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## A Stress-Diathesis Model of Depression: Examining Self-Compassion and Savoring

Justin Ford

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# A STRESS-DIATHESIS MODEL OF DEPRESSION: EXAMINING SELF-COMPASSION AND SAVORING

By

JUSTIN FORD

(under the direction of Jeff Klibert)

## ABSTRACT

Depression is a prevalent public health problem, with approximately 6.4% of Americans suffering from the condition each year. Emerging adults are especially vulnerable to depression, as approximately 25% of individuals from age 18-25 have reported experiencing at least one depressive episode. Considering the literature is replete with studies examining etiological components of depression, it is surprising that few studies have examined the role of intrapersonal resources in the onset and maintenance of depressive symptoms. The current study sought to investigate depression in the context of intrapersonal resources in two important ways. First, the study examined the protective qualities of intrapersonal resources such as self-compassion and savoring in the prediction of depression across time. Second, the current study sought to determine if self-compassion and savoring could mediate the relationship between stressful life events and depression. The study attempted to answer these questions through a two-wave longitudinal design. One hundred and forty-four undergraduate students (121 women, 22 men) participated in this study. Participants completed two online surveys, five weeks apart. The results indicated that self-compassion and savoring were significant predictors of depression over time. Furthermore, these variables significantly mediated the relationship between stressful life events and depression. Thus, the results provide some preliminary support for the protective qualities of self-compassion and savoring in terms of mitigating the onset of depression. A review and discussion of theoretical and practical considerations are offered.

INDEX WORDS: Stress, depression, self-compassion, savoring, emerging adults

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AND SAVORING

by

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## CHAPTER 1: INTRODUCTION

### Rationale

Depression is a prevalent and serious mental health condition in America, with an estimated 6.4% of Americans suffering from major depressive disorder in any given year (National Institute of Mental Health; NIMH, 2008). There are some cultural disparities in the prevalence of major depressive symptoms. For instance women are 70% more likely to experience depression when compared to men. Also, ethnic minorities are 40% less likely to experience depressive symptoms compared to individuals in the ethnic majority (NIMH, 2014). Symptoms that are commonly associated with depression include feelings of hopelessness and worthlessness, loss of interest in daily activities, disrupted sleep patterns, and suicidal thoughts (among others). Major depressive disorder, or clinical depression, tends to be more severe and prolonged when compared to sub-threshold levels of depression (NIMH, 2014).

There are numerous debilitating mental and physical health consequences associated with the onset of depression (NIMH, 2014). For example, individuals suffering from depression report experiencing more stressful life events than individuals who report little to no depressive symptoms (Hammen, 2005; Hammen, 2006). Individuals who report high levels of depression also experience impairment in creating and maintaining relationships (Judd et al., 2000). Based on empirical reports, many individuals who suffer from depression engage in rumination, the repetitive focus on negative thoughts and emotions, which can contribute to the onset and/or exacerbation of more chronic depressive episodes and other comorbid disorders (e.g., anxiety conditions; Nolen-Hoeksema, 2000). In the most severe cases, suicide can become a viable consequence of depression. Individuals suffering from depression generate more suicide-related

images (Hales et al., 2011) and engage in more dangerous self-harm behaviors including suicide ideation and attempts (Kessler, Borges, & Walters, 1999).

Depressive symptoms can also contribute to a significant amount of health problems. Medical patients diagnosed with depression are at greater risk for coronary heart disease, strokes, Parkinson's Disease, and other debilitating physical disorders (Barth, Schumacher, & Herrmann-Lingen, 2004; Evans et al., 2005). Furthermore, depression has great economic costs as shown by countries such as the Netherlands, who has lost about 160 million dollars a year in non-medical costs (e.g. loss of labor) associated with depression symptoms (Cuijpers et al., 2007).

### **Emerging Adulthood and Depression**

Depression is especially prevalent among young adults between the ages of 18-24, with approximately 11% of college students being treated for depression in a given year (American College Health Association [ACHA], 2013). Approximately, 25% of all adults between the ages of 18-25 will experience at least one depressive episode (Galambros, Barker, & Krahn, 2006). Moreover, there has been an increase in reported symptoms of psychopathology, including depression, among college students over the past 50 years (Twenge et al., 2010).

There are unique difficulties and challenges that contribute to the onset of depressive symptoms in emerging adults. Emerging adulthood is a time when individuals often move away from their families and become financially and socially independent (Arnett, 2007a). As a result, emerging adults often struggle with structuring their life in a personally meaningful way (Arnett, 2007b) with an eye toward building a foundation for their future (Schwartz et al., 2011). Specifically, emerging adults may struggle with identifying and cultivating new social supports, managing increased expectations associated with school or work performance, becoming financially stable, and fostering a personally unique identity (Arnett, 2007a). Turmoil within the

development of these processes is often associated with the onset of anxious and/or depressive symptoms (Arnett, 2007a; Schwartz et al., 2009).

Depressive symptoms are also connected to a number of unique stressors associated with college life. About 12.6% of college students report that depression negatively influences academic performance (ACHA, 2013). Also, students that live with roommates suffering from depression often report feeling more depressed themselves, indicating that greater exposure to depression may increase one's own risk of developing depressive symptoms (Joiner, 1994; Haefffel & Hames, 2013). Finally, emerging adults who experience mild to moderate depressive symptoms are more vulnerable to suicidal ideation and developing major depressive symptoms later in life (Fergusson et al., 2005).

Given the prevalence and potency of depressive symptoms among emerging adults attending college, it is important that researchers continue to identify models that predict the onset and maintenance of depressive symptoms. It is also important that future researchers consider the interaction between multiple risk factors in the prediction of depression as past research has suggested that psychopathological conditions are often best explained through multiple perspectives.

## **Purpose**

In order to refine prevention and intervention efforts, it is important to develop models that can explain the etiology of depression among college-attending emerging adults. Based on the literature, the experience of stressful life events/adversity is a common antecedent to the onset of depressive symptoms. However, Monroe and Hadjiyannakis (2002) found that 50% of individuals who experience adverse life events *do not* report symptoms or problem behaviors associated with mood difficulties, suggesting that a substantial amount of people can either

successfully navigate through or at least tolerate the burden of stress without significant mood impairment. As a result, it is important to determine how other factors interact with stressful life events to predict depression scores across time. It is possible that intrapersonal resources (self-compassion and savoring) could buffer against depression and/or mediate the relationship between stressful life events and depression. As a result, the current study examined the following questions: (a) Do stressful life events predict depression scores across time?, (b) Do intrapersonal resources such as self-compassion and savoring predict depression scores across time?, and (3) Does the linear combination of self-compassion and savoring explain the relationship between stress and depression?.

### **The Diathesis-Stress Model**

As mentioned previously, it is important for researchers to identify and develop models that predict the onset of depression. Because depression is a complex disorder with a large number of risk factors, models that predict the onset of depression need to be complex as well. One such model, that is both popular and empirically well-supported, is the stress-diathesis model (Ingram, Miranda & Segal, 1998; Ingram, Atchley, & Segal, 2011). The stress-diathesis model states that all individuals have varying degrees of “diathesis” or vulnerability to depression. The extent to which one is vulnerable to developing depressive symptoms depends on a number of factors, such as negative cognitive processes (Abramson, Metalsky, & Alloy, 1989) and family history of depression (Husain et al., 2009). The diathesis alone does not cause the onset of depression, but it can be triggered when individuals experience stressful life events (Ingram, Atchley, & Segal, 2011).

The stress-diathesis model thus represents a linear relationship in that as individuals experience more stress, they are more vulnerable to developing depressive symptoms (Ingram,

Miranda, & Segal, 1998). This relationship can be further influenced by intervening third variables that can either amplify the relationship or serve as a buffer against developing depressive symptoms. These variables can potentially come from a variety of sources ranging from biological, developmental, and psychosocial factors (Hammen, 2005).

Diatheses have long been used by clinicians to describe an individual's predisposition toward developing a certain illness (Ingram, Atchley, & Segal, 2011). In terms of depression, it refers to a person's vulnerability to developing depressive symptoms, and is defined by several core features. Vulnerabilities are stable and resistant to change, endogenous (i.e., comes from within the individual, not the outside), and latent (i.e. not easily observable). It is different from a risk factor in that a vulnerability factor can explain an individual's predisposition to depression, whereas a risk factor is merely the probability of someone developing depressive symptoms based on certain contexts (Ingram, Atchley, & Segal, 2011).

### **Life Stressors and Depression**

Life stressors play a major role in the development of depression; approximately 80% of all individuals who have suffered from a depressive episode experienced a major stressful life event beforehand (Hammen, 2005). In the context of the diathesis-stress model, stress refers to any life event that disrupts and negatively influences an individual's emotional and cognitive processes (Ingram, Atchley, & Segal, 2011). It is different from a diathesis/vulnerability in that life stressors come from environmental factors and are mostly out of the individual's control, though one's own behavior can be a source of stress (Hammen, 2005). Life stressors, like diathesis, alone do not cause the onset of depressive symptoms, as evidenced by Monroe and Hadjiyannakis' (2002) finding that 50% of individuals who experience stress don't develop depressive symptoms. However, individuals who have a higher vulnerability to depression are

more likely to develop earlier and more chronic symptoms when exposed to stressful life events than those who have low vulnerability (Ingram, Atchley, & Segal, 2011). There are two different types of stressors, based on how far back in time the event occurred before individuals experienced a depressive episode: distal and proximal stressors. Depressive symptoms have been positively linked to both distal and proximal stressors (Ingram, Atchley, & Segal, 2011).

*Distal Stress.* Distal stressors refer to negative life events that occur relatively far in the past, long before the onset of depressive symptoms (Ingram, Atchley, & Segal, 2011). Negative events from childhood, such as suffering the death of a parent or being a victim of marital discord and divorce, have been theoretically associated with long term effects on adult depression (Hammen, 2005). These life events do not directly cause the onset of depression, but rather set off a chain of events that may eventually lead to the development of depressive symptoms (Ingram, Atchley, & Segal, 2011). Distal stressors can have an indirect effect on the development of depressive symptoms, by influencing proximal stressors known to increase individual vulnerability to depression (Hammen, Kim, Eberhart, & Brennan, 2009; Liu & Alloy, 2011).

Researchers have identified several distal life events linked to the development of depressive symptoms in adulthood. Child abuse and neglect is one event that may contribute to the development of depressive symptoms in adulthood. Adults of low SES who suffered maltreatment and victimization as a child were found to have a higher risk for developing depressive symptoms compared to those who did not suffer abuse (Banny et al., 2013). Similarly, individuals who suffered physical abuse, sexual abuse, and neglect as children were especially likely to be at a high risk for severe symptoms of depression (Widom, DuMont, & Czaja, 2007; Klein et al., 2013). Another distal life event linked to depression is childhood bullying. In one



sample of adult clients being treated for depression, approximately 25% reported severe bullying as children (Gladstone, Parker, & Malhi, 2006). Interestingly, bullying other children has also been found to be linked to the development of depressive outcomes (Klomek et al., 2008). Finally, researchers have found that individuals who experienced social isolation from their peers were found to be more likely to develop depressive symptoms in adulthood than those who reported a stable support network during adolescence (Danese et al., 2009). Children and adults alike have a basic need for belonging and social acceptance (Baumeister & Leary, 1995); thus individuals who experience chronic loneliness and isolation in childhood are at a greater risk for a diverse range of negative health and mental outcomes, including depression (Asher & Paquette, 2003).

*Proximal Stress.* Alternatively, proximal stressors refer to negative life events that occur relatively close to the onset of a depressive episode (Ingram, Atchley, & Segal, 2011). These stressors can range from the loss of a loved one (Mazure, 1998), to negative changes in finance and health (Brown & Harris, 1989), to recent events associated with social rejection (Slavich, O'Donovan, Epel, & Kemeny, 2010). Proximal life stressors that are perceived by individuals as severe and undesirable have a strong influence on the development of depressive symptoms (Brown & Harris, 1989; Mazure, 1998; Monroe, Slavich, & Georgiades, 2009). Recent, intense life events are especially associated with the first depressive episode, since subsequent episodes appear to require less stress to activate depression (Monroe & Harkness, 2005).

Researchers have identified several pathways for proximal stressors to influence the onset of depressive symptoms. One path is influenced through cognitive biases (e.g. rumination). For example, individuals suffering a depressive episode have been found to experience greater changes in cognitive biases after experiencing a severe life event than those who did not

experience such an event (Monroe, Slavich, Torres, & Gotlib, 2007). Social rejection is another potent pathway, as individuals who experience rejection were found to develop depressive symptoms more quickly than those who were not rejected (Slavich et al., 2010). An especially severe form of rejection is having a partner break off a close relationship. Individuals who were “dumped” by their significant other were found to be more than twice as likely to develop depressive symptoms as those who ended the relationship (Kendler et al., 2003). Finally, experiencing a severe life stressor can negatively impact individuals’ overall global functioning (i.e. psychological, social, professional), as individuals suffering from major depression who experienced a recent severe life event reported lower global functioning scores than those who suffer major depression but did not suffer a severe life event (Muscatell, Slavich, Monroe, and Gotlib, 2009).

Given the overall literature, it was expected that distal and proximal life events would be linked to depressive symptoms. In general, distal events tend to have indirect and long-term effects on individuals (Hammen et al., 2009), while proximal events tend to have a more immediate and direct effect (Mazure, 1998). Together, these life events interact with an individual’s vulnerability to produce depressive outcomes in individuals, as predicted in the stress-diathesis model of depression (Ingram, Miranda & Segal, 1998; Ingram, Atchley, & Segal, 2011). Thus, one purpose of this study is to confirm that these relationships exist within the context of an emerging adult sample.

### **Intrapersonal Resources and Depression**

The stress diathesis model is dynamic, meaning there are a large variety variables that can influence the relationship between stressful life events and depression (Ingram, Atchley, & Segal, 2011). It is well known that biological factors (e.g. genetic disposition; Caspi et al., 2003),

developmental factors (e.g. attachment style; Bifulco, Moran, Ball, & Bemazzani, 2002), and interpersonal factors (e.g. social support; Baumeister & Leary, 1995) are linked to the development of depressive symptoms in emerging adults. However, it is still unknown the full extent to which intrapersonal factors buffer/confer risk and/or explain the link between stressful life events and depression.

*Intrapersonal resources.* Intrapersonal factors have not been well-defined in the literature, but have traditionally been referred to as the resources that an individual possesses within oneself, such as efficacy, resilience, and optimism. For example, individuals with a high sense of self-efficacy, or beliefs in their own abilities, are at a reduced risk for developing depressive symptoms after experience a stressful life even than those with a low sense of self-efficacy (Bandura, 1989). Researchers have also found that having a high sense of hope is linked to a reduction in depressive symptoms in the short term (Snyder, 2004; Arnau et al., 2007), though whether this effect is maintained in the long term is unknown (Arnau et al., 2007).

The founding of positive psychology brought about a renewed focus on intrapersonal factors that can serve as a buffer against depression and other negative mental health outcomes (Seligman & Csikszentmihalyi, 2000). Researchers have identified several factors that draw upon intrapersonal resources such as resilience (Tugade & Fredrickson, 2007), self-compassion (Neff, 2003a), and savoring (Bryant, 2003; Bryant & Keroff, 2007) that might help explain the etiology of depression. It is known that individuals who possess high levels of resiliency and other intrapersonal factors are less likely to develop depressive symptoms (Tugade & Fredrickson, 2007). However, a current gap in positive psychology research is studying the longitudinal relationships between intrapersonal resources and mental health outcomes, such as depression.

It is important for researchers to examine intrapersonal resources as they serve as possible processes behind protective factors, or conditions that reduce the impact of stressful negative events on an individual (Carbonell et al., 2002). Psychologists have traditionally studied depression in terms of risk factors and vulnerabilities, and only recently have started looking at protective factors (Seligman, Rashid, & Parks, 2006). Identifying protective factors is important in order to understand how the effects of risk factors (e.g. stressful life events) on depression can be mitigated. Not only that, but identifying different protective factors would allow psychologists to more effectively promote resilience among individuals, whether they are at risk or already suffering from depression. Finally, developing interventions based on protective factors can theoretically reduce depressive symptoms, while improving positive affect and well-being at the same time (Seligman, Rashid, & Parks, 2006; Steinhardt & Dolbier, 2008).

One protective factor that has been well supported by empirical findings is resilience, or the ability to positively adapt to stressful life events (Luthar, Cicchetti, & Becker, 2000). Social support and self-esteem are other protective factors that have been longitudinally linked to lower reported levels of depressed mood in emerging adults (Costello, Swendsen, Rose, & Dierker, 2008). However, considerably less research has been done on other potential protective factors, such as self-compassion and savoring, which may help individuals to cope with stressful life events, and enhance psychological well-being. Furthermore, less studied factors such as self-compassion can potentially be more effective at promoting well-being than more traditionally accepted protective factors such as self-esteem (Neff, 2011). Thus, another purpose of this study was to evaluate two positive psychology factors, self-compassion and savoring, in terms of their role in buffering depressive symptoms and explaining how individuals who experience negative life events become depressed.

*Self-Compassion.* Self-compassion is an individual's tendency to be kind and forgiving toward oneself (Neff, 2003a). There are three components that together make up the construct of self-compassion. Self-kindness is employing understanding toward oneself, rather than self-criticalness, after experience failure or pain. Common humanity is being aware that other people are experiencing the same troubles that one faces. Finally, mindfulness is being self-aware and taking an objective perspective of one's own thoughts and feelings (Neff, 2003a). Overall, self-compassion has been linked to higher rates of psychological well-being (Neff, Rude, & Kirkpatrick, 2007; Neff, Kirkpatrick, & Rude, 2007), and lower rates of distress when faced with failure and rejection (Leary et al., 2007). It is distinctively different from factors such as self-esteem and self-efficacy, in that it is not based on self-evaluation and judgment, but on empathy and understanding (Neff, 2003a). In fact, promoting self-compassion may be more effective than promoting self-esteem, as excessively high levels of self-esteem can lead to higher levels of narcissism (Neff, 2011).

Theory and empirical data concerning the protective benefits of self-compassion in the context of depression is under-developed (MacBeth and Gumley, 2012). However, researchers speculate that self-compassion can reduce depressive symptomology through a number of pathways. First, Raes (2010) suggests that self-compassion counter-acts the effects of salient risk factors (e.g., brooding rumination to depression). In this way, self-compassion can be employed as a means of navigating through or diluting high risk components/situations known to precipitate depressive symptoms. Researchers also suggest that self-compassion can work behind the scenes to create other intrapersonal resources known to protect against depression. For instance, self-compassion is integral to the development of resilience (Neff, 2011), which in turn is a confirmed protective factor for depression (Luthar, Cicchetti, & Becker, 2000). Finally,

self-compassion may serve as a positive coping strategy. For instance, self-compassion promotes “soothing” responses to stressful events as opposed to the activation of an individual’s threat system (Gilbert et al., 2008). This may ultimately decrease depressive symptoms over short periods of time (Johnson & O’Brien, 2013).

To date, there are a few empirical studies that confirm a link between self-compassion and depressive symptoms. Neff, Kirkpatrick, and Rude (2007) provided initial evidence that higher levels of self-compassion were associated with lower levels of depression. In a study using a nonclinical sample, individuals who had higher levels of self-compassion reported lower levels of depression over a period of five months (Raes, 2011). In a clinical sample, individuals who participated in Compassionate Mind Training (CMT), where they learned to be self-compassionate, reported lower levels of depression after a period of 12 weeks (Gilbert & Procter, 2006). Finally, individuals who participated in a pilot Mindful Self-Compassion (MSC) program, an integration of mindfulness and self-compassion, reported lower levels of depressive symptoms after a period of eight weeks (Neff, 2012). Thus, given the previous findings, it was expected that self-compassion will predict depressive symptoms over the course of time.

*Savoring.* Savoring is an individual’s ability to attend to and appreciate positive events that have occurred in their life (Bryant, 2003; Bryant & Veroff, 2007). There are three core beliefs that are associated with the process of savoring. First, reminiscing is the extent to which an individual appreciates and celebrates past positive events. Second, savoring in the moment refers to the appreciation of positive events that are happening in the present. Finally, anticipation is the extent to which an individual looks forward to a future positive event (Bryant, 2003). Bryant and Veroff (2007) also identified four main processes of savoring based on the type of experience (cognitive reflection vs. experiential absorption) and locus of attention (self-

focused vs. world-focused): thanksgiving (gratitude), marveling (being in awe), basking (feeling pride), and luxuriating (feeling physical pleasure).

It is known that individuals who engage in savoring report more positive affect than those who ruminate or do not savor (Bryant, Smart, & King, 2005; Quoidbach, Berry, Hansenne, & Mikolajczak, 2010). In this case, savoring seems to serve as an amplifier of positive affect in contrast to rumination which increases negative affect (Wood, Heimpel, & Michela, 2003). Savoring could also serve as a strategy for emotional regulation, in that individuals will change and maintain emotional experiences in order to preserve their positive affect (Tugade & Fredrickson, 2007). Finally, the very act of noticing and paying attention to positive events promotes positive emotions more than ruminating or simply doing nothing (Bryant & Veroff, 2007). However, there is little research on the protective effects of savoring, or how individuals develop a sense of savoring during their lifespan (Bryant, Chadwick, & Kluwe, 2011).

Few researchers have studied the relationship between savoring and depression, especially in the context of clinical interventions (Bolier et al., 2013). What has been found is that an impaired ability to engage in savoring was associated with a greater tendency toward depression among a sample of college students (Carver & Johnson, 2009). In another study, college students who participated in a savoring in the moment group exercise reported a significant decrease in depressive symptoms over a period of two weeks (Hurley & Kwon, 2012). Finally, in a recent meta-analysis, reminiscing, a key savoring dimension, was found to be linked to lower levels of depression (Pinquart & Forstmeier, 2012). Despite the paucity in research, higher rates of savoring have been linked to lower levels of depression. Thus, it was expected that savoring would predict depression over the course of time.

## Mediation Models

Mediation models are path analytical procedures designed to determine the extent to which the effects of an independent variable on a dependent variable can be explained by a third, intervening variable (Shrout & Bolger, 2002). In essence, mediating variables are vehicles that showcase *how* one variable is associated with another. Using mediation models allow researchers to deconstruct a relationship into simpler components, which can reveal possible mechanisms behind changes in the dependent variable. Mediation models can also serve as a foundation for building theories to explain psychological phenomena (Shrout & Bolger, 2002).

When researchers want to consider the indirect effects of more than one mediator, a multiple mediation model is used to determine *how* an independent variable is related to a dependent variable (Preacher & Hayes, 2006). Using a multiple mediation model allows researchers to account for a larger number of variables in a single model, compare the effects of mediating variables against each other, and construct more complex models to explain psychological phenomena. Advantageously, the use of multiple mediation models offers the opportunity to refine and extend etiological theories associated with psychopathological outcomes. They also generate unique insights concerning the selection of most appropriate intervention strategy when treating for a specific psychopathological condition.

The use of multiple mediation models is critical for conceptualizing the onset of depression, especially since there are a large variety of proposed intervening factors that explain how stressful life events are related to depression (Ingram, Atchley, & Segal, 2011). It is important for researchers to identify and examine possible mediators so that clinicians can develop techniques that are effective in treating and preventing depressive episodes among individuals who experience high levels of stress.



*Intrapersonal Factors as Mediators.* It is possible that intrapersonal factors associated with well-being may serve dual roles in explaining the onset of depressive symptoms. As previously discussed, intrapersonal resources, like self-compassion and savoring, may protect individuals against the onset of depressive symptoms. These same resources may also help explain how stressful life events are related to the onset and maintenance of depressive traits. To date, research has yet to investigate the ability of intrapersonal factors to explain unique variance within the stressful life events-depression relationship. However, positive psychological theory and empirical findings suggest that resources, such as self-compassion and savoring, may engender unique insights into this relationship.

Theory associated with positive psychology indicates that the experience of stressful life events is linked to the activation of intrapersonal resources (Wood and Tarrrier, 2010). For instance, the experience of personal stress may motivate individuals to engage in meaning making (the process of creating mental representations of perceived events) as a means to achieve well-being (Park, 2010). Similarly, theorists postulate that individuals who experience stressful life events often rely on intrapersonal resources to recover and recuperate in a psychologically adaptive manner (Waugh, Frederickson, & Taylor, 2008). Overall, theory suggests that intrapersonal resources often diffuse interpersonal turmoil caused by psychological stressors as a means to bring about positive outcomes.

Alternatively, individuals who have difficulties activating intrapersonal resources in the face of stress or conflict may foster greater susceptibility to negative emotional outcomes, such as depression. For instance, stressful life events that suppress intrapersonal resources and instead activate psychologically compromising mechanisms (e.g. blaming others and negative thinking) have the potential to lead to negative outcomes (Park, 2010). Moreover, theorists speculate that

individuals who sporadically activate intrapersonal resources and are unable to fully recover from experiencing stressful life events are more likely to experience negative outcomes (Vaughn, Frederickson, & Taylor, 2008). Finally, individuals who struggle with accessing intrapersonal resources (e.g. resilience) are thought to exacerbate stressful experiences by adopting ineffective emotion regulation strategies (Ong, Bergman, Bisconti, & Wallace, 2006). In general, individuals that possess low levels of intrapersonal resources or impaired access to their resources tend to respond poorly to stressful life events. Over time, the continual exposure to stressful life events and the inability to consistently activate intrapersonal factors may result in severe consequences, such as the development of psychopathological symptoms.

Few, if any, researchers have directly investigated the merit of these theories. However, indirect empirical evidence supports the position that intrapersonal factors can explain the relationship between stressful life events and depression. First, researchers consistently find that stressful life events and depressive symptoms are inversely associated with intrapersonal factors (Carbonell et al., 2002; Tugade & Fredrickson, 2007). In essence, the possession of high rates of intrapersonal factors is linked to lower levels of depressive symptoms after experiencing a stressful event (Watson & Naragon-Gainey, 2010; Wood & Joseph, 2010). Second, researchers often conclude that variables known to block access to intrapersonal resources are effective in explaining how stressful life events are connected to psychopathological outcomes. For instance, Ingram (1990) found that self-focused attention, or the extent to which one attends to internal cognitive and emotional processes after experiencing a stressful event, is associated with higher levels of negative affect and depressive symptoms. It is possible that excessive self-focus prevents individuals from accessing intrapersonal factors in response to a stressful event.

Other researchers have indicated that psychological rigidity, or the inability to switch between different cognitive processes, as an important construct in explaining how stressful life events contribute to the development of depressive symptoms (Kashdan & Rottenberg, 2010). An inability to switch between emotional regulation strategies has also been shown to increase distress and psychopathological outcomes after individuals face a stressful event (Bonnano et al., 2004; Westphal, Seivert, & Bonanno, 2010). Finally, an impaired ability to regulate positive emotions may theoretically be associated with maladaptive behaviors such as dampening positive experiences, which in turn may lead to the development of depressive symptoms (Carl et al., 2013). Other researchers have provided support for this position, by finding individuals suffering from depression are more likely to dampen positive affect and express apprehension towards experiencing intense positive experiences than those without depression (Werner-Seidler, Banks, Dunn, & Moulds, 2013).

### **Current Study and Hypotheses**

The primary focus of this study was to explore the connection between intrapersonal resources and depression. To advance the literature concerning this relationship, the current study aimed to investigate three important questions. First, empirical evidence suggests that stressful life events perpetuate and maintain depressive symptoms, especially if an individual lacks resources to cope adaptively with stressful situations (Ingram, Atchley, & Segal, 2011). The current research sought to confirm the magnitude and direction of the relation between stressful life events and depression across time. Considering prevailing theory and empirical evidence, it was expected that stressful life events and depressive symptoms will be significantly correlated in a positive direction, such that higher levels of stress will be associated with higher levels of depressive symptomology over time. Second, there is a scarcity of studies investigating

longitudinal protective factors to depression. This has significantly hampered primary and secondary prevention efforts. Positive psychological theory suggests that self-compassion and savoring are two resources that may buffer against the effects of depression (Neff, Kirkpatrick, & Rude, 2007; Tugade & Fredrickson, 2007). Considering such theory, it was expected that estimates of self-compassion and savoring would predict variance in self-reports of depression across time. Finally, the current study will examine the stressful life event-depression relationship through mediated pathways: self-compassion and savoring. Research findings indicate that increased levels of self-compassion and savoring are connected with positive treatment gains and symptom reduction in the face of stress and conflict (Neff, 2012; Hurley & Kwon, 2012). In line with this position, it was expected that self-compassion and savoring would mediate the relationship between the experience of stressful life events and depressive symptoms across time.

## CHAPTER 2: METHODOLOGY

### Participants

Initially, 256 undergraduate psychology students were recruited through SONA and individual classrooms to participate in this study. Participants were asked to complete two surveys over a five week period of time. The attrition rate between administrations was 43.8% with 144 students participating in both surveys. The final sample consisted of 22 men (15.4%) and 121 women (86.6%). The mean age of the sample was 21.3 (SD = 3.23) years of age. In terms of ethnicity, the sample self-reported as primarily European American (n = 84, 58.3%), African American (n = 45, 31.3%), and multiracial (n = 15, 10.4%). Participants received one course credit each time they completed a survey, for a total of two credits.

### Design

This study included one outcome variable (depression), one predictor variable (negative life events) and two mediator variables (self-compassion, savoring) that were observed in the student participants in two waves of data collection. The interval between each wave was approximately five weeks long. This half longitudinal design allowed researchers to examine the effects of the predictor and mediator variables on the outcome variable over the course of time. Considering the purpose behind the current study, it was important to take a more robust and powerful approach to detect factors that promote depression. Longitudinal designs, even short-term longitudinal designs, engender more accurate and valid results concerning the ability of an identified factor to predict fluctuations in longstanding outcomes (Ingram, Miranda & Segal, 1998).

Participants completed the same survey at both points of time. In terms of the models to be analyzed, the predictor (negative life events) and mediator (self-compassion and savoring)

variables were estimated at the first time point, whereas the outcome variable (depression) was estimated at the second time point. This design generated two main benefits to the study. First, it allowed for the consideration of the test/retest properties of the measures, which provided more robust psychometric insights into the stability of the measures. Second, measuring the predictor and mediator variables at the first time point allowed the researchers to discuss them as protective factors with regard to the variation of depressive symptoms over time.

### **Procedure**

The researchers recruited participants via the SONA system, a website run by the Department of Psychology that contains a list of every active psychology study. SONA allows students to sign up for the opportunity to participate in research studies they are interested in for course credit. The researchers also recruited participants from individual classrooms, providing students an opportunity to participate in psychological research for course credit. Students who chose to participate in this study received a link to SurveyMonkey.com, an approved data collection site. Participants electronically completed the informed consent and the self-report measures via SurveyMonkey.com.

Data was collected from the participants in two phases. During the first phase, the researchers recruited participants and then asked them to complete the first survey. The primary researcher informed introductory and upper level psychology students of the opportunity to participate in this study. Interested students signed up for the study via the SONA system, where they received a link to SurveyMonkey.com. On SurveyMonkey, participants first read an informed consent page, which informed them of possible risks and benefits, confidentiality, resource availability, and discontinuation policies associated with participation. Students who voluntarily chose to participate acknowledged their consent by clicking on an “agree” button.

Before responding to the survey questions, the participants devised a discrete code number that would connect participant responses across time. The code number was a six digit/letter sequence. The first character in the code number was the first letter of the participant's first name. The second and third characters consisted of the two digit month in which the participant was born. The fourth and fifth characters represented the two digit year in which the participant was born. Finally, in the sixth position, students entered the first letter of their last name. This code number was discrete and easy enough for participants to remember if they choose to participate in the second administration of the study. After the creation of a discrete code, participants completed a series of survey measures, which took approximately 30 minutes. Once they submitted their responses, participants read an invitation page that offered them the opportunity to participate in the second phase of the study. After the participants were made aware of the possibility of completing the second portion of the study, they were debriefed. The debriefing webpage described the purpose of the study and free to low cost health care services that were accessible on campus or through a hotline phone number. Finally, participants sent an e-mail to the primary researcher, verifying that they completed the study. In this way, data collection remained anonymous while allowing students to receive course credit for participating.

For the second phase of data collection, the primary researcher contacted the same participants from phase one and invited (through e-mail) them to complete a second set of surveys exactly like those from the first phase. Eligible participants received a link to SurveyMonkey in order to complete the second phase. Similar to the procedures in the first phase of the study, participants electronically signed an informed consent page, entered their discrete code, and responded to a series of questionnaires. As with the previous phase, participants took

approximately 30 minutes to complete the second phase survey. After completing the surveys and reading the debriefing page, participants e-mailed the primary researcher to verify their participation in the second survey. Participants received an additional course credit for participating in phase two of the study. Overall, students who participated in both portions of the study received two credits, whereas individuals who only participated in one study received one credit.

All data were initially stored on Surveymonkey.com. Once data collection ended, the researchers retrieved the data and converted them to SPSS files that will remain password protected on an external hard drive for five years. Once the data was retrieved from Surveymonkey.com, it was deleted.

## **Measures**

*Self-Compassion Scale (SCS; Neff, 2003b)*. The SCS is a 26-item self-report measure designed to assess levels of self-compassion in adult participants. Self-compassion is comprised of several components such as self-kindness, mindfulness, and common humanity. However, for the purposes of the current study only a total score will be calculated. Each item on the SCS is measured on a 5-point Likert scale (from 1 = *Almost Never* to 5 = *Almost always*) with total scores ranging from 26-130. Higher scores indicate greater levels of self-compassion and low levels of self-judgment. The SCS has been found to have good internal consistency ( $\alpha = .92$ ; Neff, 2003b) and excellent construct validity as evidenced by high correlations with self-esteem in a sample of college students (Neff, 2003b). In the current study, the internal consistency score of the SCS ranged from .93 to .94, with a test-retest reliability estimate of  $r = .84$ .

*Savoring Beliefs Inventory (SBI; Bryant, 2003)*. The SBI is a 24-item self-report measure designed to assess the extent to which individuals savor positive experiences in their lives.



Savoring is a multidimensional construct that consists of three subscales: anticipation, reminiscing, and in the moment savoring. Only a total score will be calculated in the current study. Each item on the SBI is measured on a 7-point Likert scale (from 1= *Strongly Disagree* to 7=*Strongly Agree*) with total scores ranging from 24-168. Lower scores indicate that participants engage in low levels of savoring. The SBI has been found to have good internal consistency ( $\alpha = .89$ ; Bryant, 2003) with a college student sample. It has also demonstrated excellent construct validity as evidenced by high positive correlations with gratification and self-esteem and high negative correlations with strain and depression (Bryant, 2003). In the current study, the internal consistency score of the SBI ranged from .95 to .96, with a test-retest reliability estimate of  $r = .77$ .

*Inventory of College Students' Recent Life Experiences (ICSRLE; Kohn, Lafreniere, & Gurevich, 1990)*. The ICSRLE is a 49 item self-report scale that is designed to assess the frequency of negative life events in a student's college career. Examples of negative life events include conflicts with significant others, social rejection, and struggling to meet one's own academic standards. Each item on the ICSRLE is measured on a 4-point Likert scale (from 1= *Not at all part of my life* to 4=*Very much a part of my life*) with total scores ranging from 49-196. Higher scores indicate greater experiences with negative life events. The ICSRLE has been found to have good internal consistency ( $\alpha = .88$ ; Kohn, Lafreniere, & Gurevich, 1990) with a college student sample. The ICSRLE has also demonstrated excellent construct validity as evidenced by high correlations with other measures of negative life events (Kohn, Lafreniere, & Gurevich, 1990). In the current study, the internal consistency score of the ICSRLE ranged from .94 to .95, with a test-retest reliability estimate of  $r = .73$ .

*Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977)*. The CES-D is a 20 item self-report scale that is designed to assess depression in adult populations. Symptoms of depression assessed by the CES-D include feelings of failure and hopelessness, poor appetite, and difficulty in concentrating on tasks. Each item on the CES-D is measured on a 4-point Likert scale (from 1= *Rarely or none of the time* to 4=*Most or all of the time*) with total scores ranging from 20 to 80. Higher scores indicate greater levels of depression in participants. The CES-D has been found to have good internal consistency ( $\alpha = .85 - .90$ ; Radloff, 1977) with general adult populations (Radloff, 1977). The CES-D has also demonstrated excellent construct validity as evidenced by high correlations with other measures of depression (Radloff, 1977). In the current study, the internal consistency score of the CES-D ranged from .91 to .91, with a test-retest reliability estimate of  $r = .71$ .

### **Data Analytic Plan**

The researchers first used bivariate correlations to determine if significant relationships existed among the study's variables both cross-sectionally and over time. Once significant correlations were found, the researchers used multiple regression models to determine if intrapersonal resources predicted unique variance in depression scores over time. In addition, a mediation model was analyzed to determine the direct and indirect effects of negative life events on depression. Negative life events at Time 1 was the predictor variable, self-compassion and savoring at Time 1 were the mediators, and depression at Time 2 was the outcome variable. Preacher and Hayes' (2008) multiple imputation model was used to construct and analyze mediation effects. Unlike more basic approaches to mediation, this macro furnished by Preacher and Hayes includes the added benefits of estimating contrast effects between multiple mediators. Statistically, this decreases the risk to Type I error as all mediators are examined in one model.

In addition, the contrast effects of this macro engender practically significant findings regarding the fit of one mediator effect over another. Consistent with more robust means of testing mediation, the model was analyzed with a bootstrapping method using 10,000 samples, as recommended by Shrout and Bolger (2002). Significant mediating effects were determined by 99% biased-corrected confidence intervals (Preacher & Hayes, 2008).

## CHAPTER 3: RESULTS

### Preliminary Analysis

In order to examine potential gender differences in how participants responded to the survey measures, we conducted a one-way MANOVA with the gender of the participants as the fixed factor and negative life events, depression, savoring, and self-compassion of both Time 1 and Time 2 as the outcome factors. We found no significant gender differences in the outcome variables Wilks'  $\lambda=.940, f(8,131) = 1.042, p=.408, \eta_p^2 = 0.06$ .

### Bivariate Correlations

To test the first hypothesis, that self-reports of negative life events and depression are correlated longitudinally in a positive direction, bivariate correlations among the variables were analyzed. As expected, the relationship between negative life events and depressive symptoms was significant correlated in the expected direction, cross-sectionally and longitudinally. In addition, the mediating variables (savoring, self-compassion) were significantly related to the predictor (negative life events) and outcome (depressive symptoms) variables in the expected directions. These relational patterns were revealed in cross-sectional and longitudinal analysis. Table 1 depicts all cross-sectional and longitudinal relationships examined within the current study.

### Multiple Regression Model

A hierarchical multiple regression model was analyzed to determine if reports of savoring and self-compassion could predict depression over time and above the variance attributable negative life events. Negative life events (Time 1) were entered in the first block and negative life events (Time 1), self-compassion (Time 1), and savoring (Time 1) were entered into the second block of the regression model. The results indicated that negative life events by itself was

a significant predictor in the first block,  $R^2 = .19$ ,  $F(1, 140) = 33.52$ ,  $p < .00$ . Variables in the second block significantly predicted an additional 24% of the variance in depression,  $R^2_{total} = .43$ ,  $F_{change}(2, 138) = 28.36$ ,  $p < .00$ . Savoring ( $b = -.41$ ,  $p < .01$ ), and self-compassion ( $b = -.20$ ,  $p < .01$ ) were retained as significant individual predictors in the final model. In general, savoring and self-compassion significantly predicted variance in depression scores over time, above and beyond that of negative life events. These results offer preliminary evidence for the protective roles that these positive psychological factors may play in conceptualizing depression.

### **Multiple Mediation Model**

In order to determine the direct and indirect relationships between negative life events (Time 1) and depression (Time 2), a zero-order correlation model between these variables (labeled as  $c$  in mediational analyses; see Preacher & Hayes, 2008) was computed. Results yielded a direct positive relationship between these variables,  $r(142) = .44$ ,  $p < .01$ ; and a corresponding unstandardized coefficient of  $.23$  ( $SE = .04$ ),  $t = 5.79$ ,  $p < .01$ . These results indicate that the frequency of negative life events is directly related to self-reported levels of depressive symptoms.

To test the final hypothesis, that the relationship between negative life events (Time 1) and depression (Time 2) are mediated by savoring (Time 1) and self-compassion (Time 1), a mediation model (see figure 1) was constructed in SPSS using a macro written by Preacher and Hayes (2008). Considering the linear combination of the mediators, the unstandardized relationship between negative life events and depression decreased from  $.23$  to  $.13$  (labeled  $c'$ ). The overall effect remained significant however,  $t = 3.39$ ,  $p < .01$ , indicating a partial mediated effect. These results suggest that savoring and self-compassion are important but alone cannot fully explain the relationship between negative life events and depression.

Next, a multiple mediation analysis was performed to conclude whether the mediating variables of savoring (Time 1) and self-compassion (Time 1) were individually significant in the overall model. The results included the estimate of the effect, the lower and upper bounds for the 99% biased corrected intervals, as well as the 99% bias corrected and accelerated confidence intervals. It is important to note that if the 99% CIs for the bootstrapped estimate does not contain zero, then the mediating variable is significant at  $p < .01$ . The results, reported in Table 2, indicated that both savoring ( $\kappa^2 = .14$ ) and self-compassion ( $\kappa^2 = .20$ ) were significant mediators of the relationship between negative life events and depression. In other words, they can potentially explain how the experience of negative life events is related to depressive symptomology. In addition, contrast effects were analyzed to determine if one mediator was a better fit than the other in the model. Results indicate that there were no differences in terms of mediator fit between self-compassion and savoring. This result suggests that self-compassion mediate the relationship between negative life events and depression to a comparable degree.

## **CHAPTER 4: DISCUSSION**

### **Review of Purpose**

The main purpose of this study was to advance research on the protective factors to and complex models of depression. The researcher was specifically interested in studying intrapersonal buffers to depressive outcomes. In addition, the researcher wanted to obtain an in-depth understanding of the direct and indirect effects in the relation between negative life events and depression. Gaining a deeper understanding of these complex relations will help researchers and practitioners develop more effective interventions for individuals with depressive symptoms. Thus, in order to achieve these goals, the researcher considered the following questions: a) were increased levels of negative life events associated with higher levels of depression? b) did savoring and self-compassion predict variance in depressive scores over time? and c) did savoring and self-compassion mediate the relationship between negative life events and depression?

### **Protective Factors to Depression**

The present study was among the first to examine the relationship between positive psychology factors and depression utilizing a longitudinal design. Many past researchers (e.g., Neff, Rude, & Kirkpatrick, 2007) have used a cross-sectional design, measuring all of the variables at one time and making predictions based on the results, to examine the relationships between positive psychology factors and depression. These designs provide useful information, but they are limited in their statistical power to explain complex, changing relationships occurring over time (Castro-Schilo & Ferrer, 2013). Moreover, cross-sectional designs are limited in terms of identifying protective factors to depression, a much needed line of inquiry (Castro-Schilo & Ferrer, 2013). Conversely, implementing longitudinal designs allow

researchers to make more accurate and stable predictions about changes in depressive symptoms (MacKinnon, 2008). Thus, longitudinal designs provide a better context for examining protective factors to psychological outcomes, like depression, than cross-sectional designs. Overall, given the longitudinal nature of the current study, it is one of the first studies to speak to the protective properties of self-compassion and savoring on depressive outcomes.

*Self-Compassion.* Results from a regression model indicate that self-compassion was a significant predictor of depression over time. This finding suggests that individuals with higher self-compassion scores at any given point in time will likely report lower depression scores at a later point in time. Our results are consistent with previous research (e.g., Raes, 2010; Johnson & O'Brien, 2013) that highlights a strong positive correlation between self-compassion and depression scores. However, the current study was the first to examine this relationship across time. Considering that our expectations were supported, this study is one of the first to offer preliminary evidence for the position that self-compassion may act as a protective factor to depression among a sample of emerging adults enrolled in college.

If self-compassion does act as a protective factor to depression it is important to determine how self-compassion buffers individuals against the onset of depression. Self-compassion in part entails empathy and understanding for oneself and acceptance of negative events for what they are (Neff, 2003a). As a result, individuals with high levels of self-compassion may be more self-forgiving when making mistakes or after experiencing a perceived failure. Such forgiveness is known to help individuals cope effectively with adversity (Neff, Rude, & Kirkpatrick, 2007), which in turn may result in lower vulnerability toward depression. It is important that future research deconstruct the protective properties of self-compassion further through the context of forgiveness. To accomplish this goal, researchers may want to use



experimental designs to determine if and how forgiveness tendencies get activated between high versus low self-compassion individuals. Moreover, it is important that researchers examine the interaction between self-compassion and forgiveness to explain variation in depression scores across time.

*Savoring.* The obtained findings also indicated that savoring was a significant predictor of depression over time. This finding suggests that individuals who engaged in higher levels of savoring practices at one point in time report fewer depressive symptoms at a later point in time. Indeed, the obtained results support the findings of past researchers who found a link between higher levels of savoring and lower levels of depression (Carver & Johnson, 2009; Hurley & Kwon, 2012). However, the current study was the first to examine this relationship across time. Overall, the moderately-high relationship between reports of savoring and depression in the current study confer support for the supposition that savoring components protect emerging adults against the onset of depression symptoms.

It is possible that the act of attending to and focusing on positive experiences in an individual's life results in higher levels of positive affect which can guard against the development of depressive symptoms (Bryant, Smart, & King, 2005). Past researchers have suggested that directing attention away from negative stimuli to something more positive can serve as an effective emotion regulatory strategy (Tugade & Fredrickson, 2007). Thus, future research should focus on evaluating savoring as a specific type of emotion regulation strategy that may buffer against the development of depressive symptoms. Specifically, researchers should consider implementing experimental designs to determine if and how savoring helps individuals refocus cognitive resources away from negative affect and onto building other

intrapersonal strengths known to buffer against depression, like resilience. Studies such as these should provide an in-depth look at how savoring may protect against depressive symptoms.

### **Risk Factors for Depression**

In the current study, negative life events predicted variation in depression scores across time. This result suggests that greater exposure to negative life events over a period of several weeks is associated with an increase in depressive symptoms. This finding is consistent with a litany of studies that confer negative life events as important in explaining the onset and maintenance of depressive symptoms for emerging adults (Brown & Harris, 1989; Mazure, 1998; Hammen, 2005). Despite the litany of empirical evidence, it is important that researchers continue to deconstruct the relationship between negative life events and depression among diverse samples of emerging adults.

The stress-generation perspective posits that continual exposure to stress may exhaust important coping resources, making individuals more vulnerable to depressive symptoms (Hammen, 2005). However, Monroe and Hadjiyannakis (2002) found contradictory evidence to this position. Specifically, their findings suggest that only 50% of individuals who experience negative life events develop chronic problems with depression. Taken together, these perspectives paint a relatively complex picture of the relationship between negative life events and depression. Specifically, it is unknown whether negative life events serve as a risk factor or vulnerability.

The results suggest that negative life events may be a risk factor that is associated with depression, but may not be a vulnerability factor that provides a causal explanation for the development of depressive symptoms. In other words, negative life events may predict but not directly cause increased levels of depression. Future research may need to disentangle the

connection between these two variables by demonstrating how negative life events promote depressive symptoms. Specifically, researchers may want to implement experimental designs, in which participants experience varying levels of stressors over time, and examine whether negative life events directly cause depression, or merely predict it.

### **Mediation Models**

Through an examination of indirect effects, results highlight self-compassion as a partial mediator of the relationship between negative life events and depression. This finding is important in explaining how negative life events are connected with depressive symptoms across time. The obtained findings support previous results. Specifically, positive psychology factors are important in explaining how negative life events are associated with psychopathological outcomes (Watson & Naragon-Gainey, 2010; Wood & Joseph, 2010). The results offer some important insights into the temporal ordering effects of how negative life events and self-compassion explain variation in depressive symptoms. Specifically, our results suggest that negative life events may not independently contribute to the onset and exacerbation of depressive symptoms. Instead, our results suggest that negative life events may activate lower self-compassion which in turn may generate greater levels of depression. However, considering the correlational nature of the current study, we cannot generate any direct evidence for the causal chain of depressive symptoms. Future research will need to consider more powerful experimental and longitudinal designs to determine if negative life events activate lower levels of self-compassion and how such a process contributes to the onset and maintenance of depression.

Similar to self-compassion, savoring was also a significant mediator of the relationship between negative life events and depression. This finding suggests that the relationship between negative life events and depression may be best described as indirect. The obtained findings

support previous research implicating emotional regulation strategies as important in predicting depressive symptoms (Bonnano et al., 2004; Kashdan & Rottenberg, 2010; Westphal, Seivert, & Bonanno, 2010). Our results offer some unique insights into how negative life events may contribute to depressive symptoms. Specifically, as an individual experiences negative life events, he/she may have restricted access to or unable to maintain attention toward positive emotions, memories, and thoughts that could aid in the recovery process. Instead, negative life events may activate recall of negatively skewed memories, emotions, and thoughts that contribute to the onset and maintenance of depression.

The correlational nature of the current study restricts our ability to offer evidence toward causal pathways to depression. However, our results direct future research to examine if and how negative life events suppress savoring tactics as a means to explain the onset and maintenance of depression. Interestingly, self-compassion and savoring were only partial mediators, in that they did not explain all of the variance in the relationship between negative life events and depression. This means other third variables that may be equally or more important in explaining the relationship between negative life events and depression. For example, individuals who reported low levels of depressive symptoms may possess high levels of toughness, or the mental and physical ability to withstand the negative effects of life stressors (Dienstbier & Zillig, 2005). Consistent with this position, toughness may be important in how individuals cope with negative life events in a way that either inhibits or promotes the development of depressive symptoms. Moreover, self-compassion and savoring may not account for qualities such as perseverance and mental fortitude that are often associated with toughness. As such, future research may want to consider if toughness mediates or moderates the relationship between negative life events and depression.

## **Practical Implications**

The findings of the present study suggest that self-compassion and savoring may be protective factors against the development of depressive symptoms. Based on these results, practitioners should consider therapeutic interventions aimed at increasing levels of self-compassion and savoring among clients who may be at-risk for developing debilitating depressive conditions. For instance, clinicians may want to integrate Compassionate Mind Training into their treatment plans for individuals who are perceived to be at-risk for depression. Individuals who invest themselves in Compassionate Mind Training often find effective ways of boosting their levels of self-forgiveness, especially when confronting a negative or challenging experience (Gilbert & Procter, 2006). Individuals who receive Compassionate Mind Training may be better able to accept their setbacks and not let stress frustrate them. Additionally, the training can help individuals perceive themselves as being as good as other people, and someone worthy of love and respect. Taken together, these skills may protect individuals against depressive symptoms by reducing their levels of self-judgment and increasing levels of self-forgiveness.

Additionally, clients who engaged in savoring practices as part of their treatment are likely to report obtaining a greater range of intrapersonal resources (Hurley & Kwon, 2012). For instance, learning how to reminisce about positive past events may help individuals counteract feelings of worthlessness and recognize that their life should not be seen as a failure. Similarly, learning how to use savoring to anticipate positive future events can give individuals something to look forward to and overcome feelings of chronic pessimism. Such skills seem important in navigating circumstances known to contribute to depressive symptoms.

However, it should be noted that self-compassion and savoring techniques be considered within the context of empirically-validated interventions to depression. Using self-compassion and savoring techniques to treat depressive symptoms independent of other effective treatment may lead to negative therapeutic outcomes. Clinicians may want to consider implementing self-compassion and savoring techniques once empirically validated approaches have minimized depressive symptoms. Self-compassion and savoring techniques may be best served as a means to maintain therapeutic gains in the maintenance or relapse prevention stage of therapy.

### **Limitations**

There were a number of limitations in the current study that are important to address. First, participants consisted of undergraduate psychology students enrolled in a rural regional university in the southeastern United States. A substantial number of participants were European American and African American emerging adults between the ages of 18 and 24. However, lack of representation from Mexican American, LGBT students, and non-traditional students limits the extent to which the results could be generalized. Future research should replicate these findings using a more inclusive sample of ethnicities, sexual orientations, and ages to ensure these findings are stable across different salient cultural groups. Another limitation to the current study was the attrition rate between Time 1 and Time 2. As previously discussed, the rate was about 44% and there may have been unique characteristics about the participants who did not complete Time 2 that differentiates them from those who did complete Time 2. For instance, individuals suffering from depression may have dropped out of college after completing Time 1 of the study, preventing them from completing Time 2. It is important that future research find more effective ways to ensure that a majority of participants complete both waves to ensure that all characteristics are accounted for in the analytic procedures.

A third limitation of the current study was that it was correlational, meaning that causal statements about the relationships among negative life events, depression, and positive psychology factors cannot be made. Similarly, the use of self-report measures to measure behaviors such as depressive symptoms may have introduced demand characteristics such as social desirability, the inclination to answer in a socially acceptable way. As a result, students may not have been completely forthcoming in their responses to each survey question. Future researchers should consider using experimental designs to examine stress and depression, which would allow for causal conclusions regarding the relations in question. In addition, researchers should consider using more objective methods for measuring depressive behavior, such as observation and coding specific features (e.g., lethargy, depressed mood) to minimize demand characteristic such as social desirability.

The final limitations of the current study are related to the use of a semi-longitudinal study, where all of the variables were measured at two different time points five weeks apart. This design allowed for the examination of short-term relations between the measured variables. However, to obtain a better estimate of the stability of these relations, it will be important for future research to examine these same relations over a six month and twelve month time interval. Additionally, the preferred longitudinal design for mediation models is the three-wave autoregressive model, in which the predictors are estimated at Time 1, the mediators at Time 2, and outcome variables at Time 3. Such designs provide a more accurate representation of the causal links between the variables because it allows researchers to examine how the predictor is linked to the mediators over time (MacKinnon, 2008). Estimating the predictor and mediators at the same time point may not fully account for the changes in that relationship longitudinally. Future researchers should consider using an autoregressive model, which can provide a more

stable and accurate representation of the long-term causal links among the predictor, mediators, and the outcome variable than the two wave model (MacKinnon, 2008).

### **General Conclusions**

In summary, the current study is among the first to look at the long-term relationships among negative life events, self-compassion, savoring, and depression. These findings extend the research literature, in that our results highlight potential unique roles by which positive psychological factors relate to depressive symptoms. First, our results offer preliminary evidence for self-compassion and savoring as protective factors for depressive symptoms. Second, self-compassion and savoring explain how negative life events are associated with levels of depressive symptoms. Taken these findings together, therapeutic interventions that target self-compassion and savoring (e.g., interpersonal therapy, compassionate mind training) could help reduce levels of depressive symptoms, prevent relapse, and increase quality of life among at-risk individuals.



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**Table 1**

*Inter-correlations among Measures of Stressful Life Events, Depression, Savoring, and Self-Compassion*

Variables	1	2	3	4	5	6	7	8
1. SLE1	--	--	--	--	--	--	--	--
2. DEP1	.64**	--	--	--	--	--	--	--
3. SAV1	-.25**	-.51**	--	--	--	--	--	--
4. SCO1	-.43**	-.55**	.39**	--	--	--	--	--
5. SLE2	.73**	.57**	-.28**	-.38**	--	--	--	--
6. DEP2	.44**	.71**	-.57**	-.46**	.61**	--	--	--
7. SAV2	-.20*	-.44**	.77**	.38**	-.27**	-.66**	--	--
8. SCO2	-.39**	-.57**	.43**	.84**	-.42**	-.58**	.49**	--

**Note:** \*Correlation is significant at the .05 level. \*\* Correlation is significant at the .01 level.  
 SLE1= Stressful Life Events (Time 1), DEP1= Depression (Time 1), SAV1= Savoring (Time 1),  
 SCO1= Self-Compassion (Time 1), SLE2= Stressful Life Events (Time 2), DEP2= Depression  
 (Time 2), SAV2= Savoring (Time 2), SCO2= Self-Compassion (Time 2).

**Table 2**

*Multiple Mediation Results for Savoring and Self-Compassion on the Stress-Depression Relationship*

Effect	BC 99% CI		BCA 99% CI		
	Lower	Upper	Lower	Upper	
Indirect Effects					
Savoring	0.057	0.015	0.118	0.015	0.117
Self-Compassion	0.044	0.001	0.112	0.000	0.112
TOTAL	0.101	0.037	0.184	0.036	0.184
Contrasts					
SAV minus SCO	-0.059	-0.055	0.091	-0.059	0.088

*Note:* BC refers to Bias Corrected and BCA refers to Bias Corrected and Accelerated. Based on 10,000 bootstrap samples. SAV= Savoring, SCO= Self-Compassion.



**Figure 1.** The direct and indirect relationship between adverse events and depression. Savoring and Self-Compassion are the mediating variables. Standardized beta coefficients are depicted on each path of the model.

