological capital (PsyCap) has been receiving increased attention in the field of organizational psychology in recent years (Millis et al., 2013). PsyCap is a state of psychological development and is characterized by an individual's confidence to direct efforts toward challenges (efficacy), tendency to positively attribute current and future successes to personal, pervasive, and permanent causes (optimism), persistence and flexibility in selecting and implementing strategies to attain goals (hope), and ability to "bounce back" from adversities (resilience) (Luthans et al., 2015). In Avey and colleagues (2011) organizational meta-analysis of over 12,000 employees, PsyCap positively predicted vocational performance and positive attitudes, and negatively predicted negative attitudes and deviant work behaviors. Although there has been some recent research in educational settings (Selvaraj and Bhat, 2018), as compared with vocational settings the gap between current research and application of PsyCap intervention is especially salient in higher education (Luthans et al., 2012; Mather, 2010). Despite minimal application of PsyCap interventions in universities, PsyCap is supported by research and has significant practical relevance across both vocational and educational settings (Luthans & Youssef-Morgan, 2017).

The empirically supported core construct of PsyCap consists of four resources including hope, efficacy, resilience, and optimism, together referred to as HERO (Luthans et al., 2007). Hope includes both willpower to pursue goals in the face of challenges, as well as "waypower" to find alternative pathways toward reaching goals when current strategies prove to be

ineffective (Snyder, 2000). Efficacy is an individual's self-confidence regarding their own abilities and motivation to complete tasks within specific contexts (Stajkovic & Luthans 1998). Efficacy is obtained through processes of learning skills, building mastery of skills, social influences, and achieving psychological or physical benefits (Bandura, 1997). Resilience is an individual's ability to bounce back from experiences, including adverse events such as trauma and failure, as well as positive experiences such as increased responsibility (Luthans et al., 2002). Optimism is the tendency of an individual to attribute the cause of positive experiences to personal, permanent, and pervasive factors and to attribute the cause of negative experiences to external, temporary, and situational factors (Luthans & Youssef-Morgan, 2017).

PsyCap is a state-like resource that has the capacity to change over time through brief interventions (Avey et al., 2010; Luthans et al., 2007). All four dimensions of PsyCap share the commonalities of positive appraisal of situations, a sense of agency over impacting the outcomes of situations, and goal directed persistence (Luthans & Youssef-Morgan, 2017). PsyCap is influenced by several other constructs including willpower (Huitt, 1999), positive cognitive appraisals (Luthans et al., 2007), positive affect (Avey et al., 2008), social support (Luthens et al., 2013, 2015), and wellbeing (Youssef-Morgan & Luthans, 2015). Individuals with high PsyCap believe they have the coping skills needed and agency to change their experience, are optimistic about the potential results of their efforts, and adapt well to challenges through resilience (Rabenu et al., 2017).

PsyCap and Wellness Outcomes.

Psychological capital is strongly and positively correlated with both well-being and performance in educational and vocational settings (Avey et al., 2010; Rabenu et al., 2017). Among a sample of 554 employees, Rabenu found PsyCap was significantly correlated with the

use of coping strategies including acceptance (r = 0.41, p <0.001), change (r = 0.22, p <0.001), and withdrawal (r = -0.16, , p <0.001) (Rabenu et al., 2017). Several researchers found PsyCap to be negatively correlated with stress, anxiety, burnout (Avey et al., 2010; Cheung et al., 2011), depression, and negative affect (Rabenu et al., 2017). Decreases in PsyCap are associated with increases in PTSD, depression, anxiety, and substance abuse (Krasikova et al., 2015). Some researchers have even claimed that PsyCap precedes coping because it serves as a motivator in the selection and implementation of coping strategies (Rabenu et al., 2017).

Research has demonstrated that PsyCap is closely associated with both SWB and affect (Afzal et al., 2016). Selvaraj and Bhat (2018) found among a sample of 338 college students, that 43% of the variance in total emotional, social, and psychological wellbeing was predicted by efficacy, optimism, and hope (R^2 = 0.432, F(3, 334) = 84.822, p < 0.001). In addition, correlations with mental health outcomes across all HERO dimensions were moderate to high, and efficacy was the PsyCap resource most strongly associated with psychological wellbeing (r = 0.590, p <0.01) (Selvaraj & Bhat, 2018). Werner (2012) found that hope was the PsyCap resource most strongly associated with SWB. Optimism has been associated with increases in positive affect and decreases in stress (Scheier et al., 2001). Among college students across both eastern and western cultures, optimism has been found to be significantly and positively associated with wellbeing (Zhu, 2003), life satisfaction, and SWB (Xue, 2010).

Afzal and colleagues (2016) investigated the relationship of the HERO resources with SWB, negative affect and positive affect among 616 school-aged adolescents and reported three major findings. First, they found three HERO dimensions predicted SWB including resilience (β = 0.24, p < 0.05), hope (β = 0.20, p < 0.05), and optimism (β = 0.11, p < 0.05). These resources explained 23% of the variance in SWB (R^2 = 0.23, p < 0.001) (Afzal et al., 2016). Second, they

found three HERO dimensions predicted positive affect including resilience ($\beta = 0.28$, $p < 0.001$), hope ($\beta = 0.38$, $p < 0.001$), and optimism ($\beta = 0.11$, $p < 0.05$). These three resources explained 24% of the variance in positive affect ($R^2 = 0.24$, $p < 0.001$) (Afzal et al., 2016). Finally, they found two HERO dimensions significantly and negatively predicted negative affect including self-efficacy ($\beta = -0.25$, $p < 0.001$), and optimism ($\beta = -0.68$, $p < 0.05$). These two resources were found to explain 18% of the total variance in negative affect ($R^2 = 0.18$, $p < 0.001$) (Afzal et al., 2016). This study provides additional support for the relationship between PsyCap with SWB, negative affect, and positive affect (Afzal et al., 2016).

It should be noted, however, when interpreting results of PsyCap measures that high levels of these resources may result in negative consequences (Luthans & Youssef-Morgan, 2017). Some researchers have suggested a nonlinear relationship with outcomes such as self-efficacy (Yeo & Neal 2006), hope (Polivy & Herman 2002), and optimism (Peterson & Chang 2002). This is noted to be a function of overapplication and overgeneralization of these traits which then produces negative outcomes such as overconfidence, false sense of hope, and toxic positivity (Luthans & Youssef-Morgan, 2017).

Protective and Risk Factors.

Rabenu and colleagues (2017) found the relationship between psychological capital and wellbeing was mediated by the use of problem-focused coping strategies ($\beta = 0.10$, $p < 0.05$). In addition, the relationship between psychological capital and work performance was mediated by problem-focused coping strategies ($\beta = 0.11$, $p = <0.01$) and avoidant coping strategies ($\beta = -0.09$, $p = <0.01$) (Rabenu et al., 2017). Among college students during the initial months of the COVID-19 pandemic, adaptive coping strategies including active coping, acceptance, use of emotional supports, and positive reappraisal significantly and positively mediated the

relationship between PsyCap and wellbeing (Prasath et al., 2021). In college students, both negative and positive coping styles partially mediated the relationship between PsyCap and psychological health (Pan & Zhou 2009).

Call to Action.

Researchers have demonstrated that all of the HERO dimensions of PsyCap can be developed through intervention (Luthans & Youssef-Morgan, 2017). Effective PsyCap interventions lasting less than 3 hours in duration for each HERO resource can be tailored to many contexts including educational settings (Luthans & Youssef-Morgan, 2017). Typical interventions include development of HERO resources through acquisition of goal-oriented skills such as identifying positively stated specific and measurable goals, and engaging in waypower activities to increase goal-directed persistence (Luthans & Youssef-Morgan, 2017). The gratitude letter and daily gratitude journal are common interventions aimed to increase PsyCap resources (Luthans & Youssef-Morgan, 2017).

Researchers recommend adapting PsyCap interventions for individual and group counseling in college counseling centers, as well as seminars and retreats for freshman and undergraduates (Selvaraj and Bhat, 2018). Universities can use web and app-based PsyCap interventions to increase student wellbeing and reduce barriers to accessing services due to stigma (Michaels et al., 2015; Prasath et al., 2021). Labeling interventions as wellbeing approaches rather than highlighting pathologies may reduce stigmatization and barriers to access these services (Hunt & Eisenberg 2010).

In summary, researchers have called for the application of interventions aimed to increase positive emotions (Fredrickson, 2009), effective use of coping strategies (Lyubomirsky, 2008), and pursuit of goals (Luthans & Youssef-Morgan, 2017) within the college setting. Acquisition

of effective coping strategies may serve to buffer the negative outcomes associated with the transition to college (Jardin et al., 2018), and this may hold especially true during a global pandemic (Prasath et al., 2021). Universities and students alike are poised to benefit from skills-based training aimed to enhance the use of effective coping and reduce the use of ineffective skills and strategies (Madhysatha et al., 2014). These skills are especially important for students who are at high risk of poor outcomes, such as those who have been exposed to adverse childhood experiences (Kalia et al., 2018; Rudenstine et al., 2019).

Adverse Childhood Experiences

The concept of Adverse Childhood Experiences (ACEs) gained popularity in the field of wellness following the seminal study by Felitti and colleagues (1998). While working in a clinic treating obesity, he noticed a paradoxical relationship between patient weight loss, relapse, and patient reports of sexual abuse in childhood (Felitti, 2019). He began to screen patients for history of sexual abuse, and soon found that of the 286 cases screened, 55% had a history of sexual abuse. He hypothesized that obesity may serve as a coping mechanism for overcoming the stressors of sexual abuse and conducted the original ACE study to determine the prevalence of ACEs and adult health outcomes within the general population (Felitti, 2019).

Felitti's seminal ACEs article (1998) investigated the relationship of ACEs with risky behavior, health, and disease in adulthood. ACEs included direct experiences of abuse (psychological, physical, and sexual), as well as experiences of household dysfunction (household substance abuse, mental illness, maternal domestic violence, and criminal behavior) before the age of 18. Of the 9,508 survey responses completed (70.5% response rate), over half of the respondents (52%) reported they experienced 1 or more and 6% reported they experienced 4 or more ACEs. The majority of respondents who were exposed to one category of ACEs were

exposed to multiple ACEs categories. Furthermore, a strong dose-response relationship was noted between cumulative ACEs and risky behavior (smoking, obesity, lack of physical activity, depressed mood, suicide attempts, alcoholism, and illicit substance use) as well as disease conditions (heart disease, cancer, lung disease, hepatitis, skeletal fractures, and poor self-rated health) (Felitti et al., 1998).

The original ACEs study was the first of its kind to provide evidence supporting a direct relationship between the impact of adverse experiences in childhood and health and wellbeing in adulthood (Felitti et al., 1998). The authors suggested that individuals with ACEs may overapply and overgeneralize coping strategies in an attempt to cope with stress associated with adverse experiences. For example, the euphoric effect from smoking nicotine products presents both immediate rewards and poor long-term health outcomes. Authors call for screening and tiered interventions aimed to reduce health risk behaviors and increase effective coping in an effort to reduce the impact of ACEs on adult mental and physical health outcomes (Felitti et al., 1998).

ACEs and Neuropsychology

In addition to mental and physical health outcomes, ACEs have been linked to physiological changes in brain structures (McLaughlin et al., 2019). Research has shown that children who have experienced maltreatment have physical differences in brain structures such as a smaller prefrontal cortex and hippocampus, a hyperactive hypothalamic pituitary-adrenal (HPA) axis, and increased inflammation as compared to those without such experiences (Grigsby et al., 2020). Complex trauma can lead to the hyperarousal of particular brain structures causing an individual to remain stuck in a cycle of scanning for perceived environmental dangers and the production of additional stress hormones (Watt et al., 2020a). Chronic stress early in life changes neurological structures in the brain and negatively impacts functioning of the neurological

systems that support adaptation to environmental challenges, through a phenomenon called allostatic load (McEwin & Gianaros, 2010).

Allostatic load is the negative neurological impact when individuals experience chronic stressors and must adapt to these continuously changing and challenging environmental conditions (Grigsby et al., 2020b). Toxic stress is the process by which chronic stress produces chemicals that break down stress regulation systems within the brain, decreasing the threshold of distress tolerance (Kelifa et al., 2020). This process, compounded by ACEs, negatively impacts the neurological structures responsible for self-regulation, decision making, memory, and learning (Shonkoff & Garner, 2012). ACEs have been found to alter functioning of the limbic system, dampening responses to environmental stressors, altering cognition, and negatively impacting emotion regulation (Lovallo, 2013). In addition, ineffective use of coping strategies to manage toxic stress such as substance use or problematic eating can increase stress and lead to an ever-worsening cycle of decreased cognitive functioning and ineffective coping (Shonkoff & Garner, 2012).

Approaches for Measuring ACEs

Before exploring the specific results of the recent research, it is important to review the ways in which ACEs are measured in the current literature. There are 3 main approaches to measuring ACEs within the research literature and each approach has benefits and limitations to be considered when interpreting results (Henry et al., 2021).

The original ACEs study applied the cumulative approach, which measures ACEs by totaling the sum of all items endorsed (Felitti et al., 1998). Cutoff scores are often used in the cumulative approach, however they vary greatly across studies with cutoff scores as low as 1 and as high as 4 or greater (Negriff, 2019). A strength of this approach is that it can serve as an

indicator or a screener for individuals most at-risk of developing problems with mental and physical health in adulthood (Hatton-Bowes et al., 2021; Shonkoff, 2016). A limitation is that cumulative scores assume the effect of all ACEs are weighted equally and additively to predict psychological outcomes (Negriff, 2019).

The individual approach uses individual ACE items as a predictor for outcomes (Henry et al., 2021) to gain further insight into how individual ACE items relate to specific outcomes (Lambert et al., 2017; Soenke et al., 2010). A strength of this approach is that it helps to resolve questions about the relationship of each individual ACE with psychological outcomes (Lambert et al., 2017). Limitations include critiques that it overlooks the interaction effects of multiple ACEs (Henry et al., 2021), is prone to underestimates of risk for atypical development, and overestimates of the relationships between individual ACEs and psychological disorders (Green et al., 2010; Henry et al., 2021; Kessler et al., 2010).

A third approach to measuring ACEs involves clustering items into categories and summing the total number of items endorsed in each category. The original ACEs study grouped ACEs into the categories of abuse and household dysfunction (Felitti et al., 1998), and recent studies have used categories such as dysfunction and maltreatment or threat and deprivation (McLaughlin et al., 2014; Negriff, 2019; Sheridan & McLaughlin et al., 2014). A strength of this approach is it can help to explain how categories of ACEs impact risk for specific psychopathological disorders (Henry et al, 2021), guide prevention and intervention efforts, and potentially decrease poor mental health outcomes (Hatton-Bowes et al., 2021). Despite potential to be used as a screening tool, this approach is limited by offering little insight into how ACEs impact psychological outcomes (Henry et al., 2021).

ACEs and Wellness Outcomes

Since the first publication of the seminal article on ACEs (Felitti et al., 1998), a substantial amount of research has supported and expanded initial findings of the relationship between ACEs and negative health-related outcomes (Espeleta et al., 2020; Windle et al., 2020). Several studies have noted a significant association between ACEs and factors such as emotion dysregulation (Poole, Dobson, & Pusch, 2017; Poole, Kim et al., 2017), psychological disorders (Kessler et al., 2010), and health-risk behaviors (Windle et al., 2018). Although the research linking ACEs to poor health outcomes is significant, this literature review focused on the specific outcomes that are most closely related to the study sample and measures used in this study.

Emotion Regulation.

Adverse experiences in childhood have been linked to deficits in emotion regulation (Poole, Kim, et al., 2017), and associated with elevated reactivity to stressors (Glaser et al., 2006), low emotional awareness (Shipman et al., 2000), and high non-acceptance of emotions (Gratz et al., 2004). Among a sample of 287 adolescents, Lambert and colleagues (2017) found that greater exposure to violence was significantly associated with greater problems adapting to emotional conflict ($\beta = 0.19$, $p < 0.01$). In a sample of 2,637 adolescents, Boyes and colleagues (2015) found ACEs were positively correlated with emotional suppression and rumination strategies, and these strategies at baseline significantly predicted psychological distress one year later (emotional suppression $\beta = 0.09$, SE = 0.02, $p = 0.002$; rumination $\beta = 0.02$, SE = 0.01, $p < 0.01$). Furthermore, the direct relationship between ACEs and psychological distress ($\beta = 0.122$) was mediated by cognitive reappraisal ($\beta = 0.007$, $p < 0.001$), expressive suppression ($\beta = 0.004$, $p < 0.001$), and rumination ($\beta = 0.023$, $p < 0.001$) (Boyes et al., 2015).

Mental Health.

The relationship between ACEs and psychological symptoms in adulthood is well established and ACEs are estimated to account for 30% of all psychological disorders in the US (Green et al., 2010) and worldwide (Kessler et al., 2010). The World Health Organization stated eliminating ACEs would reduce anxiety disorders alone by 31% worldwide (Kessler et al., 2010). It has been widely demonstrated through research that higher cumulative ACEs scores are associated with higher levels of psychological symptoms and diagnoses (Espeleta et al., 2020; Windle et al., 2018). Multiple ACEs have been shown to increase risk for anxiety disorders among adults by more than 200% as compared to those with no ACEs (Hovens et al., 2010). Among an adult sample (N = 4006), Poole and colleagues (2017) found individuals with 2 or more ACEs were more than three times as likely to meet criteria for Major Depressive Disorder, and those with four or more ACEs were seven times as likely to meet criteria. In addition, individuals exposed to emotional abuse were nearly three and a half times more likely to meet criteria as compared to those who experienced any other type of ACE (Poole, Dobson et al., 2017). ACEs predict depressive symptoms in adulthood (Blum et al., 2019) and increase vulnerability of experiencing further stressors in life (Mc Elroy & Hevey, 2014). Exposure to ACEs increases risk of depressive disorders for decades after the exposure (Chapman et al., 2004).

College students are particularly vulnerable to the negative effects of ACEs and epidemiological studies report stronger relationships between ACEs and daily psychological health for young adults (ages 18 to 35) as compared to older adults (Logan-Greene et al., 2014). Among college students, ACEs are associated with both depression and anxiety (Anda et al., 2006; Espeleta et al., 2020). College students with four or more ACEs had significantly

higher rates of depression (β = 1.91, *SE* = 0.635, *p* 0.003) and anxiety (β = 2.283, *SE* = 0.620, *p* <0.001) as compared to those with fewer ACEs (Watt et al., 2020). Hatton-Bowes and colleagues (2021) found experiencing ACEs directly (as opposed to witnessing them) significantly predicted depressive symptoms among college students at the beginning (β = 0.91, *SE* = 0.25, *p* <0.05) and end (β = 0.66, *SE* = 0.27, *p* <0.01) of the semester. Among a sample of 239 college students, a history of two or more ACEs at the beginning of the semester doubled the likelihood of screening positive for a depression disorder or anxiety disorder, and suicidal ideation by the end of the semester, despite not having screened positive in the beginning of the semester (Karaketin et al., 2017).

Health Risk Behaviors.

Adverse childhood experiences have been linked to many health-risk behaviors such as substance use, drinking and driving, tobacco use, obesity, suicidal behavior, self-injury, unbalanced diet, and lack of sleep, and many of these behaviors co-occur (Grigsby et al., 2020; Windle et al., 2018). Among female college students, higher ACEs scores are positively associated with increases in risky sexual behavior (Hillis et al., 2000) and sexual victimization (Fischer et al., 2000). Among male college students, ACEs are associated with increased risk for substance use (Grigsby et al., 2020). ACEs are positively correlated with both suicidal behavior and non-suicidal self-injurious behavior (Windle et al., 2018). This is especially concerning considering that suicide has been cited as the second leading cause of death among 18 to 24-year-olds in the US (Bonnie et al., 2015). Exposure to ACEs has been found to increase risk of suicide attempts by greater than 2 times throughout the lifespan (Dube et al., 2001), and two out of three suicide attempts in the US are associated with one or more ACEs (Dube et al., 2001).

For individuals with a history of ACEs, risky behaviors have been conceptualized as emotion regulation strategies and attempts to cope with childhood stressors, that lead to poor long-term health consequences in adulthood (Kendall-Tackett, 2002). Individuals with higher ACEs face several unique barriers to effective coping including high levels of stress, low cognitive flexibility when interpreting situations, and low sense of agency (Kalia et al., 2020). However, research investigating the relationship between resilience and ACEs is limited (Gartland et al., 2019) and few studies have included protective measures that increase resiliency and counterbalance the negative outcomes of ACEs (Okwori et al., 2021; Poole, Dobson, et al. 2017). ACEs have been negatively associated with resilience (Kelifa et al., 2020; Okwori et al., 2021), use of effective emotion regulation strategies (Boyes et al., 2015; Okwori et al., 2021), and subjective wellbeing (Bellis et al., 2013; Kelifa et al., 2020; Oshio et al., 2013). These relationships are particularly important because they empower individuals to persist through challenges and increase overall functioning (Okwori et al., 2021).

ACEs and Protective Factors

Emotion regulation has been noted by many researchers as a protective factor for optimal mental health and wellbeing outcomes following adverse experiences and traumatic events (Espeleta et al., 2020; Gratz & Roemer, 2004). Emotion regulation has been found to mediate the relationship between ACEs and anxiety (Espeleta et al., 2020; Huh et al., 2017; Soenke et al., 2010), depression (Chapman et al., 2004; Espeleta et al., 2020; Huh et al., 2017), PTSD (Burns et al., 2010; Cloitre et al., 2019; Espeleta et al., 2020), negative adjustment (Espeleta et al., 2020), and poor physical health (Cloitre et al., 2019). Poole, Dobson, and colleagues (2017) found the direct relationship between ACEs and anxiety symptoms ($\beta = 0.28$, $SE = 0.52$, $p < 0.001$) was mediated by emotion dysregulation ($\beta = 0.12$, $SE = 0.00$, $p < 0.001$) and the strength of this

relationship was influenced by aspects of psychological resilience such as the ability to sustain focus under pressure, adapt to change, and find humor in challenging situations. Cognitive reappraisal strategies are negatively associated with chronic stress in adults with a history of ACEs (Kalia et al., 2020), and positively associated with resilience (Traub and Boynton-Jarrett, 2017).

Among a sample of 334 adults in clinical settings, Rudenstine and colleagues (2019) found the direct relationship between ACEs and psychological distress was mediated by nonacceptance of emotional responses ($\beta = 0.27$, $p < 0.05$), impulse control difficulties ($\beta = 0.48$, $p < 0.05$), and lack of access to emotion regulation strategies ($\beta = 0.84$, $p < 0.05$). Surprisingly, for those with four or more ACEs, emotion dysregulation did not mediate the relationship between ACEs and psychological distress. Authors suggested for those with significant childhood adversity, use of maladaptive emotion regulation strategies may result in a behavioral pattern over time in which ineffective strategies increase stressors, and stressors prompt the use of additional ineffective strategies (Rudenstine et al., 2019).

Many researchers note resilience is a protective factor against the negative outcomes of ACEs among college students (Khrapatina et al., 2017). Among individuals who experience ACEs, psychological resilience protects against anxiety (Poole et al., 2018), depression (Ding et al., 2017; Howell & Miller-Graff, 2014; Kelifa et al., 2020), and health problems (Khrapatina et al., 2017), and promotes subjective wellbeing (Hoppen and Chalder 2018; Kelifa et al., 2020). This protective relationship is thought to function through fostering effective use of emotion regulation strategies and reducing the use of ineffective strategies (Poole et al., 2018).

Among a sample of 4,006 adults, Poole and colleagues (2017; 2018) investigated resilience and the relationship between ACEs and internalizing disorders in two separate studies.

With regard to depression, they found that both ACEs and resilience predicted symptoms and resilience moderated the relationship between ACEs and depression (Poole et al., 2018). Furthermore, this association was stronger among those with low resilience as compared to those with high resilience (Poole et al., 2018). With regard to anxiety symptoms, they found that emotion dysregulation mediated the relationship between ACEs and symptoms (Poole, Dobson, et al., 2017). In addition, the relationship between ACEs and emotion dysregulation was stronger for those with low levels of resilience as compared to those with high levels of resilience (Poole, Dobson, et al., 2017). These findings suggest the importance of the role of psychological resilience in buffering the effects of ACEs on anxiety and depression (Poole, Dobson, et al., 2017; 2018).

Call to Action.

With significant research substantiating the relationship between ACEs and negative health outcomes, many researchers have called for action among universities to support students who have experienced childhood adversities (Espeleta et al., 2020; Kalia et al., 2018; Rudenstine et al., 2019). Treatment of ACEs at this critical point in development can create an intergenerational and community ripple effect and is a key component of student success and for breaking these cycles of dysfunction (Okwori et al., 2021). Researchers have called for the use of ACEs screeners to identify students at-risk of developing negative outcomes (Hatton-Bowes et al., 2021; Okwori et al., 2018; Poole et al., 2018; Windle et al., 2018), and to provide identified students with interventions aimed to develop coping skills and reduce risky health behaviors (Windle et al., 2018). Although screening is widely endorsed by researchers, colleges face many challenges when implementing screeners, including deciding how, when, and whom to screen,

navigating confidentiality and access to information, and reduction of stigmatization (Karaketin et al., 2017).

Interventions that target acquisition and application of effective emotion regulation strategies have great potential to prevent the potential negative outcomes of ACEs in young adults (Kalia et al., 2020). School-based universal programs that develop effective emotion regulation strategies to replace ineffective strategies can protect individuals who have experienced ACEs from poor mental health and wellness outcomes (Rudenstine et al., 2019). These interventions have the potential to improve graduation rates and reduce intergenerational patterns of trauma as students raise their own families (Schafer et al., 2021). Skills-based emotion regulation interventions are particularly well suited for adolescents and young adults given their focus on improving skills that can buffer the negative outcomes associated with ACEs, and increase resources (Espeleta et al., 2020).

Resilience training programs have a great potential to decrease depressive symptoms (Brunwasser et al., 2009) and prevent depression relapse (Poole et al., 2017). Resilience interventions among college students can benefit all students, regardless of ACEs history, by increasing resources and replacing ineffective coping with more effective strategies (Brogden et al., 2019). Universities are in a unique position to support students with history of ACEs to increase resilience skills and thereby reduce negative psychological outcomes (Theron & Theron, 2014). Resilience interventions aimed to develop life satisfaction and increase meaning in life may be particularly effective for reducing the negative impact of ACEs on psychological wellbeing (Khrapatina et al., 2017).

Stress management interventions also have the potential to support college students with a history of ACEs to develop effective coping skills and reduce negative mental health outcomes

(Kalmais et al., 2020; Karatekin et al., 2020). Interventions that teach stress management skills such as meditation and yoga to college students have potential to disrupt the relationship between ACEs and poor mental health outcomes (Karatekin et al., 2017). Stress relieving interventions such as exercise, meditation, and yoga also have been found to be effective for increasing neuroplasticity, reducing inflammation, and reducing the negative neurological outcomes associated with ACEs (Watt et al., 2019). In addition, students who have experienced recent stressful events may benefit from stress management interventions (Kelifa et al., 2020).

Emerging adulthood is an opportune time to provide intervention for ACEs (Huang et al., 2021). For college students, difficulties adjusting to life following adversity can have significant negative impacts on grades and self-rated health (Anders et al., 2012; Duncan, 2000), and for this reason, it is important to study both clinical and non-clinical populations (Khrapatina et al., 2017). Universities may need to "think outside the box" in the delivery of these services in order to reduce barriers to access resources, reduce stigma, and improve wellness outcomes for all of their students (Karaketin et al., 2017).

Wellness and Resilience Supports in Higher Education

Research in higher education has shown that only a small percentage of college students seek psychological services (Auerbach et al., 2016; Rosenthal & Wilson, 2008). Among a sample of 1,773 diverse college students Rosenthal and Wilson (2008) examined self-reported psychological distress and self-reported use of counseling services for emotional problems within the previous 6 months. They found 10% percent of the total sample reported receiving counseling services. In addition, 74% of students reported moderate levels of distress and only 10% of this group engaged in counseling services. Of the 9% of students who reported clinically significant levels of distress, only 23% reported engagement in counseling services (Rosenthal &

Wilson, 2008). Auerbach and colleagues (2016) found that globally, only 16.4% of students with a 12-month prevalence of a mental health disorder had received adequate treatment, and in low-income countries, treatment was lower in comparison to middle and high-income countries. These studies support prior research suggesting counseling services are under-utilized among college students including among students with clinically significant levels of distress, a finding that is especially true in low-income countries (Auerbach et al., 2016; Rosenthal and Wilson, 2008).

Given the current research indicating increasing stressors and mental health concerns among college students, 12-month prevalence rates of 31% for mental health disorders among college students, and student need versus availability of mental health services, many researchers have called for systemic changes to the current service delivery model (Auerbach et al., 2018; DeCano, 2018; Hartley, 2012; Suldo & Shaffer, 2008). Researchers have called for shifting policies, using multiple providers, engaging students to actively learn and practice coping skills, universal mental health screening, active student outreach, and increasing access to non-medical interventions (Aselton, 2012; DeCano, 2018; Hartley, 2012; Rosenthal & Wilson 2008; Suldo & Shaffer, 2008).

Traditionally, college mental health models have targeted the delivery of individual services to students, however this approach is simply not equipped to effectively support the volume of students who experience psychological symptoms and/or emotional distress which impact daily functioning (Conley, Travers et al., 2013). To better support the volume of students in need of mental health services, some colleges have increased the efficiency of their service delivery models and student access to mental health services through course offerings that teach coping skills as part of the core curriculum (Conley, Travers et al., 2013; DeCano, 2018;

Rodowicz, 2020). Despite efforts among colleges to support student wellness, higher education systems are unlikely to have enough resources to serve the current volume of students with mental health disorders with the service delivery models of yesteryear, and interventions must be tailored to serve larger volumes of students (Auerbach et al., 2018).

Universal Prevention

Universal prevention programs at the undergraduate and graduate level have been found to be effective interventions for teaching college students coping strategies, supporting skills acquisition, reducing symptoms of psychopathology, increasing subjective well-being, and reducing emotional distress (Conley, Travers et al., 2013; Conley et al., 2015; DeCano, 2018). In a comprehensive meta-analysis of 103 universal mental health prevention interventions for undergraduates, Conley et al. (2015) evaluated the impact of these programs on student outcomes and found that skills-based universal interventions served as an important moderator for student outcomes of depression, anxiety, and stress. Conley, Travers et al. (2013) studied the pre-post outcomes of a college seminar targeting psychosocial adjustment and stress management comparing treatment and control groups. The intervention group had significant group effects for perceived improvement of psychosocial adjustment and stress management and higher attendance as compared to the control. Additionally, self-ratings of participation in skills practice positively predicted psychosocial adjustment, stress management, and perceived improvements in psychosocial adjustment (Conley, Travers et al., 2013).

Universal interventions have the potential to reach larger volumes of students with equivalent staff support as compared to traditional individual therapy and they increase student access to interventions for the prevention and treatment of psychological disorders including depression (Aselton, 2012). In addition, they have the potential to identify which students may

benefit from additional psychological services, then serve as a conduit to these supports increasing access to care for students of concern (Chugani et al., 2020). The potential for universal interventions to increase the capacity of mental health services in college settings and to reduce the need for more intensive psychological interventions is well recognized, and further research is needed to evaluate the effectiveness of such programs (Conley, Travers et al., 2013).

Despite the many benefits of implementing universal skills-based mental wellness programs at the college level, many challenges exist in implementing these initiatives (Conley, Travers et al., 2013; Conley et al., 2015). Due to the nature of student choice in enrollment, the use of randomized control trials to examine the effectiveness of such interventions is a major challenge in research, which has made it difficult to provide compelling data to demonstrate the benefits, and influence systems level change toward universal approaches (Chugani et al., 2020; Conley et al., 2015; DeCano, 2018). When colleges have attempted to implement these wellness programs, they have been faced with additional challenges including the selection of target skills, expected outcomes, and pedagogy of teaching techniques.

Promising Skills for Universal Intervention

Emotion Regulation and Coping Skills.

Modecki and colleagues (2017) suggest that emotion regulation, coping, and decision making are key skills to target for intervention and improvements in these skills are effective for the prevention of externalizing problems in childhood and adolescence. Teaching emotion regulation through direct teaching approaches, including thinking strategies, experiential learning, practice, and the application of newly learned skills is critical to help youth cope with stressors (Modecki et al., 2017). Emotion regulation and coping skills are especially important targets for intervention among college students given their associations with mental health

disorders including depression, borderline personality disorder, substance-use disorders, and somatic disorders (Berking & Wupperman, 2012). In a sample of 120 first-year college students, Leary & DeRosier (2012) found students with higher levels of self-regulation skills and control of emotions, thoughts, and behaviors in response to stressors were more likely to have experienced positive outcomes and resilience than students with lower levels of self-regulation. In addition, health-related behaviors such as exercise, adequate sleep, and social connectedness were found to be important factors in lowering stress and promoting psychological adjustment for students during the transition into college (Leary & DeRosier, 2012). Emotion regulation is a critical skill for academic success, and flexibility in selecting appropriate coping skills given the stressors in the environment has been found to lower psychological distress (Modecki et al., 2017).

Coping flexibility is an important moderator which has been shown to mitigate the effects of life event stress on psychological distress (Lam & McBride-Chang, 2007). The ability to remain flexible in selection and engagement in coping strategies during the transition to college has been correlated with lower rates of anxiety and depression, school burn out, and drop-out (Gan et al., 2007; Lam & McBride-Chang, 2007; Leary & DeRosier, 2012). Among college students cognitively vulnerable to depressive symptoms and who had experienced recent negative life events, low levels of coping flexibility predicted significant increases in depressive symptoms (Fresco et al., 2006). Furthermore, students with higher levels of coping flexibility showed no significant increases in depression symptoms following the event (Fresco et al., 2006). These findings highlight the importance of teaching flexibility in the selection of coping strategies in skills-based interventions for college students.

Resilience.

By now it is clear that college students face many stressors and risk factors related to negative outcomes. The inspiring news is that resilience skills can improve through education and practice (Seligman, 2011). Resilience is described by Masten (2001) as "good outcomes in spite of serious threats to adaptation or development" (p. 228). Teaching resilience to college students supports student acquisition of resilience skills, reduces perceived stress, and increases life satisfaction (DeCano, 2018). Universal skills-based interventions at the college level have greater positive outcomes and effects with the inclusion of a supervised skills-training component when compared to interventions without this component (Conley et al., 2015). Skills-based resilience interventions focus on increasing student assets and resources, improving assets and resources, and preventing risk factors from occurring (Masten, 2001).

Many skills-based interventions aim to increase use and self-efficacy of coping strategies, as well as flexibility in selecting effective strategies for overcoming stressors (Cheng, 2003). Coping strategies can be categorized as either problem-focused which are often effective for controllable stressors, or emotion-focused, often more effective for uncontrollable stressors (Cheng, 2003).

Mindfulness.

Mindfulness-based interventions have received much praise for their effectiveness among college students, and especially for those with a history of emotional abuse and neglect (Huang et al., 2021b). Mindfulness-based interventions have great potential for increasing mental health outcomes and decreasing risky health behaviors (Schafer et al., 2021) by supporting the use of effective emotion regulation strategies such as cognitive reappraisal and reducing ineffective strategies such as rumination and suppression (Boyes et al., 2015). Interventions aimed to

increase mindful self-compassion and acceptance skills have a great potential to increase wellbeing and decrease depressive symptoms among college students (Hatton-Bowes et al., 2021). Mindfulness interventions support increases in self-awareness and internal resources to support individuals to manage their physical and mental wellbeing (Ludwig & Kabat-Zinn, 2008). Universities and students alike may experience significant benefits by including mindfulness in freshman seminars as a universal prevention method to reduce barriers that negatively impact student access to psychological support (Schafer et al., 2021).

Cognitive Behavioral Therapy Skills.

Cognitive behavior therapy (CBT) was developed by Aaron Beck (1964) as a short-term, and structured psychotherapy for the treatment of depression (Beck, 2011). CBT states that dysfunctional thinking is an aspect of all psychopathology and by modifying thoughts, an individual can change their perception of the situation, the emotions they experience, and the behaviors they engage in (Beck, 2011). Several CBT skills are especially helpful with regard to emotion regulation (Aldao et al., 2010; Beck, 2011; Rehm & Staiger, 2018).

Cognitive restructuring includes evaluating automatic thoughts with Socratic questioning, and modifying thinking patterns that impede progress toward one's goals (Beck, 2011). Problem solving can be used to overcome negative automatic thoughts, and acceptance skills can be used when problems are outside of one's control. Identifying beliefs that maintain ineffective behaviors, then modifying these beliefs can impact one's perception of a situation and increase effective behaviors. Engaging in pleasurable activities as part of a daily routine (known as behavioral activation) can increase positive affect, and relaxation skills can be used to reduce negative affect. Lastly, exposure to stressors allows one to experience the positive emotional

effects of approaching and persisting through challenges and decreases future avoidant behaviors (Beck, 2011).

Dialectical Behavior Therapy Skills.

Dialectical Behavior Therapy (DBT) is a cognitive-behavioral treatment that was developed for patients with Borderline Personality Disorder (BPD), a disorder of the emotion regulation system (Linehan, 1993). Since the original development in 1993, DBT has been used for numerous different disorders such as PTSD, substance abuse, and anxiety (Swales, 2019). DBT is an evidenced-based treatment that specifically targets emotion regulation and the skills-training component of this intervention has been found to reduce difficulties in emotion regulation and perceived stress among college students (Budak & Kocabas, 2019). This treatment, introduced by Marsha Linehan (1993), outlines four modules of DBT skills including: mindfulness, interpersonal effectiveness, emotion regulation, and distress tolerance (Linehan, 2015).

Mindfulness skills teach clients to effectively observe, describe, or participate in the present moment and without judgment (Linehan, 2015). Interpersonal effectiveness skills focus on obtaining objectives, maintaining self-respect, building positive relationships, ending destructive relationships, and balancing acceptance and change within relationships. Emotion regulation skills include strategies to proactively reduce vulnerability to experiencing difficult emotions and effectively respond to emotions that arise from prompting events. The distress tolerance module teaches crisis survival skills for coping with short-term and highly distressing situations without making the problem worse. In addition, this module teaches reality acceptance skills, aimed to reduce suffering from painful crises that cannot be changed quickly or at all (Linehan, 2015).

Acceptance and Commitment Therapy Metaphors.

Acceptance and commitment therapy (ACT: pronounced "act") is a cognitive therapy developed by Steven Hayes (1999) that aims to increase psychological flexibility. Hayes and colleagues (2012) believe that psychological rigidity is the root cause of human suffering and maladaptive functioning. ACT aims to reverse psychological rigidity and increase flexibility by using metaphors (structured experiential learning activities) to teach flexibility skills (Hayes et al., 2012). The ACT psychological flexibility model (Hayes et al., 1999) includes six processes that contribute to flexibility, undermine the root causes of rigidity, and support individuals as they adapt to painful situations. These processes include defusion, which is the ability to view thoughts from the perspective of the thinker or observer, and to distinguish them from direct experience (Hayes et al., 2012). Acceptance, provides the choice to engage without judgment in the present moment and to approach challenges rather than avoid them. Present-moment awareness, focuses and sustains attention to what is occurring in the present. Self-as-context, includes perspective taking, self-awareness as an ongoing process, and disentanglement from rigid self-evaluations and categorizations. Aligning everyday behaviors with individually chosen values, is inherently reinforcing and adds meaning and purpose to life. Finally, committed action to engaging in values-based behavior, establishes a pattern of behaviors that motivates future values-based actions (Hayes et al., 2012).

Purpose of the Study

The purpose of this study is to investigate the outcomes of change in emotion regulation, psychological capital, and high-risk behaviors among undergraduate students enrolled in a 10-week course aimed to increase effective use of emotion regulation, coping, and resilience skills in the lives of students. Three quantitative research questions are presented below with

corresponding hypotheses. In general, this study hypothesized that students who completed this wellness and resilience class reduced in difficulties with emotion regulation and health-risk behaviors, and increased in psychological capital from pre to post intervention, despite the recent onset of the global COVID-19 pandemic. This dissertation study presents the following research questions to be resolved by means of multiple linear regression, and data analyses.

Research Questions & Hypotheses

1. a) To what extent, if any, do students change over the course of the intervention from pretest to post test on the emotion dysregulation total score of the Difficulties in Emotion Regulation Scale - Short Form (DERS-SF) when controlling for age, gender, and pre-scores?

   b) To what extent, if any, do pre intervention symptoms of anxiety, depression, and somatization, high levels of ACEs, negative affect, psychological capital, life satisfaction, positive affect, and high-risk behaviors predict pre-post changes in DERS-SF total and subscale scores?

Hypothesis 1: It was hypothesized that there was a significant decrease in difficulties in emotion regulation from pre to post intervention. It was hypothesized that pre-intervention symptoms of anxiety, depression, and somatization significantly and negatively predicted change in difficulties of emotion regulation. Finally, it was hypothesized that pre-intervention levels of negative affect significantly and negatively predicted change in difficulties of emotion regulation.

2) a) To what extent, if any, do students change over the course of the intervention from pretest to post test on the Psychological Capital total score of the Psychological Capital Questionnaire-12 (PCQ-12) when controlling for age, gender, and pre-scores?

b) To what extent, if any, do pre intervention symptoms of anxiety, depression, and somatization, high levels of ACEs, negative affect, psychological capital, life satisfaction, positive affect, and high-risk behaviors predict pre-post changes in PCQ-12 total scores?

Hypothesis 2: It was hypothesized that psychological capital significantly increased from pre to post intervention. It was hypothesized that pre-intervention symptoms of anxiety, depression, and somatization significantly and positively predicted change in psychological capital. It was hypothesized that pre-intervention levels of negative affect significantly and positively predicted change in psychological capital. Finally, it was hypothesized that positive affect significantly and negatively predicted change in psychological capital.

3) a) To what extent, if any, do students change over the course of the intervention from pretest to post test on the High Risk Behavior scale of the Revised Life Problems Inventory (Revised LPI) when controlling for age, gender, and pre-scores?

b) To what extent, if any, do pre intervention symptoms of anxiety, depression, and somatization, high levels of ACEs, negative affect, psychological capital, life satisfaction, positive affect, and emotion dysregulation predict pre-post changes in High-Risk Behavior scores of the Revised LPI?

Hypothesis 3: It was hypothesized that high risk behaviors significantly decreased from pre to post intervention. It was hypothesized that pre-intervention symptoms of anxiety, depression, and somatization significantly and negatively predicted change in high-risk behaviors. Finally, it was hypothesized that experiencing four or more ACEs significantly predicted change in high-risk behaviors.

Chapter III: Methods and Procedures

Participants and Setting

This study was conducted in a university setting within the Northwestern United States. Participants of this study voluntarily self-enrolled in the Wellness and Resilience for College and Beyond undergraduate course. This course was listed in the course catalog, and open to enrollment for all undergraduate students. Students were recruited from several sources including freshmen student advisors and as well as the athletics department who both frequently recommend this course to students who they believe may benefit from applying the skills taught in class.

Both lectures and quiz sections were completed virtually and synchronously through the Zoom platform due to university-wide restrictions prompted by the global COVID-19 pandemic. Lecture capacity was up to 300 students, and quiz section capacity was up to 45 students. Approximately 25% of the enrollment seats were reserved for first-year students due to the expected interest, need, and the timeline of course enrollment.

During the first week of class, the teaching staff sent an email to all students enrolled offering one extra credit point that would be counted on the final exam for the completion of the pre-intervention survey. After the completion of week 9 of instruction and before the final exam, the teaching staff sent a second email to all students offering one extra credit point on the final exam for the completion of the post-intervention survey. Students with 100% completion of the pre and post-intervention assessment battery were included in this study sample.

Procedures

The Internal Review Board at the University of Washington approved the procedures for this study. In the spring quarter of 2020, a 5-credit wellness and resilience skills course was

offered at the University of Washington – Seattle. The course, 10 weeks in duration, included one lecture (80 minutes duration), and one quiz section (50 minutes duration) per week. Lectures included approximately 10 minutes review of the previous lesson, 10 minutes of mindfulness practice and reflection, and 60 minutes of new content each week. Small groups of up to 6 sudents per group were assigned at the beginning of each quarter and each group was assigned to specific breakout rooms in Zoom for all small group activities. Quiz sections included several small group activities including a weekly ice-breaker (5 minutes duration), as well as supervised skills practice activities and reflections (25 minutes duration). Whole group activities in quiz sections included mindfulness practice and reflection (10 minutes duration), a weekly review quiz (5 mins duration), a review of key concepts (5 mins duration), and instructions for small group activities. Skills practice activities were conducted in various small group and individual formats depending on the skill of the week. Coaching, feedback, and support were provided by teaching staff based on staff observations of student performance during small group skills practice and reflections. Additional information regarding the structure of this intervention is provided in Appendix A of this study.

Course content was structured around the APT model of resilience (DeCano & Cook, 2015). APT stands for adapt (to become adjusted to new conditions), persevere (to persist with determination), and thrive (to prosper or flourish). This framework states that resilience is acquired through developing a sense of purpose, healthy attachments and connections, and experiencing positive emotions, with effective resources, reasoning, routines, and by increasing awareness of self, others, and environment (DeCano & Cook, 2015). The content of this course was designed to target all of the skills as they applied to this framework. Weekly content in sequence included: 1) introduction to resilience, 2) mindfulness, 3) goals and values, 4) distress

tolerance and willpower, 5) choosing attention and gratitude, 6) identifying unhelpful thoughts, 7) emotion regulation, 8) interpersonal effectiveness, 9) accumulating positive experiences and engaging in healthy behaviors and 10) a review of course content. Strategies for emotion regulation were targeted throughout the course, and emphasized on weeks 6 and 7. Goal setting skills were targeted during week 3 and included in every weekly homework assignment thereafter for student practice and supervised feedback. Awareness was targeted in week 2 of the course and practiced in every lecture, quiz section, and homework assignment thereafter for the remainder of the intervention. Additional information regarding the content of the skills taught within this intervention is provided in Appendix B of this study.

Demographics

Demographic information was obtained at pre-intervention. Age was provided in years. Gender was obtained by asking students to select the gender which they identify with and response options included male, female, and non-binary. Freshman status was determined by asking student's their year of study in the pre-intervention survey.

Measures

Emotion Dysregulation

The Difficulties in Emotion Regulation Scale – Short Form (DERS-SF) is a 18-item rating scale that provides a self-report of emotion regulation (Kaufman et al., 2016). Respondents read each item and select the best response option on a Likert scale from 1 (Almost Never or 0%-10% of the time) to 5 (Almost Always or 91%-100% of the time). This study included the total DERS-SF score determined by calculating the sum of all items in the data analysis to represent overall difficulty with emotion regulation. Higher total scores on the DERS-SF indicate greater difficulty with emotion regulation and lower scores indicate less difficulty (Kaufman et al.,

2016). This scale was adapted from the original 36-item Difficulties in Emotion Regulation Scale (Gratz & Roemer, 2004) to reduce burden on the respondent, and increase usability of the original measure (Kaufman et al., 2016). This brief scale has strong correlations with the original DERS total and subscale scores (ranging from 0.79 to 0.91) with the highest correlations among the total scores. Among college samples, the DERS-SF demonstrated reliability similar to the original measure across subscales (Cronbach's alpha >0.78) and the total score (Cronbach's alpha = 0.89) (Kaufman et al., 2016). This study used the total DERS-SF score as a measure of overall emotion dysregulation.

Psychological Capital

The Psychological Capital Questionnaire - 12 (PCQ-12) is a 12-item self-report rating scale that measures the four components of psychological capital (PsyCap) including hope, efficacy, resilience, and optimism, as well as a total PsyCap composite (Avey et al., 2011). The PCQ-12 was adapted from the original PCQ 24-item measure of PsyCap (Luthans et al., 2007) to reduce the length of the survey while maintaining the reliability and validity of the measure using confirmatory factorial analysis (Avey et al., 2011). Raters are provided response options on a 6-point Likert scale from Strongly Disagree (1) to Strongly Agree (6). To measure PsyCap constructs within student samples, academic items were included in this measure as outlined in previous studies (Luthans et al., 2012; Martinez et al., 2021). Recent studies have found academic versions of the PCQ-12 to have adequate psychometric properties including reliability (Cronbach's alpha >0.80) among international samples (Martinez et al., 2021). This study used the total PsyCap composite as a measure of the global composite of psychological capital.

High Risk Behaviors

The Revised Life Problems Inventory (Revised LPI) (Rathus et al., 2018) is a 60-item self-report rating scale designed to measure the features of Borderline Personality Disorder and emotion dysregulation as outlined by Linehan (1993). The original adolescent version of the LPI (Rathus & Miller, 2002) included four scales as well as a total score (Rathus et al., 2015). The LPI was revised by the original authors to include additional measures, specific to constructs targeted in DBT for adolescent populations (Rathus et al., 2018). The Revised LPI maintains all of the original scales, with the exception of Impulsivity, and additionally includes scales such as High Risk Behavior (Rathus et al., 2018). The original LPI demonstrated good internal reliability across scales (Cronbach's alpha >0.82), between scales and total scores (Cronbach's alpha >0.84), and good convergent validity with other measures of Borderline Personality Disorder and related symptoms (Rathus et al., 2015). This study used the High Risk Behaviors scale of the Revised LPI as a measure of risky behavior and ineffective coping strategies.

Psychological Symptoms

The Brief Symptom Inventory-18 (BSI-18) is a 18-item self-report that measures psychological symptoms experienced within the past 7 days across the domains of Somatization, Depression, and Anxiety (Derogatis 2001). Each domain consists of six items and respondents rate each item according to the level of distress they experienced in the past week for each symptom. Response options are provided on a 5-point Likert scale and range from "not at all" (0) to "extremely" (4). Wang and colleagues (2010) used confirmatory factor analysis to assess the factorial structure of the BSI-18 and results supported the validity of all three domains and the total score, with excellent reliability across domains (Cronbach's alpha >80) and for the global severity index (Cronbach's alpha >90) among the study sample. The current study used the BSI-

18 subscales to measure psychological distress among the sample. This study used the Depression, Anxiety, and Somatization domains of the BSI-18 as measures of these specific psychological symptoms.

Positive and Negative Affect

The Positive and Negative Affect Schedule (PANAS) is a 20-item self-report measure of general affect (Watson et al., 1988). Both positive affect and negative affect scales consist of 10 items that describe feelings and emotions. For each item, raters indicate the extent to which they generally feel that way using a 5-point Likert rating scale with options ranging from "very slightly or not at all" (1) to "extremely" (5). Higher scores indicate higher levels of affect and vice versa. Scale scores are calculated by summing items for each scale, and a total score can be calculated by summing the scores of the positive and negative affect scales. Authors report acceptable internal reliability for both the positive affect (Cronbach's alpha >.86) and negative affect scales (Cronbach's alpha >.84), as well as scale and item validity (Watson et al., 1988). Crawford & Henry (2004) used confirmatory factor analysis to evaluate the PANAS and results supported the validity of the two scales, and provided additional support for validity and reliability of the scales. The current study used the negative and positive affect scales as separate measures of affect.

Adverse Childhood Experiences

Adverse Childhood Experiences were measured using the Trauma Technical Assistance Tool developed by the Advancing Trauma-Informed Care project, the Center for Health Care strategies, and the Robert Wood Johnson Foundation (Schulman & Maul, 2019). This instrument includes the original ACEs questions from the seminal study (Felitti et al., 1998), and additional items regarding emotional, physical and medical neglect, as well as parental divorce (Schulman

& Maul, 2019). This screening tool is recommended for the use of universal screening and referrals to trauma-informed care services aimed to reduce the negative impacts of childhood trauma (Schulman & Maul, 2019). Raters indicate if each of the 10 items occurred in the first 18 years of their life. Responses are coded in binary with 1 representing endorsement of an item and 0 representing non-endorsement (Schulman & Maul, 2019). Previous studies indicate high risk for poor wellness outcomes for those with a history of 4 or more ACEs (Poole et al., 2017; Watt et al., 2020). The current study controlled for risk of poor outcomes related to ACEs by coding scores of 4 or greater into a high-risk group. Binary coding was used for correlations, whereas effect coding was used for regression models with scores 4 or greater indicating the high-risk group and coded as +1.

Life Satisfaction

The Student Life Satisfaction Scale (SLSS) is a 7-item self-report measure of life satisfaction developed to measure global life satisfaction among school-aged students (Huebner, 1991a, 1991b). Raters read items and select the responses on a 6-point Likert scale from Strongly Disagree to Strongly Agree. Two of these items are reverse coded, and higher ratings indicate higher levels of life satisfaction. A composite score is calculated by averaging the item scores. This measure has strong internal consistency (Cronbach's alpha = 0.82) as well as moderate test-retest reliability (0.74) and this measure is recommended by the developer for research purposes (Huebner, 1991a). This study used the total average score as a measure of global life satisfaction.

Data Analysis

Multiple linear regression with sequential predictor entry (Tabachnick & Fidell, 2013) was used to predict change scores from pre to post intervention in difficulties in emotion

regulation, psychological capital, and high-risk behaviors. The sample of this study included students from the Spring quarter of 2020. Three separate models were used to predict pretest-posttest change in the dependent variables presented in the three research questions of this study.

For each model, Block 1 included the respective pretest scores of the dependent variable, age, female status, and freshman status. Pretest ratings of anxiety, depression, somatization, high adverse childhood experiences (4 or more), negative affect, life satisfaction, positive affect and the pretest scores of the two dependent variables from the other models were entered in Block 2. For ease of results interpretation, freshman status, female status, and high ACEs were effect coded and all other rating scale scores were standardized into *Z*-scores.

The regression model for research question 1 was:

Pre-Post DERSChange = b_0 + b_1*ZDERSPre + b_2*ZAge + b_3*EffFemale + b_4*EffFreshman + b_5ZAnxietyPre + b_6*ZDepressionPre + b_7*ZSomatizationPre + b_8*EffHighACEsPre + b_9*ZNegAffectPre + b_{10}*ZSatisfactionPre + b_{11}*ZPsychCapPre + b_{12}*ZPosAffectPre + b_{13}*ZHighRiskBehPre

The regression model for the second research question was:

Pre-Post PsyCapChange = b_0 + b_1*ZPsyCapPre + b_2*ZAge + b_3*EffFemale + b_4*EffFreshman + b_5ZAnxietyPre + b_6*ZDepressionPre + b_7*ZSomatizationPre +b_8*EffHighACEsPre + b_9*ZNegAffectPre + b_{10}*ZSatisfactionPre + b_{11}*ZDERSPre + b_{12}*ZPosAffectPre + b_{13}*ZHighRiskBehPre

The regression model for the third research question was:

Pre-Post HighRiskBehaviorChange = b_0 + b_1*ZHighRiskBehPre + b_2*ZAge + b_3*EffFemale + b_4*EffFreshman + b_5ZAnxietyPre + b_6*ZDepressionPre + b_7*ZSomatizationPre

$+b_8$*EffHighACEsPre + b_9*ZNegAffectPre + b_{10}*ZSatisfactionPre + b_{11}*ZDERSPre + b_{12}*ZPosAffectPre + b_{13}*ZPsycapPre

In these models, the intercept (b0) tested whether or not change was significantly different from zero. The remaining coefficients tested the unique contribution of each predictor to pretest-posttest change.

Secondary Data Analysis

Following review of the results of the regression models above, a secondary regression model was used to more closely investigate the relationship between age and change in emotion dysregulation by adding each demographic predictor separately to the model in it's own sequential block. Because the predictors in the initial regression model were entered in the same block, it was difficult to know the impact that the pre score of emotion dysregulation had on each of the other predictors. In addition this model investigated if any interaction effects occurred between age and freshman status as well as age and female status by adding these variables to the final block. The first block of this model included pre-scores of emotion dysregulation, the second block added age, the third block added freshman status, the fourth block added female status, and the fifth block added the two interation terms of age by freshman status as well as age by female status. Interaction terms were calculated in SPSS by multiplying standardized age scores by effect coded freshman status, and standardized age scores by effect coded female status.

The regression model for this secondary analysis was:

Pre-Post DERSChange = b_0 + b_1*ZDERSPre + b_2*ZAge + b_3* EffFreshman + b_4*EffFemale + b_5*ZAgeXEffFreshman + b_6*ZAgeXEffFemale

As with the previous models, the intercept (b0) tested to see if change was significantly different from zero and the models identified the unique contribution of pre-test scores and predictors to pretest-posttest change of the dependent variables.

Chapter IV: Results

Three models were used to answer the three research questions of this study. The three models used multiple linear regression with sequential predictor entry to predict pre-to-post changes in the three dependent variables (difficulties in emotion regulation, psychological capital, and high-risk behaviors). Prior to the regression models, the four assumptions of general linear models were assessed for each of the research questions. Multicollinearity was assessed by measuring the strength of the linear relationship of each pair of variables within this model using Pearson correlations and the variation inflation factor (VIF) between predictors. The normality assumption was assessed by examining the histogram of the dependent variable and the P-P plot of regression standardized residuals charts as well as skewness and kurtosis values. The assumption of homoscedasticity was assessed by observing the scatterplot of the dependent variable. Finally, the Durbin-Watson d test examined the assumption of independence of residuals. The tests of assumptions and the results of the regression models are reported for each of the research questions below. In addition, a secondary model was conducted using multiple linear regression to more closely examine the relationship of age and change in difficulties in emotion regulation. Results of these analyses are described below for each of the research questions within this study.

Research Question 1: Difficulties in Emotion Regulation

Assumptions of General Linear Modeling

The Pearson correlations between variables within this model (Table 3) were less than 0.75 ($r < 0.75$), and VIF values were no higher than 3.41, indicating no concerns with regard to the multicollinearity assumption. The histogram of the dependent variable revealed a normal bell-shaped curve, the P-P plot chart closely followed the slope (Figure 1), skewness values for

predictors were less than 2 and kurtosis values less than 4 (Table 1). These results provide support for the assumption of normality within this model. The scatterplot of the dependent variable appeared as a typical shape and distribution (Figure 2), confirming the assumption of homoscedasticity. The Durbin-Watson *d* test was conducted ($d = 1.79$) and indicated the assumption of independence of residuals was met for this model.

Initial Regression Model

Model results for the first block (Table 4), which included pretest DERS-SF score, age, female status, and freshman status indicated that the first block better predicted the dependent variable ($R^2 = 0.227$, $R^2_{\text{adjusted}} = 0.201$, $F(4, 118) = 8.68$, $p < 0.001$) as compared to the second block, which included pretest ratings of anxiety, depression, somatization, high adverse childhood experiences, negative affect, life satisfaction, positive affect, psychological capital, and high-risk behaviors ($R^2 = 0.31$, $R^2_{\text{adjusted}} = 0.23$, $F(9, 109) = 3.72$, $p = 0.20$). Predictors in block 1 explained 22.7% ($R^2 = 0.227$, R^2 Change = 0.227) of the variance in pretest-posttest change ($p < 0.001$). Although not statistically significant, it is notable that in block 1, students increased difficulties with emotion regulation 0.28 points ($SE = 0.94$), when holding all demographic predictors constant. Preintervention difficulties in emotion regulation significantly predicted change scores ($p < 0.001$). For each standard deviation increase in preintervention scores of emotion dysregulation, there was a predicted decrease of 4.4 points in pre to post change scores in difficulties of emotion regulation when holding all other variables constant. Pre scores accounted for 21% of the variance in change scores within block 1 of this model. Age also uniquely predicted change in difficulties with emotion regulation ($p < 0.05$) within block one of this model. For each standard deviation increase in age, there was a predicted increase in change in difficulties in emotion regulation from pretest to posttest of 2.31 points when holding all other

predictors constant. This also means that students who were 1 standard deviation below the mean were predicted to decrease in emotion dysregulation 2.31 points from pre to post intervention. Age accounted for 3% of the variance of change in difficulties in emotion regulation within this model. Neither freshman status nor female status significantly predicted change in pre to post difficulties in emotion regulation within this regression model.

Results of the second block of this model (Table 4), revealed that the predicted increase in difficulties in emotion regulation of 1.02 points (*SE* = 1.62) was not statistically significant and can be explained by chance. Again, in this block pre scores of emotion dysregulation significantly predicted change in emotion dysregulation ($p < 0.001$). For every standard deviation increase in pre emotion dysregulation scores, there was a predicted decrease of 5.9 points in change scores, and pre scores accounted for 25% of the variance in change in emotion dysregulation. Age also significantly predicted change in difficulties in emotion regulation in this block ($p < 0.01$). For every standard deviation increase in age in the first block of this model, there was a predicted increase in change in difficulties in emotion regulation from pretest to posttest of 2.31 points when holding all demographic predictors constant. This also means that students one standard deviation less than the mean age were predicted to decrease in emotion dysregulation by 2.31 points. In this block, age accounted for 3% of the variance of change in difficulties in emotion regulation.

Secondary Regression Model

A second regression model was run splitting model 1 described above into five blocks containing first only the pre difficulties in emotion regulation scores, second age, third freshman status, fourth female status, and a fifth block containing the interaction terms of age by freshnman status, as well as age by female status. Model results (Table 5) showed that the first

block ($R^2 = 0.19$, $R^2_{\text{adjusted}} = 0.18$, $F(1, 121) = 28.58$, $p < 0.001$) that contained only the pre score of difficulties in emotion regulation best predicted the dependent variable as compared to the blocks containing age ($R^2 = 0.20$, $R^2_{\text{adjusted}} = 0.19$, $F(1, 120) = 2.38$, $p = 0.13$), freshman status ($R^2 = 0.22$, $R^2_{\text{adjusted}} = 0.20$, $F(1, 119) = 2.15$, $p = 0.15$), female status ($R^2 = 0.23$, $R^2_{\text{adjusted}} = 0.20$, $F(1, 118) = 0.97$, $p = 0.33$), and the interaction terms ($R^2 = 0.24$, $R^2_{\text{adjusted}} = 0.20$, $F(2, 116) = 0.82$, $p = 0.44$),. Across all blocks, pre scores of emotion dysregulation significantly predicted change scores ($p < 0.01$). For each standard deviation increase in preintervention ratings of emotion dysregulation, there was an expected decrease in change scores between 4.14 points to 4.40 points and pre scores accounted for 19 to 21 % of the variance in change scores across all blocks. Across blocks 3, 4, and 5 of this model, age significantly predicted change in emotion dysregulation ($p < 0.05$) and accounted for 2 to 3% of the variance in change scores. When controlling for the variables in this model, each standard deviation increase in age predicted an increase in emotion dysregulation of 2.37 in block 3, 2.31 in block 4, and 3.21 points in bock 5. No other variables in this model significantly predicted change in emotion dysregulation scores.

Research Question 2: Psychological Capital

Assumptions of General Linear Modeling

Pearson correlations (Table 3) between the variables were again, less than 0.75 ($r < 0.75$), and the highest VIF value was 4.04, which indicated the assumption of multicollinearity was met within this model. The histogram of the dependent variable visually followed a bell-shaped curve, and the P-P plot wass closely aligned with the slope (Figure 3), confirming the assumption of normality. Skewness and kurtosis values indicated no concerns with regard to the assumption of normality (Table 1). The scatterplot of the dependent variable's residual versus predicted value (Figure 4) appeared as a cloud shape with one outlier, indicating minimal concerns with

regard to the assumption of homoscedasticity. Durbin-Watson *d* results ($d = 1.70$) provided evidence for meeting the assumption of independence of residuals in this model.

Regression Model Results

Model results for the second dependent variable (Table 6), pre to posttest change on the total score of the PCQ, showed that the first block, which included pretest psychological capital scores, age, female status, and freshman status ($R^2 = 0.16$, $R^2_{\text{adjusted}} = 0.13$, $F(4, 118) = 5.56$, $p < 0.001$) better predicted the dependent variable as compared to the second block, which included pre scores of anxiety, depression, somatization, high adverse childhood expreineces, negative affect, life satisfaction, difficulties in emotion regulation, positive affect, and high risk behaviors ($R^2 = 0.21$, $R^2_{\text{adjusted}} = 0.11$, $F(9, 109) = 2.18$, $p = 0.69$). Model results for the first block of this model showed that the set of predictors together explained 15.9 % of the variance in pretest-posttest change. The intercept estimate was significantly different from zero for block 1 of this model ($p < 0.01$) and students increased psychological capital scores 0.19 points ($SE = 0.069$) from pre to post-intervention, when holding all demographic variables and pre-scores of psychological capital constant. In block 1, pre scores of psychological capital significantly predicted change scores ($p = 0.001$) and students who were one standard deviation below the mean in pre scores, there was a predicted increase in change scores of 0.25 points holding all else constant. Pre scores of psychological capital accounted for 13% of the variance in change scores within this block. Of note, none of the demographic variables in block 1 of this model predicted change in psychological capital from pre to post intervention.

In block 2 of this model (Table 6), change in psychological capital was not statistically significant, and increase in psychological capital by 0.01 points can be explained by chance. Again, pre scores significantly predicted change scores with a predicted increase of 0.34 points

in change scores ($p = 0.001$) for every standard deviation below the mean of pre scores. In this block, pre scores of psychological capital accounted for 10% of the change in psychological capital from pre intervention to post. In this model, none of the other variables significantly predicted change in pre to post psychological capital scores.

Research Question 3: High Risk Behaviors

Assumptions of General Linear Modeling

Pearson correlations within this model were no higher than 0.75 and VIF values no higher than 4.04, indicated the assumption of multicollinearity within this model was met (Table 3). The dependent variable histogram met the assumption of normality and followed the expected bell curve. In the P-P plot (Figure 7), the residuals deviated from the slope at points, however the tails landed on the slope indicating minimal concern with regard to assumption of normality. Skewness and kurtosis values again fell within expected ranges, providing further support for meeting the assumption of normality (Table 1). The scatter plot of the dependent variable met visual expectations for the assumption of homoscedasticity (Figure 8). The Durbin-Watson *d* value ($d = 0.74$) was lower than expected, indicating positive auto correlations between consecutive residuals. Therefore, statistical significance within this model should be interpreted with some caution.

Regression Model Results

The model results for the third dependent variable (Table 7), pretest-posttest change on the High Risk Behavior scale of the Life Problems Inventory - Revised, showed that the first block which contained pre scores of high risk behavior, age, female status, and freshman status ($R^2 = 0.24$, $R^2_{\text{adjusted}} = 0.22$, $F(4, 118) = 9.41$, $p < 0.001$) better predicted the dependent variable as compared to the second block ($R^2 = 0.30$, $R^2_{\text{adjusted}} = 0.21$, $F(9, 109) = 3.51$, $p = .51$), which

contained pre ratings of anxiety, depression, somatization, high adverse childhood experiences, negative affect, life satisfaction, difficulties in emotion regulation, psychological capital, and positive affect. In the first block of this model, the total set of predictors explained 24% of the variance in pretest-posttest change. Although not statistically significant, students decreased high risk behaviors 0.27 points (*SE* = 0.21) in block 1 and 0.17 points (*SE* = 0.37) in block 2, holding all other variables constant. Pre scores of high risk behaviors significantly predicted change in both blocks of this model. In block 1, for each standard deviation increase in pre scores, there was a predicted decrease in change scores of 0.95 points ($p = 0.001$). In this block, pre scores accounted for 20% of the variance in change scores when holding the demographic variables constant. In block 2, each standard deviation increase in pre scores predicted a 1.02 point decrease in change scores holding all else constant. In this block, pre scores accounted for 19% of the variance in change scores. None of the other variables within this model significantly predicted change in pre to post difficulties in high-risk behaviors within either block of this regression model.

Chapter V: Discussion

This chapter provides a summary of this study including the aims, methods, and results. This is followed by a discussion of the limitations of the findings, as well as directions for future research in this area. This study aimed to examine changes in markers of wellbeing among students who completed a wellness and resilience undergraduate class which took place during the onset of the global COVID-19 pandemic. Specifically, this study examined changes in student self-ratings of emotion dysregulation, psychological capital (hope, efficacy, resilience, and optimism), and engagement in high-risk behaviors from preintervention to postintervention. Multiple linear regression with sequential predictor entry was used to explore the relationship between changes in student ratings with demographic variables (age, female, and freshman status) as well as indicators of affect (positive and negative), mental health (depression, anxiety, and somatization), and positive psychology (life satisfaction).

Across all models, preintervention scores of difficulties in emotion regulation, psychological capital, and high-risk behaviors were the best predictors of pre to post intervention change for their corresponding constructs. Because change scores were calculated by the difference between the post score and the pre score, pre scores significantly predicting change scores was very much expected within this regression model. Similarly, regression towards the mean in that higher pre scores negatively predicting change scores was expected and confirmed for all models. In short, this finding is a reflection of the regression methods used within these models and does not point towards meaningful implications.

Research Question 1: Difficulties in Emotion Regulation

The first research question sought to understand if and how students in this study change in self-ratings of emotion dysregulation when controlling for age, female status, freshman status,

pre levels of emotion dysregulation, anxiety, depression, somatization, high ACEs (4 or more), negative affect, psychological capital, life satisfaction, positive affect, and high-risk behaviors. Surprisingly, the only variable which significantly predicted change in emotion regulation was age, and this negative prediction also held true for the secondary analysis model. Although change in emotion dysregulation was not statistically significant, age was a significant predictor of change scores. The inclusion of interaction terms in the secondary analysis did not reveal any significant findings. However, the pattern of age as a significant predictor in emotion dysregulation change scores suggests a positive relationship between these two variables.

The finding that younger students saw greater improvements in emotion regulation as compared to older students was not found in other relavent studies and may have been due to other pandemic-related variables that were not included in this study. Such variables may include whether individuals had to move into the home of their family upon the start of the pandemic, if students experienced housing or food insecurity, employment status, and/or financial stressors. It is also possible that younger students may benefit most from this intervention as they learn to adapt to the transition into college life in this vulnerable time of their development. Future studies may benefit from including a closer examination of how these factors or others may further explain the relationship of age and change in emotion dysregulation over time.

Contrary to the hypothesis, there was no statistically significant change in emotion dysregulation. Although no meaningful change in emotion dysregulation was found, no significant deterioration in emotion regulation skills was observed as students presumably did their best to cope with the unfolding pandemic in addition to typical stressors of student life. When looking into the current research on trends in emotion regulation in young adults and older adolescents, several key findings help to frame the results of this study in comparison to others.

Several studies across the course of the COVID-19 pandemic suggest that emotion dysregulation and negative wellness indicators increased over time (Gupta et al., 2022; Rufino et al., 2022; Venanzi et al., 2022). Gupta and colleagues (2022) found that adolescents with no previous depressive concerns experienced increases in depression symptoms throughout the course of the pandemic. Among college students in Italy, depression and insomnia increased, whereas wellbeing decreased over the course of the pandemic, and this relationship was amplified for students with high emotion dysregulation (Rufino et al., 2022). Venanzi and colleagues (2022) found that pandemic-related stress positively predicted symptoms of depression, anxiety, and alcohol use severity among adults in the United States at the start of the pandemic. In addition, engagement in the emotion regulation strategy of rumination positively predicted depression and for those with low use of acceptance skills, stress was positively associated with increased depressive symptoms (Venanzi et al., 2022). These studies demonstrate the recurrent theme of increasing concern with regard to emotion regulation and negative behavioral health outcomes over the course of the global COVID-19 pandemic.

The skills targeted within the current intervention have been shown in recent research to increase positive wellness outcomes and decrease the impact of pandemic related stressors on negative wellness outcomes (Lopez et al., 2021;Renati et al., 2022; Rufino et al., 2022). During the initial lockdown months (February through April, 2020) emerging adults who improved in mindfulness had significant reductions in cognitive distress, whereas those who diminished in mindfulness experienced significant increases in both cognitive failures (forgetfulness), and rumination (Lopez et al., 2021). Among university students during the COVID-19 pandemic, problem solving, seeking social support, and cognitive reappraisal were significantly and negatively correlated with psychological distress, and use of avoidance, denial, and distraction

strategies were positively correlated with psychological distress (Renati et al., 2022). Rufino and colleagues (2022) found that students with lower levels of resilience reported significantly greater increases in depression, anxiety, and insomnia throughout the course of the pandemic. These studies support the need to increase effective use of emotion regulation strategies to reduce negative wellness concerns among college students during the pandemic.

Several researchers within the field recommend that university settings teach these emotion regulation and resilience skills to their students to increase positive and reduce negative wellness outcomes among their students and especially during times of increased stress (Lopez et al., 2021; Rufino et al., 2022) . Rufino and colleagues (2022) suggest that universities teach emotion regulation strategies such as mindfulness, distress tolerance, and relaxation to students to cope with the long-term effects of the pandemic. Other researchers suggest that interventions targeting mindfulness skills to emerging adult populations may help to reduce the cognitive distress prompted by situations such as lockdowns by helping students to act with more awareness of their experience and to refocus the wandering mind to the present moment (Lopez et al., 2021).

However, some research has suggested that teaching effective emotion regulation and resilience skills is not enough. Wicks and colleagues (2022) studied coping strategies of US college students during the beginning of the pandemic and surprisingly found that problem solving, seeking social support, and cognitive reappraisal were weakly associated with internalizing symptoms. They concluded that stressors of the COVID-19 pandemic made it more difficult for students, to effectively engage in coping skills even if the skills were mastered within certain contexts (Wicks et al., 2022). Coping skills are effective within the context of situations and in relation to the goals of the individual (Aldao et al., 2010). Therefore, particular skills such as cognitive reappraisal or problem solving may not effective when it comes to

coping with certain aspects of the pandemic (Wicks et al., 2022). Interventions are likely to be most effective when they focus on increasing adaptive strategies, diminishing maladaptive strategies, and training students regarding the contexts in which particular coping skills may be most effective (Wicks et al., 2022).

Given the research demonstrating declines in emotion regulation and related wellness outcomes throughout the pandemic, the non-significant findings within this study suggest that students enrolled in this intervention were able to regulate their emotions despite the stressors of the pandemic effectively enough to not demonstrate the deterioration found across other pandemic studies. The skills that are most closely tied to wellness in the studies above are the same skills that were taught in the intervention class from March 2020 through June 2020. The methods used in the current study match the recommendations of the authors of the studies above. Importantly, the current study not only taught students effective emotion regulation strategies, it also focused on changing ineffective strategies, and specifically taught students the contexts in which each skill may be most effective and least effective. Regardless of insignificant change in emotion regulation, it appears that the current intervention was delivered with impeccable timing, targeted key emotion regulation and resilience skills, was aligned with best practices, and was evidence based. Furthermore, the fact that students of this study saw no significant declines in emotion regulation is encouraging, especially when considering that other studies have found significant declines during the pandemic (Gupta et al., 2022; Rufino et al., 2022; Venanzi et al., 2022).

Research Question 2: Psychological Capital

The second research question examined if and how students change in psychological capital scores from pre to postintervention when controlling for pre ratings of psychological capital, the

demographic variables of freshman status, age, and female status, pre levels of anxiety, depression, and somatization, high ACEs (4 or more), negative affect, emotion dysregulation, life satisfaction, positive affect, and high-risk behaviors. The hypothesis was partially supported by the results of this regression model, which showed a statistically significant increase in psychological capital change scores when controlling for demographic variables and pre psychological capital ratings.

Increases in psychological capital are widely accepted by researchers as a positive outcome and several recent studies note the psychological benefits of increases in this construct for students. Barratt and Duran (2021) found that increases in psychological capital among graduate students engaged in both distance learning and full-time employment significantly and negatively predicted academic burnout, and positively predicted academic engagement. Similarly, among nursing students in China, psychological capital was positively correlated with academic engagement and negatively correlated with burnout (Wang et al., 2021). High school and vocational students with higher ratings of psychological capital during the COVID-19 pandemic, were more effective in learning and applying academic coping strategies than their peers (Sinring et al., 2022). For university students in China, psychological capital was negatively correlated with symptoms of both anxiety and depression during a COVID-19 campus closure (Wang et al., 2023), and during COVID-19 restrictions (Li et al., 2021).

These findings add to the research in demonstrating that psychological capital is a set of skills that can be taught and learned through targeted intervention such as those applied within this current study. Interventions targeting psychological capital have significantly improved student endorsements of the HERO elements of hope, efficacy, resilience, and optimism (Finch et al., 2023). Researchers have called for the development of university-based interventions

targeting psychological capital as a way to increase resilience skills (Tang & He, 2022) and academic engagement (Barratt and Duran, 2021), reduce psychological distress (Tang & He, 2022), prevent poor academic outcomes (Slatten et al., 2023), and protect against student burnout (Barratt and Duran, 2021). Universities can embed tasks aimed to increase psychological capital and resilience into course curricula, as well as expand and engage students social support networks (Barratt and Duran, 2021).

Current research suggests that increasing student psychological capital can be an effective way to protect students from experiencing unnecessary psychological distress from the stressors that they are exposed to in the university setting (Li et al., 2021; Poots & Cassidy, 2020; Slatten et al., 2023) . Poots & Cassidy (2020) found that psychological capital mediated the relationship between academic stress and wellbeing for university students. For Chinese college students, psychological capital partially mediated the relationship between social exclusion and depression (Li et al., 2021). For Norwegian university students, psychological capital mediated the relationship between both academic and peer supports with academic performance, academic engagement, and wellbeing (Slatten et al., 2023). Some researchers have gone so far as to say that it is necessary to enhance psychological capital if universities want to reduce depression symptoms in college students (Li et al., 2021).

The significant increases in student psychological capital within this study provide further support that psychological capital is a skill that can be taught to university students even in times of significant stressors such as a global pandemic. Even small increases in psychological capital can have large impacts on overall student wellbeing. The timing and delivery of this intervention during the COVID-19 pandemic suggests that universities that build into their course catalog classes such as the wellness and resilience intervention of this study that can

benefit students not only during typical times, but also through any particularly stressful times that may negatively impact student wellness. Having these resources in place before they are needed is key to providing a quick and effective response to the stressors that negatively impact student wellness.

Research Question 3: High Risk Behaviors

The final research question investigated student change in high risk behaviors from pre to post intervention, controlling for freshman status, age, female status, pre-intervention ratings of high risk behavior, levels of anxiety, depression, somatization, high ACEs (4 or more), negative affect, psychological capital, life satisfaction, positive affect, and emotion dysregulation. The hypothesis was not supported. No significant change in high risk behaviors was observed, and none of the variables within this model significantly predicted change in high risk behaviors.

There are several factors of note when considering why significant results were not found for high risk behaviors. The results regarding high-risk behavior may have been impacted by the context of the study setting, the wording of survey items, as well as changes in risky behaviors that occurred as a result of restrictions related to the pandemic. The survey question regarding substance use asks about use of "street drugs like marijuana." For students at this specific university, this may be a confusing question to answer given that marijuana is legally sold for recreational use in dispensaries throughout the city. The question regarding skipping class assumes that students skip because "something better comes along," while during a pandemic students may skip class for other reasons and not endorse this item. Additionally, recent research on high risk behaviors such as alcohol use among university students provides in an depth look at some of the contextual factors that have impacted changes in student high risk behaviors during the pandemic.

Several researchers investigated trends in student alcohol consumption pre and post-pandemic and findings suggest that drinking patterns had some noticeable trends across studies (Clare et al., 2021; Jaffe et al., 2021; Jackson et al., 2021; Minhas et al., 2021). Some studies found no changes in the frequency of occurrences of student alcohol consumption (Jaffe et al., 2021; Jackson et al., 2021), and one study found an increase (Clare et al., 2021). All studies reviewed observed decreases in quantity of alcohol consumption per occurrence (Jackson et al., 2021; Jaffe et al., 2021), and one noted decreases in the maximum quantity of drinks consumed within each occurrence (Clare et al., 2021). In addition, changes in settings were noted with the onset of the pandemic including increased drinking alone, virtually (Clare et al., 2021), and with family members (Jackson et al., 2021), as well as decreases in drinking with friends, roommates, and at parties (Jackson et al., 2021).

Students reported that increases in frequency and setting of alcohol consumption occurred due to COVID-19 pandemic restrictions that decreased opportunities to engage in other activities (Clare et al., 2021), out of boredom and increases in idle time (Clare et al., 2021; Jackson et al., 2021), because they viewed drinking as less risky, and to cope with psychological distress (Jackson et al., 2021). Ninety-two percent of students attributed decreases in quantity of consumption to fewer social opportunities, and some cited limited access to alcohol, health, and self-discipline as factors (Jackson et al., 2021). Decreases in alcohol related harm, and adverse consequences were noted in some studies (Clare et al., 2021; Minhas et al., 2021), however other studies associated drinking alone and socially with increased consequences including alcohol abuse and dependence (Hultgren et al., 2022).

These examples of changes in student engagement in high-risk behaviors during the pandemic, demonstrate that these behaviors changed greatly due to COVID-19 pandemic

restrictions. It is reasonable that the change in pre to post student ratings of high risk behaviors was not significant due to variables and contextual factors that were not accounted for in this statistical analysis. The complexities and subtleties the social landscape during the pandemic could have been impacted by many variables that were not controlled for within this study, such as student participation in COVID-19 restrictions, if students moved into the home of family members during the pandemic, relationship status, and perceived social support. Although not statistically significant, the drop in high-risk behaviors is in the desired direction, and future studies may wish to include additional variables based on the literature to further invistigate the effects of this intervention on student high risk behaviors.

Limitations and Future Research Directions

This study has several limitations that must be acknowledged both in methodology and generalizability. Methodological limitations include a lack of control group, sampling, measurement, and design. Limitations impacting generalizability include temporal, environmental, social, and health factors. These limitations are outlined below followed by a discussion of the implications of the findings this study.

One major limitation of this study is that it did not include a control group or comparison group. Due to having no control, it is impossible to determine whether the effects of this intervention are causally attributed to the curricula, other factors, or a blend of the two. Future studies are recommended to use either a comparison group of students who receive an alternative intervention, a control group that represents what a typical student would gain from enrolling in a typical undergraduate course, or both.

Sampling procedures for inclusion in this study were also a limitation in the study design. To participate in this study, students first self-selected to enroll in this course through the

university. Following enrollment, students included in this study were self-selected using voluntary response sampling methods. Students were offered a small amount of extra credit applied to their grade on the final for completion of the pre and postintervention survey, as well as an entry in a raffle for an Amazon gift card. These voluntary sampling methods are likely to have some impact on the population that is represented within this study. Future studies may wish to include how the student learned about the college class (ex: peer referrals, staff referrals, course catalog, etc.), as well as student reasons for enrolling (ex: elective credits, self-growth, develop career skills, etc.).

This study was also limited by the measurements selected for the pre and postintervention survey. The High Risk Behavior subscale of the Life Problems Inventory – Revised was used as both a predictor and to calculate the dependent variable of change in high risk behaviors. This particular scale was intended to be used as a subcomponent of the broad construct of life problems within teenagers and young adults that represent global problems with emotion regulation. This scale consisted of 5 items and represent a small fraction of high risk behavior including skipping class to engage in more preferred activities, unlawful behavior, use of "street drugs" like marijuana, risky sexual behaviors, and alcohol abuse. Some of the items within this scale may fail to measure behaviors such as use of recreational marijuana sold legally in dispensaries. In addition, it seems reasonable to presume that opportunity to engage in behaviors such as risky sexual behavior, alcohol abuse, and preferred activities may have been reduced during the course of this study due to the restrictions of the global pandemic. These limitations in measurement may have impacted the findings of this study.

One limitation of the design of this study is the pre-post multiple linear regression design. Because this study takes only into account pre and postintervention levels of the dependent

variables by way of change scores, it is limited in demonstrating the long-term effects of taking this class. Although each week the skills are taught in lecture, practiced in lab, and homework includes reflection of skills practice, any new skill or behavior takes some time to master and to generalize it's use across environments. Given the volume of skills taught across 10 weeks of the quarter, it is recommended that future studies use longitudinal designs to investigate the long-term impacts of this class on wellness outcomes up to one year following course completion.

Regarding the generalizability of this study, the sample was limited to one quarter's enrollment in one class at the University of Washington, and therefore is unique to these conditions limiting generalizability to other populations and locations until further research can be conducted. The timing of this study was especially unique as it occurred within the first few months of a global pandemic, during a time of misinformation and confusion regarding the COVID-19 virus, and during civil unrest regarding police reform and antiracism movements. This "perfect storm" of health, economic, and social stressors is quite unique in the lifespan of the students (ages 18 to 23) within this study, and it is unknown if the results of this study would generalize if replicated outside of the conditions outlined above.

Just two weeks before the start of this intervention, the World Health Association officially declared COVID-19 a global pandemic on March 10th, 2020 (WHO, 2020). The onset of this global pandemic increased student worry about contracting the COVID-19 virus and negatively impacted their psychological health (Ihm et al., 2021). During the first few months of the pandemic, college students experienced increased stress (von Keyserlingk et al., 2021), anxiety (Charles et al., 2021; Son et al., 2020; Wang et al., 2020), depression and suicidal ideation (Amendola et al., 2021; Guintella et al., 2021; Holman et al., 2020; Rudenstine et al., 2021), and decreased wellbeing (Sibley et al., 2020).

In addition to unique psychological impacts, the pandemic negatively impacted economic resources for students as well. Universities across the globe restricted student access to resources including student housing (von Keyserlingk et al., 2021). Studies found that the onset of the COVID-19 pandemic negatively impacted food and housing insecurity (Ehmke et al., 2022), employment (Ihm et al., 2021), economic status (Rogowska et al., 2021), and vocational opportunities (Rogowska et al., 2022) for students nationally and globally.

Finally, the onset of the pandemic delivered a strong blow to students ability to access social supports. Following state ordered stay-at-home mandates, students social lives were drastically changed, with limited ability to engage in social activities, gatherings, and supports (von Keyserlingk et al., 2021). Racial tensions including public demonstrations against the discrimination of people of Asian descent, and calls against racism in policing policies following the shooting of George Floyd and Breonna Taylor added further social stressors to the plates of college students during the Spring quarter of 2020 and especially for students of color (Hahm et al., 2021; Ihm et al., 2021; Maleku et al., 2021; Schad et al., 2022).

When combined, this series of stressors created a unique set of environmental factors that cannot (and hopefully will not) be reproduced for future cohorts and generations of college students. This unique environment is yet another limitation to the generalizability of this study. For the reasons above, the findings of this study are recommended to be interpreted with the understanding that they describe a very particular set of students within a very particular environment, who all engaged in a universal 10-week wellness and resilience intervention at the undergraduate level.

Implications for Practice

The findings within this study provide further support for the efficacy of this intervention. Findings suggest that this universal 10-week wellness and resilience undergraduate course is effective in supporting students to increase psychological capital and resilience resources. In addition, universities can use this model of intervention in providing effective services and supports for the psychological wellbeing of their students.

Increasing Psychological Resources

Despite vulnerabilities to psychological stressors typical for college students, and the increased psychological demands due to the onset of the COVID-19 pandemic (Ehmke et al., 2022; Ihm et al., 2021; Rogowska et al., 2022; von Keyserlingk et al., 2021), the students of this study (N = 123) were provided an opportunity to strengthen their psychological resources through psychological skills training. Framed in the Dual Factor Model of mental health, the skills taught within this intervention targeted the reduction of mental health concerns, augmentation of positive emotional experience, and acceptance and tolerance of negative emotional states. These skills were specifically selected for their efficacy within the current research literature and with the goal of replacing ineffective coping habits with more effective coping skills. The skills draw upon the research of several evidence-based behavioral sciences including CBT, DBT, ACT, and Positive Psychology (Beck, 2011; Hayes et al., 2012; Linehan, 1993; Seligman & Csikszentmihaly, 2000). The course structure applied best practices in skill development including skills training in lectures, skill practice in labs, skills generalization and reflection through class assignments, and skills coaching through grading and feedback of assignments (Linehan, 1993).

All of these evidence-based practices aimed to increase student psychological resources for coping with stressors were possible because this course had been developed and implemented ahead of the COVID-19 pandemic. During a time when global mental health resources were strained, students had this course available to them with the simple act of electing to enroll in this coursework. This provides support for universities to offer such courses regularly, not only to support individual students who may benefit from this intervention, but also to have a system in place to support groups of students who may benefit, such as those who have experienced a community trauma or natural disaster. To have the option to elect into classwork in any given quarter proactively provides a psychological security net for all students.

Increasing Resilience Resources

In addition to psychological resources, this course provided students with resilience resources such as social supports, informational supports, as well as referrals to mental health services offered by the university. During labs, the students met in the same small groups called "family groups" in which they practiced skills and shared reflections on the effectiveness of skill use in their daily lives. This pedagogical feature of this intervention served as a built-in social support for students during the onset of the pandemic during shelter in place, and social distancing mandates. As part of the class, university and local resources were shared weekly with students including resources for housing and food insecurity. Finally, students who demonstrated a need for additional wellness supports, either through self-disclosure in course assignments or conversations with staff, were referred for additional psychological supports as needed. In this way, this intervention served as a fountain of resilience supports for students during the chaotic first few months of the pandemic, providing social supports, resources for housing and food insecurity, as well as additional mental health resources as needed.

Universal Approaches for Supporting Student Wellness

As noted above, this universal preventive approach to supporting student wellness has many benefits, and especially when it is "baked into the cake" of the university course offerings and support networks. Once the coursework is in place, even when there is a community or global event such as the COVID-19 pandemic, there is very little assembly required to support a large volume of students with a relatively small amount of staff and resources. Compared to traditional campus wellness supports such as university counseling centers, this universal approach to student wellness is both sustainable, bringing it's own funding through tuition costs, as well as acceptable to students who consistently fill 300 seats per quarter. Students in this class receive 10 weeks of skill building supports, a number two to three times the average number of sessions that students receive in college counseling centers (Edwards, 2011). By bringing wellness and resilience supports into the classroom, students can receive evidence-based psychological and resilience supports with potentially reduced levels of stigma or worries about being seen in a university counseling center.

Based on the implications above, the intervention within this study appears to be an exceptional addition to any university that strives to support student wellness through a tiered system of integrated supports aimed to serve students across a full spectrum of wellness needs. By providing this intervention as part of the fabric of the educational system, this university sends a clear message to students that they are not willing to wait for students to get to a crisis situation before offering psychological and resilience supports. The supports offered by this small team of professors and students of the School Psychology program housed within this university provide hands on experience for future generations of school psychologists to learn and apply universal prevention approaches to preventively support student wellness. In addition,

these school psychologists in-training have a great potential to provide similar wellness supports within the schools they will work as they enter into the field. The "ripple effect" for the potential impact of these school psychology students to bring these prevention efforts into public school settings is inspiring and hopeful. The future of the world is in the hands of the youth, and through universal prevention efforts, the next generation may have greater opportunities to increase the skills and resources they will need to better care for our world and to cultivate harmony, peace, and wellness for all.

Conclusion

For students, the transition to college can bring many additional stressors and students are vulnerable to experiencing challenges in growing and maintaining psychological and resilience resources. Additional experiences such a history of adverse childhood experiences can amplify these vulnerabilities and negatively impact student wellness. The start of the COVID-19 pandemic in March of 2020 was a major stressor that negatively impacted student's psychological wellbeing and reduced resilience resources. Given the significant vulnerabilities and needs of college students during the time of the pandemic, researchers have advocated for supportive action on the part of universities to increase student psychological and resilience resources (Ehmke et al., 2022; Ihm et al., 2021; Rogowska et al., 2022).

Overall, this study provides support for the application of universal interventions that target evidence-based psychological and resilience resources to support student wellness within the university setting. This intervention provided students with an opportunity to gain psychological and resilience resources during a vulnerable time in their development and in the midst of significant stressors due to the global COVID-19 pandemic. This universal approach appears sustainable, acceptable, and effective and appears to be an exceptional addition to any

university that strives to support student wellness. Importantly, this intervention has an unseen "ripple effect" in which the school psychology students who support the delivery of this intervention may continue to engage in similar prevention efforts in the public school settings in which they will eventually practice. Although the need is great, the potential of this intervention to provide students with the resources they need to increase their wellness is unmeasurable.

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Appendix A: Description of Course Structure

Assignments

The weekly homework posts include four sections per week including reflections of skills practice, quiz section activities, quiz section extension activity, lecture and readings. In the skills practice section students write a half a page reflection on how they apply the current week's skills into their daily lives, as well as a half page of structured goal setting for how they plan to apply the weekly skills into their daily lives moving forward. In the quiz section reflections students write a half page reflection on the small group supervised skills practice activity, followed by a half page reflection of the assigned extension activity to be completed independently following quiz section. In the lecture and readings section, students write a half page reflection of the lecture and reading content for the week, ask questions about course content, and reflect on how the weekly course content might help them in the future.

Diary cards track skill practice for each skill taught in the curriculum. Each week, students complete a new diary card containing all of the skills taught from the first lecture, until the current week. Students rate each skill with a 8-point Likert rating scale that indicates if they thought about or used each skill and effectiveness of skill application. Students complete a short reflection describing how they practice weekly skills and an optional section where they may ask questions about skill use to their course grader.

A final exam is administered following week 10 of instruction. The final exam includes 50 multiple choice and true or false questions that demonstrate student knowledge of specific skills and concepts taught throughout the course. In the final days of the Spring quarter 2020, the final exam was made optional due to the stress of both the pandemic and the racial demonstrations occurring in the city of Seattle following the death of George Floyd. Students

were provided the option to raise their grade by taking the exam, however their final grade scores would not negatively impact their overall grade.

Skills

The skills taught within the course curricula fell loosely into one or more of the three major therapeutic treatments for emotion regulation previously discussed. A review of all skills and concepts taught within this curricula is beyond the scope of this current paper. The table in Appendix B represents many of the skills taught within the course curricula, and a brief description is provided as well as a guide as to which particular cognitive-behavioral theory each skill is associated with. Please note that skills may be associated with more than one theoretical orientation and these categories are somewhat arbitrary, however provide the reader with an understanding of how the skills selected for this intervention relate to evidence-based practice.

Appendix B: Skills Taught within the Course Curriculum

Lesson	Skill	Brief Description	Aligns with
Mindfulness	WHAT skills	Mindfully observing, describing, or participating.	DBT
	HOW skills	Being effective, without judgment, in the present.	DBT
	Wise Mind	Acknowledging both logic and emotion.	DBT
Goals & Values	WOOP	Acronym for effective goal setting.	ACT, DBT
Distress Tolerance & Willpower	TIPP	Short-term skills used in moments of emotional crisis, and aimed to prevent making the situation any worse than it already is.	DBT
	IMPROVE		
	ACCEPTS		
	Pros & Cons		
	Willpower	Engaging in values-based and inhibiting avoidant behaviors.	ACT
Attention & Gratitude	Turning the Mind	Commit to accepting reality exactly as is.	DBT
	Willingness	Accept reality, mindfully participate, & use skills effectively.	DBT, ACT
	Silver Lining	Shifting the focus of attention away from negative thought patterns and toward positive thoughts.	CBT
	Positive Self-Talk		
	Gratitude		
Identifying Unhelpful Thoughts	Cognitive Defusion	Viewing thoughts simply as thoughts and nothing more.	ACT, CBT
	Cognitive Distancing	Noticing thoughts as hypotheses rather than objective facts.	ACT, CBT
	Cognitive Restructuring	Evaluating thoughts and altering or reframing them.	CBT
	M. of Current Thought	Mindfully observing thoughts and allowing them to be as is.	DBT
	Detective Thinking	Socratic questioning of thoughts.	CBT
Emotion Regulation	Check the Facts	Emotion regulation skills aimed to change or accept difficult emotions. Skills are applied in the absence of emotional crisis.	DBT, CBT, ACT
	Opposite Action		
	Problem Solving		
	Wave Skill		
Interpersonal Effectiveness	DEARMAN	Skills used to effectively request something, say “no”, build and maintain relationships, and maintain self-respect.	DBT
	GIVE		
	FAST		

Appendix C: Tables

Table 1

Descriptive Statistics

	Min	Max	M	SD	Skewness	Kurtosis
Difficulties in Emotion Regulation Change	-30	25	-0.79	9.69	0.13	0.81
Psychological Capital Change	-3.33	1.67	0.13	0.68	-1.43	6.66
High-Risk Behavior Change	-9	7	-0.47	2.17	-0.46	3.67
Age	18	23	19.67	1.163	0.473	-0.383
Somatic	0	29	3.04	4.28	1.98	3.6
Depression	0	18	5.65	4.68	0.857	-0.085
Anxiety	0	23	4.59	4.76	1.37	1.62
Positive Affect	1.1	5	2.94	0.8	0.024	-0.396
Negative Affect	1.1	4.7	2.28	0.71	0.76	0.2
Life Satisfaction	2	6	4.33	0.76	-0.37	0.12
Difficulties in Emotion Regulation	21	74	40.24	11.47	0.53	-0.21
Psychological Captical	1	6	4.25	0.85	-0.4	0.34
High-Risk Behavior	5	20	7.54	3.52	1.77	2.53
Adverse Childhood Experiences Total	0	9	1.33	1.79	1.63	2.82
Z Score: Difficulties in Emotion Regulation Change	-1.67	3.06	0.05	0.09	0.531	-0.21
Z Score: Psychological Capital Change	-3.33	1.67	0.13	0.68	-1.43	6.66
Z Score: High-Risk Behavior Change	-9	7	-0.47	2.17	-0.46	3.67
Z Score: Age	-1.29	2.44	-0.04	0.87	0.47	-0.38
Z Score: Somatic	-0.74	3.93	0.01	1.05	1.98	3.6
Z Score: Depression	-1.22	2.61	-0.02	1	0.86	-0.09
Z Score: Anxiety	-0.97	3.73	-0.03	0.97	1.37	1.62
Z Score: Positive Affect	-2.37	2.62	-0.02	1.02	0.02	-0.4
Z Score: Negative Affect	-1.7	3.49	0	1.02	0.76	0.2
Z Score: Life Satisfaction	-2.9	2.25	0.03	1.02	-0.37	0.12
Z Score: Difficulties in Emotion Regulation	-1.67	3.06	0.05	1.02	0.53	-0.21
Z Score: Psychological Captical	-3.33	2.12	0.07	0.99	-0.4	0.34
Z Score: High-Risk Behavior	-0.71	3.65	0.02	1.02	1.77	2.53

Table 2

Frequency Tables (Demographic Distribution)

Variable	Attribute		N	%
Age		18	18	14.6
		19	44	35.8
		20	31	25.2
		21	21	17.1
		22	8	6.5
		23	1	0.8
Year	Freshman		47	38.2
	Sophomore		35	28.5
	Junior		19	15.4
	Senior		15	12.2
	Transfer		5	4.1
	Other (type in)		2	1.6
Gender Identity	Female		93	75.6
	Male		27	22
	Prefer to Self-Describe		3	2.4
ACE's		0	60	48.8
		1	21	17.1
		2	16	13
		3	10	8.1
		4+	16	12.9

Table 3

Zero-Order Disaggregated Correlations for All of the Variables used in each of the Regression Models of this Study

Measure	*M*	*(SD)*	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
Outcome																		
1. DERS Change	-0.79	(9.69)	--															
2. Psychological Capital Change	0.13	(0.68)	-.10	--														
3. High Risk Behavior Change	-0.47	(2.17)	.09	.00	--													
Predictors																		
4. DERS Pre	0.05	(1.02)	-.44	.13	.05	--												
5. Age	-0.04	(0.87)	.06	.15 *	.15 *	.16 *	--											
6. Female	0.53	(0.85)	-.08	-.03	-.15	-.03	.01	--										
7. Freshman	-0.22	(0.98)	.05	-.02	-.09	-.06	-.58 **	-.11	--									
8. Anxiety Pre	-0.03	(0.97)	-.01	.10	.01	.35 **	.03	.09	.07	--								
9. Depression Pre	-0.02	(1.00)	-.02	.20 *	-.04	.45 **	.05	.05	.02	.75 ***	--							
10. Somatizaton Pre	0.01	(1.05)	-.03	.11	.02	.29 **	.04	.03	-.01	.74 ***	.60 **[1]	--						
11. High ACES	0.84	(0.55)	.06	.06	-.05	-.22 *	-.08	-.10	.12	-.12	-.20 *	.00	--					
12. Negative Affect Pre	0.00	(1.02)	-.06	.07	.01	.24 *	.06	.07	.09	.67 ***	.57 **[1]	.50 **	-.14	--				
13. Life Satisfaction Pre	0.03	(1.02)	.07	-.20 *	-.05	-.39 **	-.23 *	.05	.18 *	-.37 ***	-.54 **[1]	-.35 **	.12	-.29 **	--			
14. Psychological Capital Pre	0.07	(0.99)	.08	-.38 ***	.01	-.52 **	-.14	-.10	.04	-.38 ***	-.54 **[1]	-.33 **	.26 **	-.25 **	.61 ***	--		
15. Positive Affect Pre	-0.02	(1.02)	-.06	-.22 **	.17 *	-.24 *	-.13	-.02	.10	-.20 *	-.42 **[1]	-.19 *	.09	-.04	.55 ***	.60 **	--	
16. High Risk Behavior Pre	0.02	(1.02)	.06	-.02	-.46 ***	.11	-.08	.02	.00	.13	.24 *	.20 *	.01	.22 **	.00	-.01	-.10	--

Note. $N = 123$ students measured at pre and post-intervention; Pearson's r reported.

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

Table 4

Predicting Pre-Post Change in Difficulties in Emotion Regulation using Multiple Linear Regression with Sequential Predictor Entry

	Block 1					Block 2				
	R^2 *change*	R^2 *total*	R^2 *adjusted*	*b*	sr^2	R^2 *change*	R^2 *total*	R^2 *adjusted*	*b*	sr^2
Model Fit	0.227	0.227	0.201			0.08	0.307	0.225		
Coefficients										
Intercept				0.28					1.02	
DERS Pre				-4.4 ***	0.21				-5.9 ***	0.25
Age				2.31 *	0.03				2.5 **	0.03
Female				-0.92	0.01				-1.33	0.01
Freshman				1.33	0.01				1.32	0.01
Anxiety Pre									1.44	0.01
Depression Pre									1.32	0.01
Somatization Pre									-0.29	0.00
High ACES Pre									-0.4	0.00
Negative Affect Pre									-1.29	0.01
Life Satisfaction Pre									0.52	0.00
Psychological Capital Pre									-1.43	0.01
Positive Affect Pre									-0.5	0.00
High Risk Behavior Pre									1.22	0.01

Note: $N = 123$. DERS Pre = Difficulties in Emotion Regulation - Short Form Pre-intervention score (standardized), Age = reported age at pre-intervention (standardized), Female = reported gender identity as female at pre-intervention (effect coded), Freshman = reported year of study as freshman at pre-intervention (effect coded), Anxiety Pre = Body Symptoms Index Anxiety score pre-intervention (standardized), Depression Pre = Body Symptoms Index Depression score pre-intervention (standardized), Somatization Pre = Body Symptoms Index Somatization score pre-intervention (standardized), High ACES = reported 4 or more Adverse Childhood Experiences at pre-intervention (effect coded), Negative Affect = negative affect score pre-intervention (standardized), Life Satisfaction Pre = Student Life Satisfaction Scale score pre-intervention (standardized), Psychological Capital Pre = total Psychological Capital Questionnaire score pre-intervention (standardized), Positive Affect Pre = positive affect score pre-intervention (standardized), High Risk Behavior Pre = High Risk Behavor score from the Life Problems Inventory-Revised pre-intervention (standardized).

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

Table 5

Secondary Model Predicting Pre-Post Change in Difficulties in Emotion Regulation using Multiple Linear Regression with Sequential Predictor Entry

	Block 1				Block 2				Block 3				Block 4				Block 5			
	R^2 *cx*	R^2 *total*	R^2 *adj*	*b*	sr^2	R^2 *cx*	R^2 *total*	R^2 *adj*	*b*	sr^2	R^2 *cx*	R^2 *total*	R^2 *adj*	*b*	sr^2	R^2 *cx*	R^2 *total*	R^2 *adj*	*b*	sr^2
Model Fit	0.191	0.191	0.18			0.02	0.207	0.194			0.01	0.221	0.201			0.01	0.227	0.2			0.01	0.238	0.2		
Coefficients																									
Intercept				-0.60					-0.54					-0.18					0.28					0.77	
DERS Pre				-4.14	***	0.19			-4.33	***	0.20			-4.37	***	0.21			-4.40	***	0.21			-4.39	***	0.21
Age									1.42		0.02			2.37	*	0.03			2.31	*	0.03			3.21	*	0.03
Freshman														1.44		0.01			1.33		0.01			1.61		0.01
Female																			-0.92		0.01			-0.93		0.01
Age*Freshman																								0.82		0.00
Age*Female																								-1.1		0.01

Note: $N = 123$. DERS Pre = Difficulties in Emotion Regulation - Short Form Pre-intervention score (standardized), Age = reported age at pre-intervention (standardized), Female = reported gender identity as female at pre-intervention (effect coded), Freshman = reported year of study as freshman at pre-intervention (effect coded), Age*Freshman = the interaction of Age (standardized) multiplied by Freshman (effect coded), Age*Female = the interaction of Age (standardized) multiplied by Female

*$p < 0.05$, **p < 0.01, ***p < 0.001.

Table 6

Predicting Pre-Post Change in Psychological Capital using Multiple Linear Regression with Sequential Predictor Entry

	Block 1					Block 2				
	R^2 *change*	R^2 *total*	R^2 *adjusted*	*b*	sr^2	R^2 *change*	R^2 *total*	R^2 *adjusted*	*b*	sr^2
Model Fit	0.159	0.159	0.13			0.047	0.206	0.111		
Coefficients										
Intercept				0.19 **					0.01	
Psychological Capital Pre				-0.25 ***	0.13				-0.34 ***	0.10
Age				0.11	0.01				0.12	0.02
Female				-0.05	0.00				-0.05	0.00
Freshman				0.05	0.00				0.03	0.00
Anxiety Pre									-0.08	0.00
Depression Pre									0.12	0.01
Somatization Pre									0	0.00
High ACES Pre									0.22	0.03
Negative Affect Pre									0	0.00
Life Satisfaction Pre									0.08	0.01
DERS Pre									-0.06	0.01
Positive Affect Pre									0.03	0.00
High Risk Behavior Pre									-0.02	0.00

Note: N = 123. Psychological Capital Pre = total Psychological Capital Questionnaire score pre-intervention (standardized), Age = reported age at pre-intervention (standardized), Female = reported gender identity as female at pre-intervention (effect coded), Freshman = reported year of study as freshman at pre-intervention (effect coded), Anxiety Pre = Body Symptoms Index Anxiety score pre-intervention (standardized), Depression Pre = Body Symptoms Index Depression score pre-intervention (standardized), Somatization Pre = Body Symptoms Index Somatization score pre-intervention (standardized), High ACES = reported 4 or more Adverse Childhood Experiences at pre-intervention (effect coded), Negative Affect = negative affect score pre-intervention (standardized), Life Satisfaction Pre = Student Life Satisfaction Scale score pre-intervention (standardized), DERS Pre = Difficulties in Emotion Regulation - Short Form Pre-intervention score (standardized), Positive Affect Pre = positive affect score pre-intervention (standardized), High Risk Behavior Pre = High Risk Behavor score from the Life Problems Inventory-Revised pre-intervention (standardized).

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

Table 7

Predicting Pre-Post Change in High Risk Behavior using Multiple Linear Regression with Sequential Predictor Entry

	Block 1					Block 2				
	R^2 *change*	R^2 *total*	R^2 *adjusted*	*b*	sr^2	R^2 *change*	R^2 *total*	R^2 *adjusted*	*b*	sr^2
Model Fit	0.242	0.242	0.216			0.053	0.295	0.211		
Coefficients										
Intercept				-0.27					-0.17	
High Risk Behavior Pre				-0.95 ***	0.20				-1.02 ***	0.19
Age				0.21	0.00				0.17	0.00
Female				-0.38	0.02				-0.38	0.02
Freshman				-0.12	0.00				-0.15	0.00
Anxiety Pre									-0.25	0.00
Depression Pre									0.2	0.00
Somatization Pre									0.24	0.01
High ACES Pre									-0.13	0.00
Negative Affect Pre									0.16	0.00
Life Satisfaction Pre									-0.06	0.00
DERS Pre									0.13	0.00
Psychological Capital Pre									0.43	0.02
Positive Affect Pre									0.01	0.00

(standardized), Female = reported gender identity as female at pre-intervention (effect coded), Freshman = reported year of study as freshman at pre-intervention (effect coded), Anxiety Pre = Body Symptoms Index Anxiety score pre-intervention (standardized), Depression Pre = Body Symptoms Index Depression score pre-intervention (standardized), Somatization Pre = Body Symptoms Index Somatization score pre-intervention (standardized), High ACES = reported 4 or more Adverse Childhood Experiences at pre-intervention (effect coded), Negative Affect = negative affect score pre-intervention (standardized), Life Satisfaction Pre = Student Life Satisfaction Scale score pre-intervention (standardized), DERS Pre = Difficulties in Emotion Regulation - Short Form Pre-intervention score (standardized), Psychological Capital Pre = total Psychological Capital Questionnaire score pre-intervention (standardized), Positive Affect Pre = positive affect score pre-intervention (standardized).

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

Appendix D: Figures

Figure 1

Initial Regression Model P-P Plot for Regression Standardized Residual of Change in Difficulties in Emotion Regulation

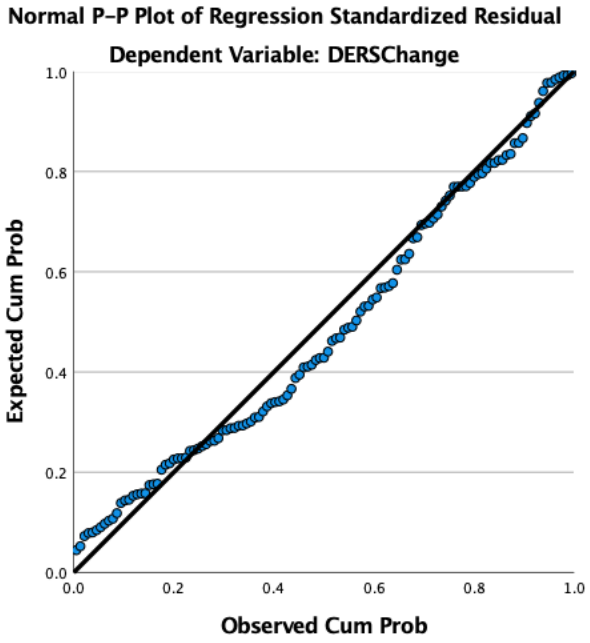

Figure 2

Scatterplot Output from Initial Regression Model for Change in Difficulties in Emotion Regulation

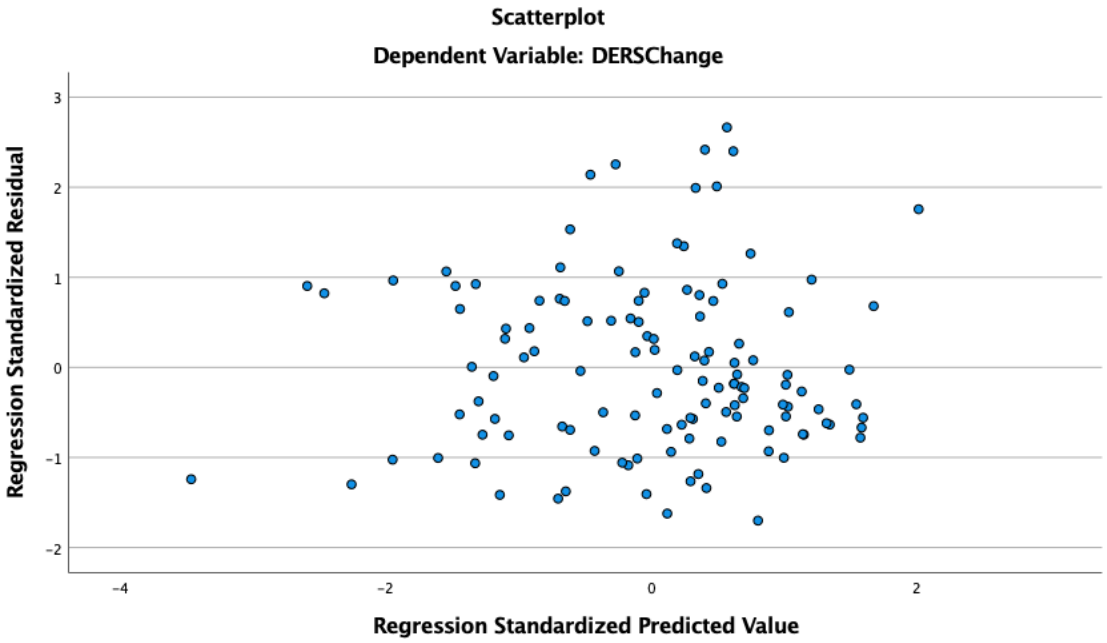

Figure 3

Secondary Regression Model P-P Plot for Regression Standardized Residual of Change in Difficulties in Emotion Regulation

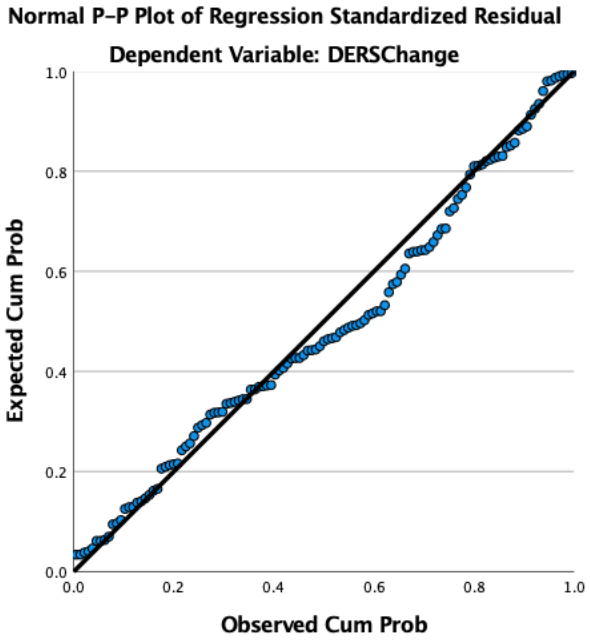

Figure 4

Scatterplot Output from Secondary Regression Model for Change in Difficulties in Emotion Regulation

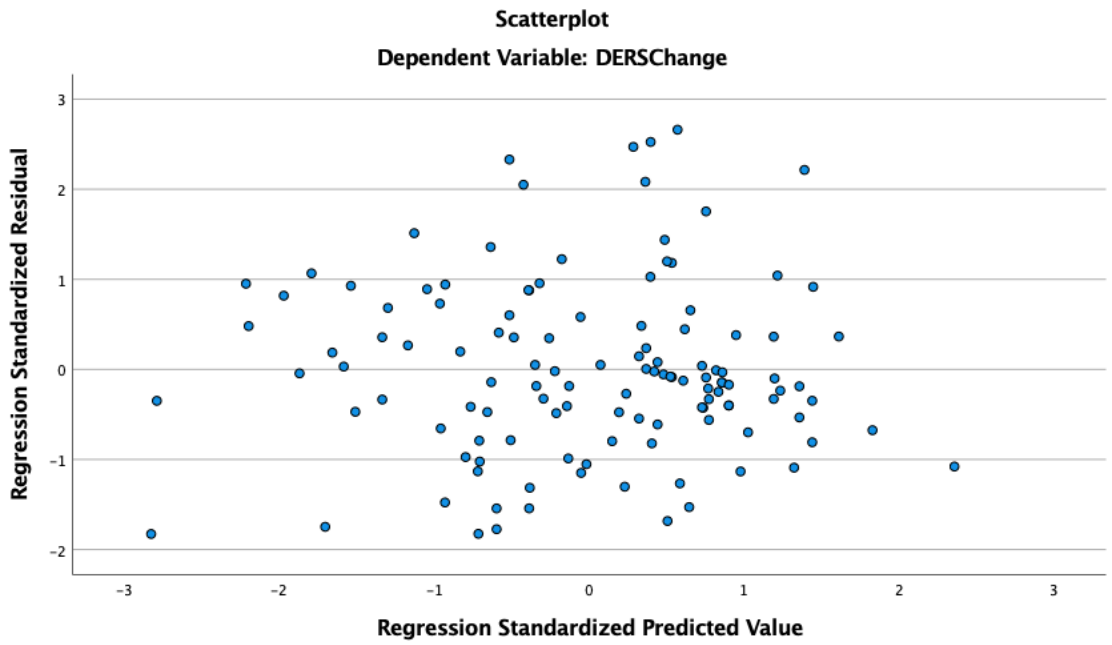

Figure 5

Regression Model P-P Plot for Regression Standardized Residual of Change in Psychological Capital

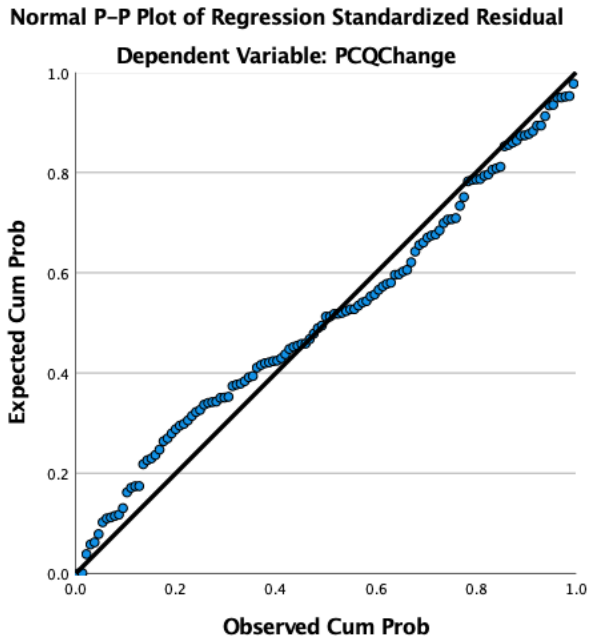

Figure 6

Scatterplot Output Regression Model for Change in Psychological Capital

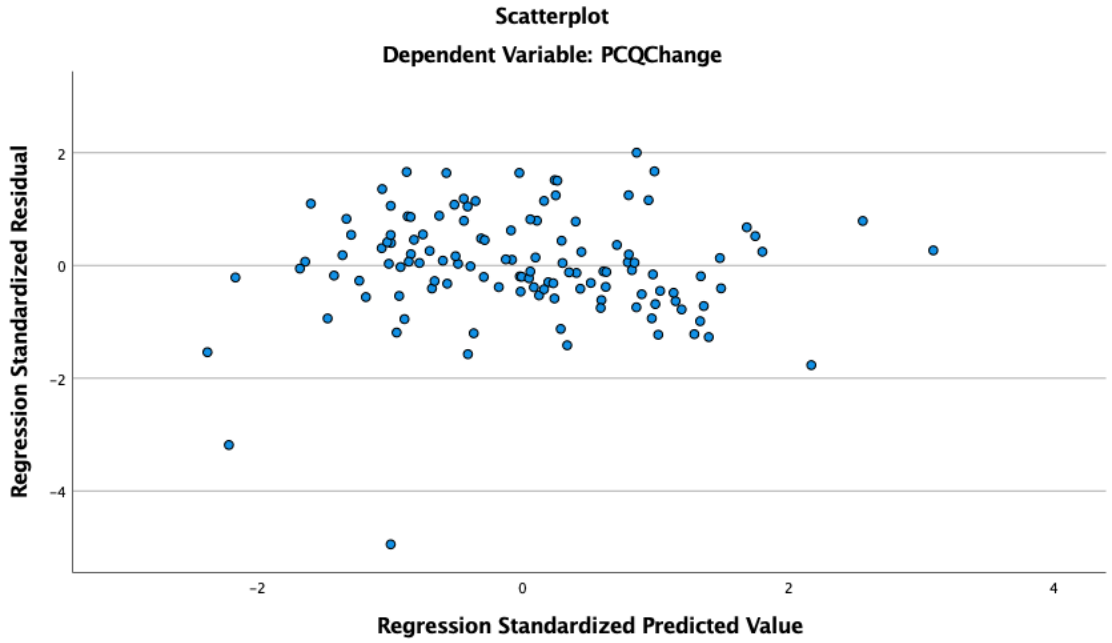

Figure 7

Regression Model P-P Plot for Regression Standardized Residual of Change in High Risk Behavior

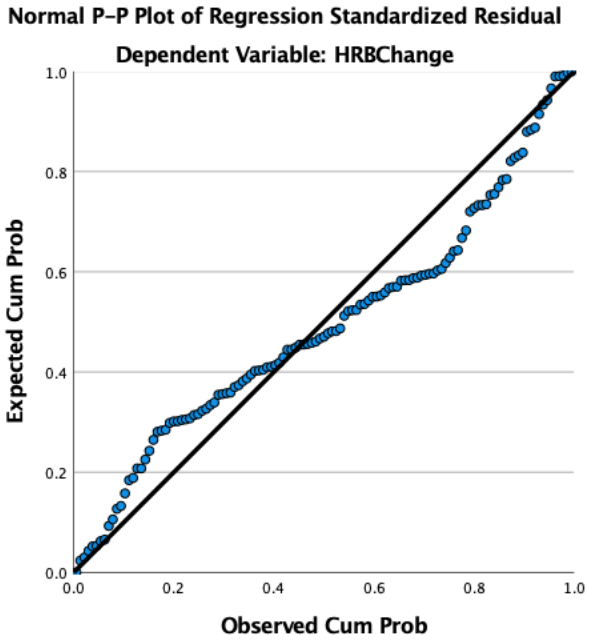

Figure 8

Scatterplot Output from Regression Model for Change in High Risk Behavior