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Understanding the Links Between Self-Compassion, Emotion Regulation, and Internalizing
Symptoms in Adolescents

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M.A., Emory University, 2021

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Abstract

Understanding the Links Between Self-Compassion, Emotion Regulation, and Internalizing Symptoms in Adolescents

By Brittany L. Robbins, Ph.D.

Adolescent mood and anxiety disorders have been deemed an urgent public health crisis and, as prevalence estimates continue to rise, more adolescents are impacted by a variety of negative outcomes including functional impairment, psychiatric comorbidities, and suicidal thoughts and behaviors. Despite a range of evidence-based treatments for adolescent mood and anxiety disorders, response rates are modest, and relapse rates are high. Identifying new treatment targets is critical. Accumulating research supports a self-compassion (SC) model of emotion regulation (ER) in which SC is hypothesized to deactivate the psychobiological threat system and activate the self-soothing system. However, few studies have examined SC and ER together in adolescent samples. The present study reports on the relationships between these constructs and clinical outcomes (i.e., internalizing symptom severity, a history of non-suicidal self-injury (NSSI), and a history of suicidal thoughts and behaviors (STBs)) in a sample of adolescents aged 14 to 17 (n=113), including those with diagnosed anxiety and/or depression as well as healthy controls. Mediation analyses revealed that two aspects of SC (capacity for and barriers to) related to the clinical outcomes and that ER difficulties partially mediated those relationships. The findings suggest that positive and negative attitudes towards self-compassion contribute directly to clinical outcomes in addition to their effect through enhancing emotion regulation. The significant findings for barriers to (e.g., negative attitudes towards) SC, a relatively less well studied aspect of SC, highlight the possibility that targeting this aspect of SC more directly could improve treatment outcomes for internalizing disorders and STBs.

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Introduction

Adolescent mood and anxiety disorders are pervasive psychiatric conditions associated with reduced quality of life, poor academic achievement, functional impartment, psychiatric comorbidities, and suicidal thoughts and behaviors (Fristad & Black, 2018; Twenge et al., 2019; Cassano & Fava, 2002; Duffy, 2015; Pullmer et al., 2019). According to a relatively recent report on prevalence estimates of mental health disorders among U.S. children and adolescents from national surveillance systems between 2016-2019, 9.4% of children and adolescents aged 3-17 years suffer from clinical levels of anxiety, and 20.9% of children and adolescents aged 12-17 years had ever experienced a major depressive episode (Bitsko et al., 2022). Furthermore, mood disorders in youth account for a large portion of premature death and disability in 10–24-year-olds (Duffy, 2015), with suicide now being the second leading cause of death for this age group (Pullmer et al., 2019). Notably, even subclinical levels of mood and anxiety disorders in adolescence negatively impact well-being and quality of life (Hoek, 2012; Pullmer et al., 2019). For example, subclinical mood and anxiety disorders in adolescence are associated with feelings of distress, poorer academic performance, difficulties in interpersonal relationships, suicidality, impairments in functioning and emotional development, externalizing behaviors (e.g., aggression, conduct-related issues), engagement in risky behaviors (e.g., substance use), an increased risk for developing clinical mood and anxiety disorders, as well as more severe symptomology in adulthood (Noyes et al., 2022; Hoek, 2012; Pullmer et al., 2019). The dramatic increase in, and long-term ramifications of these conditions in adolescents constitute an urgent public health crisis (Fristad & Black, 2018; Duffy, 2015).

Despite a range of evidence-based treatments for adolescent mood and anxiety disorders, response rates are modest, and relapse rates are high (Weersing et al., 2017). Thus, there is a

critical need to identify new treatment targets and intervention approaches. Targeting the

psychological mechanisms that underlie mood and anxiety symptoms, particularly in this

development period, is a promising approach (Duffy, 2015). Accumulating research suggests that

self-compassion (SC) and emotion regulation (ER) may play a critical role in internalizing

disorder (i.e., depression, anxiety) development and maintenance (Aldao et al., 2010;

Athanasakou et al., 2020; Castilho et al., 2016; Diedrich et al., 2014; Ferrari et al., 2018; Finlay-

Jones, 2017). However, most of this research has focused on adult populations and non-clinical

samples. A clearer understanding of how these psychological processes relate to each other, and

clinical outcomes, will help inform intervention strategies for this vulnerable adolescent patient

population.

Self-Compassion

SC has emerged as a psychological construct of interest in the past two decades. While

there is some variation in how SC is measured across studies, the construct is commonly

operationalized in accordance with Neff's pioneering SC model (Neff, 2003a). According to

Neff (2003a), SC "involves being open to and moved by one's own suffering, experiencing

feelings of caring and kindness towards oneself, taking an understanding, nonjudgmental attitude

towards one's inadequacies and failures, and recognizing that one's own experience is part of the

common human experience" (p. 224). Neff's model posits that there are three main components

of SC, with each component consisting of a positive pole (representing compassionate behavior)

and a negative pole (representing uncompassionate behavior). The three components and

corresponding poles include: 1.) self-kindness (i.e., acceptance of ones' mistakes/personal flaws

and ability to self-soothe when distressed) and self-judgement (i.e., expressions of self-critical or

judgmental beliefs), 2.) common humanity (i.e., recognition of personal shortcomings and one's

suffering as something everyone experiences) and isolation (i.e., feeling alone in ones' faults and/or suffering), and 3.) mindfulness (i.e., non-judgmental awareness of any moment-to-moment experience) and over-identification (i.e., becoming overwhelmed and wrapped up in ones' emotions, thoughts, or internal experiences) (Neff, 2003a, b).

Self-kindness. Self-kindness involves the development of an accepting and caring relationship with the self, particularly during times of suffering (Neff, 2003a, b; Gilbert & Irons, 2005). Self-kindness highlights the significance of treating oneself with the same level of care, understanding, warmth, and graciousness that one would provide for a loved one or close friend who was experiencing hardship (Neff, 2003a, b; Gilbert & Irons, 2005). It involves being supportive and tender with oneself as opposed to being self-critical and judgmental (Neff, 2003a). This component promotes the acknowledgement of ones' mistakes and flaws from a non-judgmental stance, which nurtures a gentle, forgiving, and compassionate attitude towards oneself (Neff, 2003a, b; Gilbert & Irons, 2005). Research on self-kindness has consistently revealed its positive influence on emotional well-being and mental health (Neff, 2003a, b; Brenner et al., 2018). For example, studies have shown that individuals who engage in self-kindness report lower levels of self-criticism, depressive symptoms, anxiety, and distress (Gilbert et al., 2011; Neff et al., 2007). Practicing self-kindness is also associated with higher self-worth and self-esteem, as individuals who treat themselves in a kind and gentle manner tend to have a more stable and positive self-concept (Brenner et al., 2018; Neff, 2003a, b). Notably, research indicates that self-compassion may be a healthier and more stable source of self-worth compared to self-esteem, which is often influenced by external factors (Neff et al., 2007). Furthermore, self-kindness fosters resilience, as individuals are more likely to perceive their mistakes as

opportunities for growth as opposed to evidence for their inadequacy or incompetence (Neff, 2003a, b; Neff et al., 2007).

Common humanity. Common humanity emphasizes that suffering is a global human experience (Neff, 2012; Neff, 2003a, b). Neff's model encourages individuals to become aware of and recognize the fact that they are not alone in their suffering, as feelings of distress or inadequacy are a shared human experience, which works to alleviate self-judgment and feelings of isolation as well as foster feelings of empathy, understanding, and interconnectedness towards both others and oneself (Neff, 2003a, b; Neff et al., 2007). Studies have shown that common humanity is associated with less self-criticism, self-judgment, feelings of isolation, overidentification with one's feelings, and feelings of being a failure or uniquely flawed (Dreisoerner et al., 2021; Kotera et al., 2022). Other studies found that individuals who accept and embrace the idea of common humanity report greater life satisfaction, interpersonal relationships, overall well-being, feelings of empathy and compassion (towards others and oneself), self-esteem, as well as an improvement in one's ability to cope with distress and times of suffering (Ling et al., 2020; Wilkes et al., 2022; Dreisoerner et al., 2021; Kotera et al., 2021).

Mindfulness. Mindfulness is a balanced state of awareness which arises from the practice of non-judgmentally attending to the present moment (i.e., noticing one's thoughts, experiences, or emotions from moment-to-moment, and observing all experiences with equanimity) (Neff, 2003a, b). In doing so, individuals can approach their distress or suffering from an objective, open, and accepting perspective, as they are able to observe their internal and/or external experiences from a distance (i.e., without over-identifying with or becoming consumed by them) (Neff, 2003b; Neff et al., 2007). Thus, mindfulness aids in the cultivation of self-awareness, insight, and more putatively adaptive ER (Neff, 2003b). Studies have shown that greater

mindfulness is associated with reductions in negative affect as well as both depressive and

anxiety symptoms (Davis & Hayes, 2011; Jazaieri et al., 2014; Olson & Emery, 2015). One

potential reason for this reduction is that mindfulness is likely incompatible with the emotional

dysregulation and related avoidance found to effectuate anxiety and depressive symptoms;

"being more mindful of certain experiences has been theorized to enable people to let go of any

habitual or harmful responses to these experiences and instead select healthier, more adaptive

ways of responding" (Messer et al., 2021, p. 27). Notably, Neff (2003b) emphasized that

mindfulness is a core component of SC, as being mindful of one's internal experiences (e.g.,

feelings, thoughts) is fundamental to show compassion towards oneself (Neff, 2003b).

Conceptualizing Self-Compassion

While there is general consensus around Neff's (2003a) SC model, researchers in this

field have conceptualized SC in different ways (MacBeth & Gumley, 2012; Barnard & Curry,

2011; Finlay-Jones, 2017). Whereas some studies have conceptualized SC as a dispositional trait

and studied it as an individual difference variable (Goetz et al., 2010; Chishima et al., 2018;

Inwood & Ferrari, 2018; Rockliff et al., 2008), others have proposed that SC is a mindset and

skill that can be fostered (Suh & Jeong, 2021; Allen & Leary, 2010; Neff, 2003a, b; Neff &

Germer, 2013; Dreisoerner et al., 2020). Consistent with the latter view, numerous studies

utilizing SC-based treatments and brief SC-inductions across different populations (e.g., college

students, clinically depressed individuals, adolescents) have shown that such interventions and

inductions increase SC (Ferrari et al., 2019; Wilson et al., 2019; Allen & Leary, 2010; Leary et

al., 2007; Abdelraheem et al., 2019). Intervention-based research in both community and clinical

samples also indicates that, although SC can be conceptualized as a dispositional trait, "it is also

a skill that can be taught, practiced, and built into the identity of individuals who are low in SC"

(Inwood & Ferrari, 2018, p. 3; Neff & Germer, 2013). SC has also been found to be positively

associated with various indices of psychological well-being, regardless of being measured as an

induced state or a trait (Allen & Leary, 2010). Taken together, SC can be conceptualized as a

"form of adaptive self-relation" that can be achieved via a modifiable mindset, which involves a

set of related beliefs, cognitions, and attitudes with associated behaviors which can be both

induced and cultivated (Finlay-Jones, 2017, p. 91; Neff & Germer, 2013). For the purpose of the

present study, SC was conceptualized in this way (see Table 1).

Self-Compassion Aversion

Whereas Neff's (2003a) SC model speaks more to one's capacity and capabilities for SC,

more recent research has highlighted other factors that can interfere with learning and/or

practicing SC. For example, studies have found that for some individuals receiving compassion

(from oneself or others) appears to generate feelings of fear and/or aversion, avoidance-related

behaviors, as well as difficulties connecting to feelings of compassion (Gilbert et al., 2011;

Gilbert et al., 2012; Rockliff et al., 2008; Kelly et al., 2014a, b). A fear of self-compassion (FSC)

may stem from feelings of being undeserving and/or concerns with lowering one's personal

expectations or standards (Kelly et al., 2014a; Kelly & Carter, 2015; Gilbert et al., 2011). More

broadly, difficulties with SC may stem from negative beliefs about SC (e.g., treating oneself with

compassion will result in self-indulgence or laziness), an inability to access feelings of

compassion (i.e., never having felt compassion towards oneself before), as well as resistance to

the idea of SC due to beliefs surrounding the need to be tough in order to get through life

(Gilbert et al., 2011; Rockliff et al., 2008). There is growing evidence that fear of and/or an

aversion to SC leads to increased vulnerability to psychological distress (Gilbert et al., 2011;

Kelly et al., 2014a). For example, individuals with a greater aversion to SC report lower levels of

SC as well as more severe psychopathology (Kelly et al., 2014a; Kelly & Carter, 2015).

Empirical evidence suggests that individuals with greater self-criticism, which has been found to

be one of the most pervasive features of mental health disorders (including depression and

anxiety), tend to experience difficulties with SC and may perceive it as threatening (Gilbert et al.,

2012; Rockliff et al., 2008). In adult samples, difficulties with SC have been found to be

associated with depression, anxiety, stress, self-criticism, and alexithymia (i.e., "difficulties in

understanding, processing, and verbally describing emotions") (Gilbert et al., 2012, p. 376;

Xavier et al., 2016; Gilbert et al., 2011). In a non-clinical adolescent sample, FSC significantly

predicted frequency of self-harm behaviors (Xavier et al., 2016). Thus, the aforementioned

feeling of aversion and barriers to SC are included in our assessment of SC, as they have direct

implications for intervention. It is likely that a patient who has limited SC capacity may need a

different approach to bolstering SC than a patient who has strong aversion to experiencing SC.

Self-Compassion and Clinical Outcomes

A positive association between SC and general mental health has been well-established in

non-clinical adult populations (Tali et al., 2023; Neff, 2012; Ferrari et al., 2019). Studies

consistently show that greater self-reported SC is associated with better mental health outcomes,

life satisfaction, positive affect, self-esteem, interpersonal relationships, general well-being,

positive psychological strengths (i.e., emotional intelligence, wisdom, happiness, curiosity,

exploration, optimism, and personal initiative), in addition to enabling people to thrive (Raes et

al., 2011; Zessin et al., 2015; Neff et al., 2007; Barnard & Curry, 2011; Neff, 2003a, b; Neff &

Germer, 2013). Researchers have proposed that SC deactivates the psychobiological threat

system – characterized by insecure attachment, defensiveness, and autonomic arousal – and

activates the self-soothing system – characterized by feelings of secure attachment, safety, and

the oxytocin-opiate system (Gilbert & Irons, 2005; Gilbert et al., 2011; Gilbert et al., 2012).

Furthermore, there is growing evidence that the practice of SC (i.e., via loving-kindness,

mindfulness, and compassion-focused meditations) results in positive changes in both immune

and neurophysiological systems, including the activation of brain circuitries and regions that

have been linked with positive affect, empathy, and self-reported altruism (Lutz et al., 2008;

Gilbert, 2009; Davidson et al., 2003). It has also been hypothesized that SC improves mental

health and well-being by cultivating psychological resilience and helping individuals cope with

adversity and day-to-day challenges more effectively (Raes et al., 2011; Neff et al., 2007).

Consistent with this, brief SC exercises have been shown to reduce stress hormone levels and

increase heart-rate variability, both of which help individuals self-soothe during times of stress

(Rockcliff et al., 2008; Porges, 2007).

In addition to positive associations with global measures of well-being and mental health,

SC has been shown to have specific associations with internalizing disorders and accompanying

clinical characteristics (e.g., NSSI, suicidal ideation). Numerous studies have shown that SC is

inversely associated with depressive and anxiety symptoms (including social anxiety and

generalized anxiety) (Zessin et al., 2015; Neff et al., 2007). In adult samples, SC has been shown

to predict lower symptom severity in both depression and anxiety as well as greater quality of

life (Van Dam et al., 2011; Neff et al., 2007). SC has also been shown to protect against both the

development and maintenance of depressive symptoms in adult clinical and non-clinical samples

(Neff et al., 2007; Pullmer et al., 2019; MacBeth & Gumley, 2012). A meta-analysis of 20

studies reported large effect sizes for the relationship between SC and psychopathology

(including symptoms of depression and anxiety) (MacBeth & Gumley, 2012). Relatedly, higher

levels of SC have also been found to be associated with lower levels of self-criticism, which is a

common characteristic and significant predictor of both depression and anxiety (Neff & Germer, 2013). Notably, even when controlling for self-criticism, SC remains inversely related to depression and anxiety (Neff, 2003a). In terms of practicing SC, individuals who practice SC report experiencing significantly lower levels of anxiety and worry (Raes et al., 2011). Despite substantial evidence for SC's mental health benefits in the adult literature, less is known about how strongly this construct impacts adolescent internalizing disorders (Xavier et al., 2016). However, available studies using adolescent populations suggest that SC is similarly inversely associated anxiety and depressive symptoms (Bluth et al., 2017; Muris et al., 2016; Neff & McGehee, 2010). Additionally, a few studies using SC-based interventions in adolescent samples found significant increases in self-reported levels of SC, and improvements in SC were associated with reductions in rumination and increases in life satisfaction and positive affect (Marsh et al., 2017; Galla, 2016; Bluth et al., 2016).

Research has also shown that SC may also serve as a protective factor against suicidal thoughts/behaviors – both of which are known to accompany internalizing disorders and are elevated in adolescent populations. Several studies have found that greater SC is associated with a reduced likelihood of experiencing suicidal thoughts (Shahar et al., 2012; Suh & Jeong, 2021; Rabon et al., 2018). Notably, SC has also been found to be inversely associated with both shame and self-criticism, and these are two factors that are associated with an increased risk of experiencing suicidal thoughts (Neff et al., 2005; Osman et al., 2001). This finding suggests that such negative self-evaluation might be alleviated through SC (Osman et al., 2001). Furthermore, various studies have found that SC is inversely related to feelings of hopelessness and despair, which are two factors commonly associated with suicidal ideation (Zessin et al., 2015; Zhou et al., 2013). In terms of suicidal behavior, several studies indicate that greater SC is associated

with a lower risk of engaging in both self-harm behaviors and suicide attempts (Bryan et al., 2019). Relatedly, a systematic review revealed that higher levels of SC were related to lower levels of self-harm behaviors (Cleare et al., 2019; Per et al., 2021).

With regard to NSSI, several studies found that adolescents and young adults with greater SC were less likely to engage in NSSI (Xavier et al., 2016; Vigna et al., 2020; Wu et al., 2019; Kaniuka et al., 2019; Forkus et al., 2019). It is hypothesized that SC helps buffer against self-harm by decreasing self-criticism and cultivating self-kindness (Nock et al., 2009). Similar to the findings relating to suicidal ideation and behaviors, SC has been found to be inversely related to feelings of shame and self-criticism in an adolescent sample, and both shame and self-criticism are features related to the engagement of NSSI behaviors (Hasking et al., 2013). Taken together, higher SC appears to protect against both STBs and NSSI, while lower SC appears to increase risk.

Self-Compassion and Emotion Regulation

Emotion regulation (ER) difficulties have been consistently identified as a relevant factor in the development, maintenance, and treatment of mood and anxiety disorders (Berking & Wupperman, 2012; Aldao et al., 2010). ER is defined as the process of monitoring, evaluating, and modifying emotional experiences in order to accomplish one's personal goals (Aldao et al., 2010; Gross, 2014; Kobylińska & Kusev, 2019). Given that difficulties with regulating emotions are at the core of most forms of psychopathology, ER abilities and skills have become a high priority treatment target (Berking et al., 2019). Interestingly, SC has been linked to factors that represent key mechanisms in ER models of depression and anxiety, including ER capacities and propensity to deploy specific ER strategies (Finlay-Jones, 2017). Moreover, SC has been found to reduce negative emotions, as well as generate more positive emotions, which further supports

a direct association between SC and ER (Inwood & Ferrari, 2018). These findings have led to growing support for an ER model of SC, which posits ER processes are key mechanisms linking SC and depression/anxiety (Finlay-Jones, 2017).

The potential impact of SC on ER has been explored in both theoretical accounts and empirical studies. Conceptual models suggest that SC may promote better ER by reducing emotional reactivity and enhancing psychological resilience (Berking & Whitley, 2014; Allen & Leary, 2010; Neff, 2003a, b). Neff (2003a) has proposed that SC's focus on common humanity protects against feelings of isolation and shame, which often precipitate dysfunctional emotional responding. Relating to oneself with compassion is theorized to increase acceptance and positive affect, both of which support better ER (Neff, 2003b; Neff et al., 2007; Brenner et al., 2018). Other work has also found that SC predicts better ER by reducing perceptions of threat (Chishima et al., 2018). Conversely, individuals low in SC are hypothesized to respond to stressors in a self-critical, self-isolating, and overidentified way, triggering a cascade of emotional reactivity that is likely more difficult to regulate (Finlay-Jones, 2017). Additionally, Gilbert (2009) has proposed that SC likely influences affect regulation systems and reduces the activation of threat-related responses by supporting feelings of contentment, safety, and connectedness (Gilbert, 2009; Gilbert et al., 2012).

Empirical evidence from neuroimaging, electrophysiological, psychophysiology, and experimental studies similarly support a link between SC and ER (Per et al., 2021; Bluth et al., 2016; Pullmer et al., 2019). For example, Farb and colleagues (2010) used fMRI to compare self-report measures of anxiety, depression, and psychopathology in addition to neural reactivity to sadness provocation (i.e., watching sad film clips) in participants completing an 8-week Mindfulness-Based Stress Reduction (MBSR) program and in waitlisted controls (Farb et al.,

2010). They found significantly less somatic distress, anxiety, and depression in participants in

the MBSR program compared to the waitlist condition (Farb et al., 2010). Furthermore, fMRI

data revealed decreased neural activity during the sadness provocation task in the MBSR group

relative to the waitlist condition, and the MBSR group had diversely different neural responses

during the task than they had prior to the mindfulness training (Farb et al., 2010). Their findings

indicate that mindfulness meditation/training "shifts individuals' ability to employ ER strategies

that enable them to experience emotion selectively, and that the emotions they experience may

be processed differently in the brain" (Davis & Hayes, 2011, p. 200; Farb et al., 2010).

Interestingly, research suggests that mental states experienced during the practice of mindfulness

meditation can become "effortless traits over time" (Davis & Hayes, 2011, p. 201). In another

study that examined the potential buffering role of trait mindfulness in cortisol and affective

responses to a social evaluative stress task (i.e., participants had five minutes to mentally prepare

a five-minute speech, delivered it to two critical peer evaluators, and then completed a

mathematical subtraction task in front of the same evaluators) compared to a control task (i.e.,

participants performed the same tasks but alone and into a tape recorder) in a sample of

undergraduate students, the researchers found that greater levels of trait mindfulness predicted

significantly lower anxiety, negative affect, and cortisol responses to the stress task compared to

the control task, even when controlling for other variables that predicted cortisol and affective

responses (Brown et al., 2012). These findings suggest that cortisol and affective responses to an

acute social-related stressor can be modulated by trait mindfulness, which is one of Neff's

(2003a) core components of SC (Brown et al., 2012; Neff, 2003a, b). Diedrich and colleagues

(2014) found that providing participants with SC-based instructions (e.g., "Try to see yourself

from an outsider's point of view, from the perspective of a compassionate, friendly observer")

significantly reduced experimentally induced low/depressed mood compared to a waitlist group (Diedrich et al., 2014, p. 46).

While available evidence supports a relationship between SC and ER, ER is a multi-faceted construct, and it is not yet clear which aspects of the construct SC is related to. For example, there are key differences between ER competency and use of specific ER strategies (see Table 1) (Gratz & Roemer, 2004; Preece et al., 2021). ER competency encapsulates one's ER ability and refers to one's perceived ability to influence their emotions effectively as well as determine appropriate times to activate a goal to regulate ones' emotions (i.e., the ability to tolerate and/or sit with emotions when fitting and modulate emotional responses by flexibly using situationally appropriate strategies) (Preece et al., 2021; Gratz & Roemer, 2004). In comparison, ER strategies refer to the types of specific strategies an individual tends to rely on to regulate their emotions (e.g., cognitive reappraisal, suppression) (Preece et al., 2021; Gratz & Roemer, 2004). A better understanding of the nature of these associations is crucial in order to leverage this relationship in therapeutic interventions.

Self-Compassion and Emotion Regulation Competency

ER competency captures the awareness, understanding, and acceptance of emotions, and the ability to act in desired, goal-directed ways regardless of emotional state (Preece et al., 2021; Gratz & Roemer, 2004). These processes underlie ER abilities more broadly. Measures of ER competency assess facets such as: nonacceptance of emotional responses, difficulty in concentrating when experiencing negative emotions, lack of awareness to emotional responses, beliefs about one's ability to regulate emotions, and clarity about what emotions are being felt (Preece et al., 2021). These facets reflect general beliefs, patterns, and orientations to emotions rather than specific regulation strategies (Preece et al., 2021). There is substantial variability in

individuals' ER abilities, and studies have shown that ER competency difficulties are associated with a higher risk for the development and maintenance of psychopathology (including anxiety and mood disorders) (Berking et al., 2014; Sheppes et al., 2015; Mazidi et al., 2023). SC has been found to be associated with better ER competency in adult samples (Inwood & Ferrari, 2018; Kelly & Carter, 2015; Neff, 2003a; Neff, 2012). Finlay-Jones and colleagues (2015) found that, in an adult sample, SC was negatively associated with ER difficulties, such that individuals with lower levels of SC reported greater difficulties with goal commitment, impulsivity, clarity, and access to ER strategies (Finlay-Jones et al., 2015).

Self-Compassion and Emotion Regulation Strategy Use

While ER competency captures the awareness, understanding, and acceptance of emotions, and the ability to act in desired ways regardless of emotional state, ER strategy use identifies the specific strategies individuals use to regulate their emotions (Preece et al., 2021; Gratz & Roemer, 2004). ER strategies have historically been categorized as "maladaptive" or "adaptive". Putatively maladaptive strategies, which have been proposed to be at the core of both anxiety and depression (Aldao et al., 2010), include suppression, distraction, avoidance (behavioral and experiential), rumination, denial, and are generally associated with psychiatric disorders, including anxiety and depression (Aldao et al., 2010; Aldao & Nolen-Hoeksema, 2012; Anderson et al., 2021; Sloan et al., 2017). In contrast, putatively adaptive strategies include cognitive re-appraisal, problem-solving, acceptance, and sharing, and are consistently associated with better psychiatric outcomes (Aldao et al., 2010; Inwood & Ferrari, 2018; Sheppes et al., 2015). It is important to note that more recent ER research has challenged the notion of maladaptive versus adaptative skills categorizations and suggest such distinctions should be determined by the function, context, and duration of use rather than the strategy itself

(Gross, 2014; Gross, 2015). Accordingly, the current study categorized strategies as either engagement-based or disengagement-based rather than adaptive or maladaptive.

Traditional "maladaptive" ER strategies rely on disengagement from emotions, such as denial, distraction, and suppression. While these strategies may provide immediate relief in the short-term, they paradoxically tend to increase the intensity of negative emotions over time. These strategies facilitate the experiential and emotional avoidance that are core features of both mood and anxiety disorders (Aldao et al., 2010; Anderson et al., 2021; Sloan et al., 2017). It is not surprising then that higher utilization of these strategies is frequently observed in depression and in those experiencing anxiety. Notably, Krieger and colleagues (2013) found that, in a clinically depressed adult sample, the relationship between SC and depression was mediated by cognitive and behavioral avoidance strategies. Taken together, these findings suggest that lower levels of SC may influence depressive symptomology through reliance on disengagement-based ER strategies (Kreiger et al., 2013; Neff, 2003b). In contrast, historically "adaptive" strategies tend to rely on active engagement with emotions and take the form of reappraisal and acceptance strategies. Psychiatric populations consistently report lower use of adaptive strategies. For example, low levels of acceptance as an ER strategy are commonly seen in GAD (Aldao et al., 2010; Gross, 2015; Tull & Roemer, 2007). In terms of SC, SC has been found to be associated with adaptive coping strategies and improvements in ER, which helps individuals better cope with distress and/or suffering that often precede engagement in unhelpful coping-related behaviors such as self-harm behaviors (Anestis et al., 2015). Researchers have also found that SC may serve as a protective factor against NSSI by promoting more putatively adaptive coping strategies (Nock et al., 2009; Xavier et al., 2016; Vigna et al., 2020; Wu et al., 2019).

Other studies suggest that the relationship between psychopathology and ER strategy use may vary by type of psychopathology and strategy (Aldao et al., 2010; Anderson et al., 2021; Kobylińska & Kusev, 2019). For example, a meta-analysis by Aldao and colleagues (2010) examined the strength of associations between four disorders (depression, anxiety, substance use disorders and eating disorders (EDs)) and six ER strategies (*adaptive*: problem-solving, acceptance, and reappraisal; *maladaptive*: rumination, avoidance, and suppression). They found that high levels of avoidance and suppression were associated with anxiety, EDs, and depression; rumination was positively associated with all four disorder categories; low levels of problem-solving was associated with anxiety, EDs, and depression; low levels of reappraisal was associated with anxiety and depression but not associated with eating; and acceptance was not associated with depression or anxiety (Aldao et al., 2010). The differences in effects sizes suggest that internalizing disorders (e.g., anxiety and depression) may be more strongly related to specific ER strategies use than externalizing disorders (e.g., EDs and substance use) (Aldao et al., 2010). Thus, clarifying the nature of the association between SC, ER, and psychiatric presentations can help inform our intervention efforts. If SC does influence the ER difficulties that underlie mood and anxiety disorders, targeting SC more explicitly in our interventions may lead to more robust and sustained changes in ER. By failing to address SC, we may be missing out on an opportunity to bolster our current evidence-based interventions to improve ER.

Measuring ER Strategy Use. Of note, almost all these studies on ER strategy use noted above have relied on a range of retrospective self-report measures. Individuals are asked to indicate on how often they use specific strategies on a Likert scale (i.e., most of the time, some of the time, never). While these measures reveal important information about what strategies individuals perceive they use on average, the utilization of skills in everyday life may be better captured by

ecological momentary assessment (EMA) methods. EMA allows us to evaluate ER in daily life

as it is happening within one's natural environment. Instead of reporting on general strategy use

tendencies, participants report in near real-time on which strategies they are actually using. This

is a major advantage from an accuracy, timescale, and ecological validity standpoint, which will

likely enhance the generalizability of findings to real world clinical behaviors. Thus, measuring

ER strategy use via EMA can: 1.) allow for data collection at multiple time points, which offers a

nuanced view of how individuals regulate their emotions throughout their daily lives, 2.)

minimize recall bias, 3.) provide insights into the microprocesses (i.e., how individuals shift their

regulatory strategies in response to different contexts) that shape behavior in real-world

situations, 4.) better capture the complexity of ER as it unfolds naturally, and 5.) aid in gaining a

more comprehensive understanding of the role of ER in an individuals' everyday life (English &

Eldesouky, 2020; Schatten et al., 2020; Swerdlow et al., 2022).

Self-Compassion and Emotion Regulation in Adolescence

Adolescence is a critical developmental period for the emergence of internalizing

disorders, NSSI, and STBs. The combination of life stressors, peer conflicts, hormonal changes,

increased emotional reactivity, and academic-related pressures may leave them particularly

vulnerable (Duffy, 2015; Bluth et al., 2016; Pepping et al., 2016; Marsh et al., 2018). This is also

a development period when self-esteem issues, self-criticism, and negative views of self are

prominent (Bluth et al., 2016; Marshall et al., 2015; Neff & McGehee, 2010), underscoring the

uniquely high relevance of SC to this age group. For example, Marshall and colleagues (2015)

conducted a longitudinal study of a large adolescent sample to examine the interaction between

SC and self-esteem as potential predictors of mental health outcomes. They found that higher

levels of SC buffered the negative impact of low self-esteem on mental health (Marshall et al.,

2015; Marsh et al., 2018). Another study found that, in a large community sample of adolescents, SC and emotional intelligence (i.e., the capacity to discern, express, and regulate emotions) were positively associated, and adolescents with greater SC and emotional intelligence manifested a lower tendency to experience depressive symptoms (Castilho et al., 2016). Their findings suggest that SC and emotional intelligence, a construct that is related to SC, are "key regulatory processes in protecting against depressive symptoms in adolescents" (Marsh et al., 2018, p. 1012). Additionally, SC has been found to buffer the relationship between negative affect and chronic academic stress (Zhang et al., 2016; Marsh et al., 2018). Available data also suggests that SC may be a more modifiable target in adolescents relative to younger individuals. In one study, adolescents between the ages of 14-17 reported significantly greater increases in SC after completing an 8-week mindful SC course compared to adolescents aged 11-13 (Bluth & Eisenlohr-Moul, 2017).

Given the significance of this developmental period for fostering adolescents' self-efficacy, self-regulation, as well as sense of identity and identity formation, SC may be a critical treatment target for positively impacting adolescents' self-views/perceptions (including self-esteem) and ER abilities (Pullmer et al., 2019; Marsh et al., 2018; Neff & McGehee, 2010). Additionally, ER skill repertoires remain flexible during adolescence but become more fixed during the transition to adulthood. Therefore, finding strategic ways to improve ER during this dynamic period is critical.

Sex Differences. In light of the well-documented sex/gender differences in adolescent internalizing disorders (Hankin et al., 1998; Nolen-Hoeksema & Girgus, 1994), it is also important to investigate whether the relationships between SC, ER, and clinical outcomes vary by sex/gender. Although there is currently a greater recognition about the role of gender fluidity

(especially in adolescence), most prior studies have analyzed the above relationships by sex assigned at birth; therefore, additional work needs to be done to determine how best to assess and analyze data to evaluate potential differences by sex and/or gender. Studies examining the relationships between SC and sex differences have found that female adolescents reported lower SC compared to male adolescents (Marsh et al., 2018; Ferrari et al., 2018; Bluth et al., 2017), as well as an age-gender interaction, in which female adolescents above the age of 14 reported lower SC relative to male adolescents and younger females (Muris et al., 2016; Bluth et al., 2017; Marsh et al., 2018). Furthermore, one study has indicated that SC may operate differently between adolescent females and males. Bluth and Blanton (2015) found that SC mediated the relationship between mindfulness and perceived stress in female adolescents, whereas SC mediated the relationship between mindfulness and negative affect in male adolescents. More work is needed to determine whether there are sex/gender differences in the associations between SC, ER, and clinical outcomes. Since there were few reports of differences between sex and current gender identity in the present sample, the present study used the more established convention of analyzing by sex assigned at birth.

The Present Study

The primary aim of the study was to examine the relationships between SC (i.e., SC capacity and SC aversion), ER (i.e., ER difficulties and Engagement-based strategy use), internalizing symptoms (i.e., depression and anxiety symptoms/severity), a history of NSSI, and a history of STBs in a sample of adolescents (n=113), including those diagnosed with clinical depression and/or anxiety (n=83) and age-matched healthy controls (n=30). The current study may aid in advancing our understanding of the aforementioned relationships in an adolescent sample through a more comprehensive assessment of SC (assessing both capacity for and

aversion to), distinguishing between ER competency difficulties and ER strategy use, and measuring ER strategy use with EMA.

Specific Aims and Hypotheses

The aims and hypotheses of the present study were:

Aim 1: Associations between the SC variables and clinical outcomes. The first aim of the present study was to examine the relationships between SC capacity, SC aversion, internalizing symptom severity, non-suicidal self-injury (NSSI), and suicidal thoughts and behaviors (STBs). I hypothesized that: 1) lower SC capacity and higher SC aversion would be associated with higher levels of internalizing symptom severity, and 2) lower SC capacity and higher SC aversion would be associated with a history of NSSI and a history of STBs.

Aim 2: Relationships between the SC and ER variables. The second aim was to investigate the relationships between the two SC (i.e., SC capacity and SC aversion) and ER (i.e., ER difficulties and Engagement-based ER strategy use) variables. I hypothesized that: 1) lower SC capacity and higher SC aversion would be associated with higher ER difficulties, and 2) lower SC capacity and higher SC aversion would be associated with higher use of disengagement-based ER strategies (e.g., distraction, suppression) and lower use of engagement-based ER strategies (i.e., cognitive re-appraisal, problem-solving, acceptance, and sharing). Of note, the Engagement-based strategy use variable is the ratio of engagement- to disengagement-based ER strategies reported.

Aim 3: Potential mediators and moderator. The third aim was to test whether ER difficulties and Engagement-based strategy use mediated the relationship between the SC variables and clinical outcomes and determine whether these associations were moderated by sex. The five hypotheses were as follows: 1) the relationship between the SC variables (i.e., SC

capacity and SC aversion) and internalizing symptom severity would be mediated by higher ER

difficulties, 2) the relationship between the SC variables (i.e., SC capacity and SC aversion) and

a history of NSSI and a history of STBs would be mediated by higher ER difficulties, 3) the

relationship between the SC variables (i.e., SC capacity and SC aversion) and internalizing

symptom severity would be mediated by lower use of Engagement-based strategies, 4) the

relationship between the SC variables (i.e., SC capacity and SC aversion) and a history of NSSI

and a history of STBs would be mediated by lower use of Engagement-based strategies, and 5)

sex would moderate the relationship between the SC variables (i.e., SC capacity and SC

aversion) and ER variables (i.e., ER difficulties and Engagement-based strategy use), such that

the associations would be stronger in females.

Significance

The current study aimed to examine the relationships between different facets of SC

(capacity for and aversion to), ER (difficulties and strategy use), and specific clinical features of

mood and anxiety disorders (i.e., internalizing symptom severity, a history of NSSI, and a history

of STBs) in a sample of adolescents (n = 113), including those with a diagnosis of a depressive

and/or anxiety disorder as well as healthy controls. Examining the above-mentioned associations

in a sample of adolescents is critical, as adolescent mood and anxiety disorders have been found

to be associated with detrimental outcomes such as significant distress, psychiatric

comorbidities, poor quality of life, functional impairment, and increased rates of NSSI and STBs,

both of which have seen an alarming rise in the past ten years (Fristad & Black, 2018; Twenge et

al., 2019; Pullmer et al., 2019; Marsh et al., 2018; Xavier et al., 2016). Additionally, the modest

response rates and high relapse rates of current evidence-based interventions have highlighted

the need for new therapeutic strategies that more directly target the mechanisms underlying these

disorders (Weersing et al., 2017). Given that SC has emerged as a promising target, as it has independently been found to be inversely associated with both anxiety and depression in young adult and adult samples (Pullmer et al., 2019; Neff et al., 2007; MacBeth & Gumley, 2012; Barnard & Curry, 2011), investigating the role of SC in ER-related processes in youth may provide insights into specific aspects of both constructs that can help inform current intervention approaches. For instance, lower levels of SC can result from weaknesses in the processes that support it (i.e., SC capacity), as well as from difficulties related to being open to it, accepting it, and practicing it (i.e., SC aversion) (Gilbert et al., 2012; Geller et al., 2019; Kelly et al., 2014a). Furthermore, recent empirical and theoretical work has suggested that SC may influence psychiatric outcomes via ER (Athanasakou et al., 2020; Marsh et al., 2018; Neff et al., 2007; Castilho et al., 2017; Gilbert et al., 2012). Difficulties with ER are consistently associated with a higher risk for the development and maintenance of psychopathology (including anxiety and mood disorders) (Berking & Wupperman, 2012; Aldao et al., 2010; Sheppes et al., 2015; Berking et al., 2014; Mazidi et al., 2023). However, less is known about how SC contributes to internalizing symptoms in adolescent clinical populations.

Numerous studies have found that reliance on disengagement-based ER strategies (e.g., distraction, suppression) is associated with a range of psychiatric disorders (Aldao et al., 2010; Aldao & Nolen-Hoeksema, 2012; Anderson et al., 2021; Sloan et al., 2017). However, ER is a multidimensional construct, and it is currently unclear which aspects of ER are related to SC. In particular the relationship between SC and strategy use has not been clarified in adolescent populations. Clarifying how both the processes that underlie difficulties with ER competency (i.e., difficulties surrounding the understanding, awareness, and clarity of emotions) and the

utilization of specific ER strategies (e.g., appraisal, distraction) are influenced by SC has

significant implications for intervention.

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Method

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Data analyzed in this study come from a larger, parent project called the Investigating Decision-

Making & Emotions in Adolescents (IDEA) Study which investigated how cognitive (decision-

making processes), emotional (reactivity), and contextual (sleep, stress, social activity) factors

influence emotion regulation behavior. The current study analyzed data from the baseline

assessment only (apart from EMA data). Relevant procedures for the present study follow.

Participants

The present sample (n=113) is drawn from participants originally recruited from the IDEA

Study, from whom data were available for all variables of interest. Consistent with dimensional

approaches to studying psychopathology, we examined the entire sample, which includes

adolescents with DSM-5 depressive and/or anxiety disorders as well as those without. This

psychiatrically diverse sample allows for a full variation of psychiatric symptoms to assess our

proposed associations in. For participant demographics, see Table 2.

Recruitment for the IDEA study was accomplished through the Emory Child and Adolescent

Mood Program (CAMP) outpatient clinic, as well as through social media advertisements.

Participants were excluded if they had 1.) a current diagnosis of a developmental disorder, severe

conduct disorder, autism-spectrum disorder, or intellectual disability, 2.) a current or past

diagnosis of bipolar disorder, schizophrenia-spectrum disorders, or psychosis not otherwise

specified, 3.) medical conditions that better explain their mood and anxiety symptoms (e.g., sleep

apnea), 4.) alcohol/drug dependence or abuse within the last 3 months or engaged in substance

use within two days of behavioral tasks, or 5.) a history of traumatic brain injury or being

unconscious for more than 30 minutes. Of the participants with clinical diagnoses, up to ½ were

allowed to be on antidepressant medication to reflect the prescriptions rates of the adolescent

population and improve generalizability of the findings. Participants who were being recruited

for the non-medication clinical group were excluded if they were taking psychotropic

medications in the past two weeks (four weeks for fluoxetine) prior to consent except for

psychostimulant medication prescribed for the treatment of ADHD or were on a stimulant

regime for ADHD which changed within 30 days of the lab visit. Additionally, control

participants were excluded if they had a current or past DSM-5 psychiatric diagnosis.

Procedure

Assessment. A structured clinical interview was conducted to determine diagnostic status,

non-suicidal self-injury (NSSI) history, and suicidal ideation and behaviors (STB) history.

Participants also completed self-report measures assessing ER difficulties, SC capacity and

aversion, and depression/anxiety symptom severity.

EMA Training and Protocol. Participants were asked to answer questions about their

emotional experiences and applied regulation strategies for 14 days via EMA surveys delivered

directly to their smartphone. Prior to beginning the EMA protocol, all participants completed a

training session where they were provided psychoeducation on ER and taught how to identify

which ER strategies they used in their daily lives. Participants were oriented to the EMA

protocol with developmentally appropriate descriptions and examples of the different ER

strategies presented in the survey prompts to ensure that they could accurately match their own

ER behaviors to the corresponding strategy definitions.

The EMA protocol included a brief assessment focusing on the emotion regulation

strategies used in daily life in response to negative emotions. For a period of fourteen days

participants reported eight times a day on: 1.) negative emotions experienced in the past 1.5

hours, 2.) intensity of the negative emotion (1-100 continuous scale), 3.) event that elicited the

emotion (e.g., school, peer concern, family conflict), 4.) ER strategy utilized to manage the

emotion (e.g., rumination, reappraisal, distraction), 5.) location where strategy was used (e.g.,

class, home, public place, out with friends), 6.) social companions at time of strategy use (alone,

friends, family), and 7.) perceived effectiveness of strategy (1-100 continuous scale). The EMA

assessments are adapted from those used by Silk et al., 2003, Silk et al., 2011, and Tan et al.,

2012 in adolescent populations. Seven ER strategies were described in the survey prompts

(*engagement-based ER*: re-appraisal, problem solving, acceptance, sharing; *disengagement-

based ER*: suppression, distraction, rumination) as well as a free-response 'other' option that

were coded by trained raters to match one of the designated ER strategies if applicable.

Measures

Clinical Measures

    **Mini International Neuropsychiatric Interview for Children and Adolescents (MINI-

KID).** Depressive and anxiety disorders were assessed with the MINI-KID, which is a short,

standardized diagnostic interview which covers a variety of psychiatric diagnoses that are

applicable to adolescents. MINI-KID disorder classifications have shown validity and test-retest

reliability comparable to other standardized diagnostic interviews and is also claimed to be a

useful tool for diagnostic screening in child and adolescent psychiatric care (Sheehan et al.,

2010).

    Mood and Anxiety Symptoms. Depression and anxiety symptom severity was assessed

using the Mood and Anxiety Symptoms Questionnaire (MASQ; Clark et al., 1991), which is a

62-item self-report measure. The MASQ provides subscales differentiating general distress

symptoms associated with depression (e.g., felt sad, thought about death or suicide), general

distress symptoms associated with anxiety (e.g., heart was racing or pounding, felt nervous),

anhedonia (i.e., loss of interest/pleasure in socializing or activities previously enjoyed), and

anxious arousal (i.e., somatic symptoms or physiological hyperarousal associated with anxiety

disorders) (Clark, 1991). A total score is calculated by summing responses for each positively

keyed scaled item and, for each negatively keyed item, adding 6 and then subtracting the

participants item response value (Clark, 1991). Higher scores indicate more severe internalizing

symptoms.

Suicidal ideation and behavior. Suicidal ideation and behavior (STB) were assessed using

the Colombia-Suicide Severity Rating Scale (C-SSRS; Posner et al., 2008). History of STBs

were dichotomized to a yes/no variable.

NSSI. Past history of NSSI was collected from a study-generated demographic form that

asked participants to report on past history and severity of NSSI. History of NSSI was

dichotomized to a yes/no variable.

Self-Compassion Measures

Self-Compassion Capacity. The Self-Compassion Scale – Short Form (SCS-SF; Raes et al.,

2011) is a 12-item self-report measure that is used to assess an individual's capacity for self-

compassion, or one's ability to approach their feelings of suffering with a sense of warmth,

concern, and connection (Raes et al, 2011). The SCS-SF has two subscales: self-disparagement

(i.e., how an individual views themselves with regard to judgment, impatience, and disapproval)

and self-care (i.e., how an individual views themselves with regard to empathy, patience, and

tenderness). Each item is rated on a 5-point Likert scale from 1 (*Almost never*) to 5 (*Almost

always*). Sample items include: "I'm disapproving and judgmental about my own flaws and

inadequacies" and "When something upsets me, I try to keep my emotions in balance." A total

score is calculated by summing the self-care score and the inverse of the self-disparagement

score. High levels of total SC are characterized by high self-care and low self-disparagement.

The SCS–SF has demonstrated adequate internal consistency (Cronbach's alpha ≥ 0.86) and a

strong correlation with the long form SCS ($r = 0.97$; Raes et al., 2011).

Self-Compassion Aversion. Aversion to SC was assessed using the Fear of Self-Compassion

subscale (FSC; Gilbert et al., 2011) of the Fears of Compassion Scale, which is a 15-item

measure assessing feelings of aversion towards and barriers to SC such as one's fear of self-

compassion and related difficulties (i.e., difficulty connecting to and/or accessing feelings of SC,

resistance to SC, and negative beliefs or confusion surrounding the emotional/behavioral impact

and/or consequences of SC). Each item is rated on a 5-point Likert scale from 0 (*Don't agree at*

all) to 4 (*Completely agree*) (Gilbert et al., 2011). Sample items include: "I fear that if I become

too compassionate to myself, I will lose my self-criticism and my flaws will show," "Getting on

in life is about being tough rather than compassionate," and "I have never felt compassion for

myself, so I would not know where to begin to develop these feelings" (Gilbert et al., 2011). A

total score is calculated by summing the total responses on the FSC subscale, in which a higher

total score indicates greater feelings of aversion towards SC. Gilbert and colleagues (2011)

reported evidence of construct validity and internal consistency in a university student sample.

The FSC subscale has demonstrated good internal consistency and convergent validity in

previous studies using a non-clinical sample (Gilbert et al., 2011). For the present study, it is

important to note that the specific items on this subscale were closely examined in order to

determine how to best conceptualize "fear" of SC; aversion to SC appeared to better reflect the

several themes of the items, so the measure is referred to as SC aversion.

Emotion Regulation Measures

   Emotion Regulation Difficulties. The Difficulties in Emotion Regulation Scale – Short

Form (DERS; Gratz & Roemer, 2004) is an 18-item self-report inventory assessing emotional

regulation difficulties in adolescents and adults (Gratz & Roemer, 2004). The DERS assesses

four broad areas that are hypothesized to underlie ER competencies: (a) awareness and

understanding of emotions, (b) acceptance of emotions, (c) the ability to control impulses and

behave in accordance with goals in the presence of negative affect, and (d) access to emotion

regulation strategies that are perceived to be effective for feeling better (Hallion et al., 2018;

Gratz & Roemer, 2004). The DERS provides a total score as well as six subscales which include:

1.) awareness (lack of emotional awareness), 2.) clarity (lack of emotional clarity), 3.) impulse

(difficulty regulating behavior when distressed), 4.) goals (difficulty engaging in goal-directed

cognition and behaviors when distressed), 5.) non-acceptance (unwillingness to accept certain

emotional responses), and 6.) strategies (lack of access to ER strategies for feeling better when

distressed) (Gratz & Roemer, 2004). Higher scores indicate greater ER difficulties.

   Emotion Regulation Strategies in Daily Life. Responses from the EMA surveys were

summed to create composite scores of total skills use in daily life for each specific type of

strategy (i.e., *disengagement-based:* distraction, suppression, rumination; *engagement-based:* re-

appraisal, problem-solving, acceptance, and sharing). A total score was summed for both the

disengagement-based ER strategies (i.e., distraction, suppression, and rumination) and

engagement-based strategies (i.e., re-appraisal, problem-solving, acceptance, and sharing). The

measure used in the present study to assess ER strategy use is the ratio of engagement- to

disengagement-based ER strategies reported, such that higher scores indicate greater use of

engagement-based ER strategies. Thus, this ratio score is referred to as Engagement-based strategy use.

Data Analyses

Prior to analyses, the data were screened for patterns of missingness, normality and multicollinearity. One participant was excluded due to missing data (99% missing). No data transformations were required. Statistical significance was set at $p < 0.05$ and all tests were two-tailed.

Regression models were constructed to test the hypothesized associations and mediation effects using Mplus Version 8.9 (Muthén & Muthén, 1998-2017). Both self-compassion variables (SC capacity and SC aversion) were entered simultaneously as predictors into all regression models, allowing us to examine the unique contributions of each variable while controlling for the other. Separate models were estimated for internalizing symptoms severity and clinical harm (i.e., a history of NSSI and STBs). The significance of indirect effects in the mediation models was assessed using a bootstrapping approach (Hayes, 2013). This approach generates bias-corrected, bootstrapped confidence intervals for total and specific indirect effects of the predictors, on the outcome, through the mediator (Hayes, 2013). The hypothesized moderated mediation models were each tested in a single model (separately) using a bootstrapping approach to assess the significance of the indirect effects at differing levels of the moderator (Hayes, 2013). Both SC variables were the predictor variables, with ER difficulties as the mediator. Each model included one outcome variable (i.e., internalizing symptom severity, a history of NSSI, and a history of STBs). Sex was the proposed moderator on the association between both SC variables (SC capacity and SC aversion) and ER difficulties in all three models. Each model tested the moderating effect on both predictor to mediator paths (i.e., paths a_1 and

a2). An index of moderated mediation was used to test the significance of the moderated

mediation (i.e., the difference of the indirect effects across levels of sex) (Hayes, 2015).

Results

Sample Characteristics

Demographic characteristics are shown in Table 2**.** The mean age was 15.47 years (SD =

1.10, range 14 – 17). 61.9% identified as women and 38.1% as men. A majority of participants

identified as White/Caucasian (67.3%), while 21.2% identified as Black or African American,

.01% identified as Asian, and 10.6% identified as multiracial. Approximately 11.5% of the

sample identified as Hispanic/Latinx. Of the 113 participants, 83 met criteria for a DSM-5 mood

and/or anxiety disorder and 30 were healthy controls (i.e., no current or past diagnoses).

Descriptive statistics of all study variables are summarized in Table 3. See Table 4 for

correlations between all self-compassion, emotion regulation, and clinical variables. A moderate

correlation was observed between SC capacity and SC aversion (r = -.549, $p < .01$). This modest

correlation also suggests a degree of independence of the two self-compassion variables.

Associations between Self-Compassion and Clinical Variables

See Table 5 for all regression coefficients.

Internalizing symptom severity. Both SC capacity (B = -21.02, SE = 0.09, β = -0.31, $p <$

.01) and SC aversion (B = 1.69, SE = 0.09, β = 0.49, $p < .01$) were associated with internalizing

symptom severity. Consistent with our hypothesis, the direction of the relationships differed such

that SC capacity was negatively associated with internalizing symptom severity (i.e., higher SC

capacity, lower symptoms/severity), while SC aversion was positively associated with

internalizing symptom severity (i.e., higher SC aversion, higher symptoms/severity). This model

accounted for 44% of the variance in internalizing symptoms severity (R^2 = .440, $p < .01$).

NSSI and STBs. Both SC capacity (*B* = -0.16, *SE* = 0.11, *β* = -0.22, *p* = .05) and SC aversion (*B* = 0.01, *SE* = 0.12, *β* = 0.26, *p* = .02) were associated with a history of NSSI. Consistent with our hypothesis, the direction of these relationships differed such that SC capacity was negatively associated with a history of NSSI, while SC aversion was positively associated with a history of NSSI. However, only SC aversion (*B* = 0.01, *SE* = 0.11, *β* = 0.27, *p* = .02) was associated with a history of STBs; contrary to our hypothesis, SC capacity was not associated with a history of STBs. This model explained 15.9% of the variance in a history of NSSI (*R²* = .159, *p* =.04), but not for a history of STBs (*R²* = .088, *p* = .16).

Associations between Self-Compassion and Emotion Regulation Variables

See Table 5 for all regression coefficients.

ER difficulties. Both SC capacity (*B* = -6.36, *SE* = 0.11, *β* = -0.28, *p* = .01) and SC aversion (*B* = 0.51, *SE* = 0.10, *β* = 0.44, *p* < .01) were associated with ER difficulties. Consistent with our hypothesis, the direction of these relationships differed such that SC capacity was negatively associated with ER difficulties (i.e., higher SC capacity, lower ER difficulties), while SC aversion was positively associated with ER difficulties (i.e., higher SC aversion, higher ER difficulties). The model accounted for 35.5% of the variance in ER competency (*R²* = .335, *p* < .01).

Engagement-based ER strategies. Both SC capacity (*B* = 0.86, *SE* = 0.07, *β* = 0.29, *p* < .01) and SC aversion (*B* = -0.03, *SE* = 0.07, *β* = -0.18, *p* = .01) were associated with greater reliance on engagement-based strategies (the ratio of engagement- to disengagement-based strategies). That is, those with higher SC capacity were more likely to use engagement- relative to disengagement-based strategies, while those with higher levels SC aversion were the opposite

(i.e., greater reliance on disengagement-based strategies). The model explained 15% of the variance in ER strategy use ($R^2 = .150$, $p < .01$).

Mediating Effect of Emotion Regulation on the Association Between Self-Compassion and Clinical Variables

We constructed a series of regression models to test whether the emotion regulation measures mediated the association between the self-compassion and clinical variables.

Self-compassion, ER difficulties, and internalizing symptom severity. SC capacity, SC aversion, ER difficulties, and internalizing symptom severity were entered into the first model. Both SC capacity ($B = -10.66$, $SE = 0.07$, $\beta = -0.16$, $p = .03$) and SC aversion ($B = 0.87$, $SE = 0.08$, $\beta = 0.25$, $p < .01$) had direct effects on internalizing symptom severity. Additionally, both SC capacity ($B = -6.07$, $SE = 0.10$, $\beta = -0.27$, $p < .01$) and SC aversion ($B = 0.48$, $SE = 0.09$, $\beta = 0.44$, $p < .01$) were associated with ER difficulties, though the direction of the relationship differed. The association between ER difficulties and internalizing symptom severity was also significant ($B = 1.64$, $SE = 0.08$, $\beta = 0.53$, $p < .01$), such that greater ER difficulties were associated with higher internalizing symptom severity. Finally, both SC capacity ($B = -9.95$, $SE = 0.06$, $\beta = -0.15$, $p = .01$), and SC aversion ($B = 0.79$, $SE = 0.05$, $\beta = 0.23$, $p < .01$) had indirect effects on internalizing symptoms through ER difficulties. These results provide evidence for partial mediation. Overall, the model explained 61.5% of the variance in internalizing symptom severity ($R^2 = .615$, $p < .01$) and 34.8% of the variance in ER difficulties ($R^2 = .348$, $p < .01$).

Self-compassion, ER difficulties, and history of STBs and NSSI. SC capacity, SC aversion, ER difficulties, history of NSSI, and history of STBs were entered into the second model. Neither SC capacity nor SC aversion had a direct effect on a history of NSSI or STBs.

Both SC capacity ($B = -5.87$, $SE = 0.10$, $\beta = -0.26$, $p < .01$) and SC aversion ($B = 0.48$, $SE = 0.09$, $\beta = 0.43$, $p < .01$) were associated with ER difficulties. Additionally, ER difficulties were associated with a history of both STBs ($B = 0.01$, $SE = 0.12$, $\beta = 0.31$, $p < .01$) and NSSI ($B = 0.01$, $SE = 0.12$, $\beta = 0.25$, $p = .04$). SC capacity did not have an indirect effect on a history of NSSI or STBs through ER difficulties. However, SC aversion had an indirect effect on a history of STBs through ER difficulties ($B = 0.01$, $SE = 0.06$, $\beta = 0.13$, $p = .02$); though there was not an indirect effect for a history of NSSI. The model accounted for 14.6% of the variance in a history of STBs ($R^2 = .146$, $p = .03$), 18.1% of the variance in a history of NSSI ($R^2 = .181$, $p < .01$), and 33% of the variance in ER difficulties ($R^2 = .330$, $p < .01$).

Self-compassion, ER strategy use, and internalizing symptom severity. SC capacity, SC aversion, Engagement-based strategy use, and internalizing symptom severity were entered into the third model. SC capacity ($B = -18.51$, $SE = 0.10$, $\beta = -0.27$, $p < .01$) and SC aversion ($B = 1.60$, $SE = 0.09$, $\beta = 0.47$, $p < .01$) had direct effects on internalizing symptom severity. SC capacity ($B = 0.87$, $SE = 0.09$, $\beta = 0.28$, $p < .01$), but not SC aversion, was associated with Engagement-based strategy use. Contrary to our hypothesis, Engagement-based strategy use was not associated with internalizing symptom severity. Additionally, there were no indirect effects. The model explained 43.7% of the variance in internalizing symptom severity ($R^2 = .437$, $p < .01$) and 13.9% of the variance in Engagement-based strategy use ($R^2 = .139$, $p < .01$).

Self-compassion, ER strategy use, and a history of NSSI and STBs. SC capacity, SC aversion, Engagement-based strategy use, a history of NSSI, and a history of STBs were entered into the fourth model. SC capacity had a direct effect on a history of NSSI ($B = -0.17$, $SE = 0.12$, $\beta = -0.23$, $p = .05$), but not on a history of STBs. In contrast, SC aversion had a direct effect on both a history of NSSI ($B = 0.01$, $SE = 0.12$, $\beta = 0.26$, $p = .04$) and a history of STBs ($B = 0.01$,

SE = 0.12, *β* = 0.24, *p* = .05). SC capacity (*B* = 0.86, *SE* = 0.08, *β* = 0.29, *p* < .01) and SC

aversion (*B* = -0.03, *SE* = 0.09, *β* = - 0.18, *p* = .03) were associated with Engagement-based

strategy use. Contrary to our hypothesis, Engagement-based strategy use was not associated with

a history of NSSI or a history of STBs. Additionally, there were no indirect effects of SC

capacity or SC aversion on a history of NSSI and STBs through Engagement-based strategy use.

The model explained 15.9% of the variance in a history of NSSI (*R*² = .159, *p* = .03) and 15% of

the variance in Engagement-based strategy use (*R*² = .150, *p* = .01); however, it only explained

10.4% of the variance in a history of STBs (*R*² = .104, *p* = .12) which was not significant.

Moderated Mediation of Sex on the Association Between Self-Compassion and Clinical

Variables Through Emotion Regulation Difficulties

We tested sex as a moderator for the first two mediation models that examined the mediating

effect of ER difficulties on the association between the self-compassion and clinical variables.

Self-compassion, ER difficulties, and internalizing symptom severity. SC capacity, SC

aversion, ER difficulties, internalizing symptom severity, and sex were entered into the model.

Contrary to our prediction, the analysis of moderated mediation revealed that the indirect effect

of the SC variables (SC capacity and SC aversion) on internalizing symptom severity through ER

difficulties did not significantly differ across levels of sex (*B* = 1.97, 95% *CI* = [-41.81, 55.62]).

The absence of zero in the confidence interval indicates that the mediation process was not

moderated by sex. Thus, the association between SC (i.e., SC capacity and SC aversion) and ER

difficulties did not differ by sex in this model.

Self-compassion, ER difficulties, and a history of NSSI. SC capacity, SC aversion, ER

difficulties, a history of NSSI, and sex were entered into the model. Contrary to our hypothesis,

the analysis of moderated mediation revealed that the indirect effect of the SC variables (SC

capacity and SC aversion) on a history of NSSI through ER difficulties did not significantly

differ across levels of sex ($B = 0.01$, 95% $CI =$ [-0.25, 0.39]). The absence of zero in the

confidence interval indicates that the mediation process was not moderated by sex. Thus, the

association between SC (i.e., SC capacity and SC aversion) and ER difficulties did not differ by

sex in this model.

Self-compassion, ER difficulties, and a history of STBs. SC capacity, SC aversion, ER

difficulties, a history of STBs, and sex were entered into the model. Contrary to our prediction,

the analysis of moderated mediation revealed that the indirect effect of the SC variables (SC

capacity and SC aversion) on a history of STBs through ER difficulties did not significantly

differ across levels of sex ($B = 0.01$, 95% $CI =$ [-0.30, 0.45]). The absence of zero in the

confidence interval indicates that the mediation process was not moderated by sex. Thus, the

association between SC (i.e., SC capacity and SC aversion) and ER difficulties did not differ by

sex in this model.

Discussion

A growing body of research investigating the associations between SC and ER suggests

that ER is a key mechanism of change in the association between SC and mental health outcomes

– specifically those related to depressive and anxiety disorders (Berking & Whitley, 2014a;

Diedrich et al., 2027; Finlay-Jones, 2017; Gilbert, 2009; Inwood & Ferrari, 2018; Neff, 2003b;

Neff & Germer, 2013). Various models integrating SC and ER have been proposed, including

Neff's (2003b) SC model, which posits that SC aids in the processing and regulation of difficult

emotions through three components (i.e., being kind to and understanding towards oneself,

recognizing that experiencing difficult life situations and emotions is a universal experience, and

observing one's internal thoughts and emotions in a balanced, mindful, and non-judgmental

manner), as well as Inwood and Ferrari's (2018) theory that suggests SC helps regulate difficult emotions through increasing one's awareness of emotional states, decreasing rumination and self-criticism, and promoting one's emotion resilience. Others have proposed that SC may work to promote better ER abilities and, ultimately, improve mental health outcomes, in addition to activating one's self-soothing system (Berking & Whitley, 2014a; Diedrich et al., 2027; Finlay-Jones, 2017; Gilbert, 2009; Inwood & Ferrari, 2018; Neff, 2003b; Neff & Germer, 2013). Relatedly, findings from a meta-analysis that examined the relationship between SC, ER, and mental health across five studies provided additional support for a SC model of ER (Inwood & Ferrari, 2018). However, only five studies were included, and all samples were adult populations.

The present study examined the relationships between facets of SC (i.e., SC capacity and SC aversion), ER (i.e., ER difficulties and Engagement-based strategy use), and clinical outcomes (i.e., internalizing symptoms/severity, NSSI, and STBs) in a sample of adolescents (n=113) including those with clinical depression and/or anxiety and age-matched healthy controls. The current study also assessed the potential mediating roles of ER difficulties and ER strategy use on the association between the self-compassion and clinical outcome variables, as well as the potential moderating effect of sex on these relationships.

Results from the present study illuminated some interesting relationships between SC, ER, and the specific clinical outcomes—although not all predictions were supported. We found that both SC capacity and SC aversion were associated with internalizing symptom severity and a history of NSSI. Interestingly, only SC aversion was associated with a history of STBs. Both SC measures (capacity and aversion) were associated with ER difficulties as well as the engagement-based ER strategy ratio. Mediation analyses revealed that ER difficulties partially mediated the relationship between SC (both capacity and aversion) and internalizing symptom

severity. ER difficulties also partially mediated the association between SC aversion and a

history of STBs. Furthermore, our results indicate that sex did not moderate the relationships

between both SC measures (capacity and aversion) and ER difficulties. Taken together, these

findings highlight insights into the unique associations between different facets of SC and ER,

and their relationships with clinical features related to mood and anxiety disorders. Most

importantly, the findings support the proposed SC model of ER which postulates emotion

regulation processes serve as key mechanisms linking SC to anxiety and depressive

disorders/symptomology (Athanasakou et al., 2020; Finlay-Jones, 2017; Marsh et al., 2018; Neff,

2003b; Inwood & Ferrari, 2018), as the overall model accounted for 61.5% of the variance in

internalizing symptom severity.

Self-Compassion and Clinical Outcomes

Our finding that both SC variables had a moderate relationship (i.e., a correlation of -

0.56) suggests at least some level of independence between these constructs as well as highlights

the value of assessing both facets of SC. These SC measures appear to capture different aspects

of SC. For instance, both SC capacity and SC aversion remained significant across analyses even

though in these models, each measures effect on the other was controlled. With this in mind,

addressing both constructs may improve treatment approaches. It may be useful to first provide

psychoeducation on different barriers to being compassionate towards oneself (e.g., fear, beliefs

about how one should be/act in the world, feeling undeserving, not knowing how to practice

SC/where to begin, concerns about SC making one less productive/lazy). Having clients

identify/process the barriers that resonate with them prior to introducing exercises to promote the

positive aspects of SC may improve willingness to adopt and utilize SC. Additionally,

considering the fear of/aversion to SC in research-based investigations of SC more broadly may add important information to the current literature.

        Both SC measures were associated with the clinical outcomes, which is consistent with previous literature that has shown strong relationships between SC and psychiatric outcomes, particularly internalizing symptoms/severity (Athanasakou et al., 2020; Berking & Whitley, 2014a; Diedrich et al., 2014; Inwood & Ferrari, 2018; Finlay-Jones, 2017; Marsh et al., 2018). Interestingly, SC aversion, but not SC capacity, was associated with a history of STBs. It may be that individuals who inherently experience difficulties with being kind, understanding, compassionate, and forgiving towards themselves also experience thoughts, feelings, and beliefs about themselves that underlie depressive symptoms such as self-critical rumination. Individuals prone to experiencing more negative or difficult emotions about/towards themselves (e.g., shame, self-hate, disappointment, guilt) may be more vulnerable to considering more serious options (i.e., suicidal thoughts and behaviors). This finding points to the importance of considering SC aversion as a facet of SC, as we would not have found this association with STBs if we had only looked at SC capacity.

Self-Compassion and Emotion Regulation

        Consistent with the hypotheses, both SC variables (capacity and aversion) were associated with both ER variables (difficulties and strategy use) in directions that were consistent with the hypotheses. This finding aligns with previous work that has shown similar associations between facets of both SC and ER (Brenner et al., 2018; Finlay-Jones, 2017; Finlay-Jones et al., 2015; Inwood & Ferrari, 2018; Kelly & Carter, 2015; Neff, 2003a; Neff, 2012). Notably, both SC measures (capacity and aversion) were associated with both types of ER measures (i.e., difficulties with ER competency and specific strategy use). This association may be explained

by the unique interactions between SC and ER. For example, greater SC may facilitate the use of more acceptance- and engagement-based ER strategies as well as being better able to tolerate difficult or negative emotions. The current findings suggest that it may be important to address ones' attitudes about SC before introducing skills to increase one's willingness to learn and utilize the skills.

Emotion Regulation as a Mediator

Our mediation analyses yielded mixed results. As predicted, ER difficulties partially mediated the relationship between both SC measures (capacity and aversion) and internalizing symptom severity consistent with the hypothesized directions. This finding is in line with the growing body of research investigating ER as a potential mediator of the relationships between SC and various psychiatric disorders and clinical outcomes. For instance, findings from a meta-analysis indicated that ER mediated the associations between SC and stress (Finlay-Jones et al., 2015), depressive symptoms (Diedrich et al., 2017), and posttraumatic stress disorder symptoms (Barlow et al., 2017). Interestingly, we also found that ER difficulties partially mediated the relationship between SC aversion and a history of STBs. This finding further highlights the previously mentioned independence of the two SC constructs as well as points to a unique dynamic between an aversion to SC and having a history of/experiencing STBs.

Contrary to our hypotheses, engagement-based strategy use (i.e., a ratio of engagement-to disengagement-based ER strategy use) did not mediate any relationships between the SC measures and clinical outcomes. This finding may be due to our sample size, methodologies used to obtain data on strategy use (i.e., EMA), or the timeframe in which participants were asked to track ER strategy use (e.g., less stressful situations may have occurred during the 14-day timeframe compared to what would typically be representative of ones' experiences on a weekly

basis). Our ratio score indexes a higher reliance on engagement-based strategies, which map onto the 'adaptive ER strategies' in the literature. Interestingly, more recent work has shown that that the relationship between ER strategies and mental health outcomes is driven by a use of maladaptive strategies – which aligns with our classification of disengagement-based strategies. That is, while adaptive ER strategy use may be beneficial, it may not directly impact mental health outcomes. As a result, focusing solely on increasing adaptive ER strategies may not be sufficient for improving mental health. Additionally, it is also important to consider how the EMA methodology itself might introduce bias into participant responding. While EMA offers the potential for real-time insights into participants' experiences, the training required to orient participants to the different types of strategies and the frequent nature of the prompts may unintentionally influence their responses. Furthermore, while measuring ER strategy use via EMA may provide more helpful and accurate data in some regards, it may not aid in improvements in clinical outcomes regardless of one's SC capacity or aversion to SC.

Moderating Role of Sex

Contrary to our predictions, sex did not moderate the relationship between the SC measures and ER difficulties. This failure to find sex differences may reflect the relatively small sample size, particularly for males, so this bears further investigation. Nonetheless, this finding that the association between the SC variables and ER difficulties did not differ by sex suggests that intervention recommendations to incorporate SC into ER-based work and/or treatment approaches could apply broadly.

Strengths, Limitations, and Future Directions

The present study focused on examining underlying psychological mechanisms that are targets for adolescent mood and anxiety disorder interventions. According to the World Health

Organization (2022), the global prevalence of these disorders increased by 25% in the first year

of the COVID-19 pandemic alone, with depression and anxiety rates continuing to rise.

Moreover, research suggests that the increase rates of depressive and anxiety disorders, in

addition to the related impact of these disorders (e.g., functional impairment, STBs, NSSI), in

adolescence may be explained by the frequent and intense negative affect experienced during

this critical developmental period characterized by significant transitions (e.g., biological,

cognitive, hormonal) (Powers & Casey, 2015).

The current study had a number of strengths that build upon and add to the current

literature. First, this study examined the relationships between SC and ER in an adolescent

sample including both clinically diagnosed adolescents and healthy controls, which is significant

given the limited research in the population. This study additionally involved a more

comprehensive assessment of SC by assessing two separate facets of SC: one's capacity for SC

and aversion to SC. Another strength of the present study was distinguishing between ER

competency difficulties and ER strategy use, as ER is a multidimensional construct, and it is

currently unclear which aspects of ER are related to SC. Clarifying how both the processes that

underlie difficulties with ER competency (i.e., difficulties surrounding the understanding,

awareness, and clarity of emotions) and the utilization of specific ER strategies (e.g.,

engagement- and disengagement-based) are influenced by SC has significant implications for

intervention. In addition to using traditional self-report measures to obtain data on our variables

of interest, we incorporated EMA to assess participant's ER strategy use. The use of EMA

allowed for the opportunity to collect real-time data on our participants' experiences in their

natural environment. Although the EMA-obtained data (i.e., the engagement-based ER strategy

use variable in this study) did not significantly mediate the relationships between the SC and

clinical outcome variables, it did relate to internalizing symptom severity. Thus, it may have a greater potential to be useful during interventions to facilitate individualized skill development.

The current study had several limitations. First, the data obtained for both SC measures, ER difficulties, and internalizing symptom severity came from self-report measures. Although self-report measures are valuable for the assessment of subjective experiences (e.g., thoughts, emotions), it has been well-established that such measures are prone to a variety of biases including recall/memory difficulties and inaccuracies and social desirability. Participants may have also intentionally or unintentionally modified their responses based on their potential perception of the current study's objectives. Our relatively small sample size as well as using our entire sample (i.e., combining participants with clinically diagnosed anxiety and/or depressive disorders with age-matched healthy controls) for our analyses is an additional limitation, as this impacts the reliability and generalizability of our findings. Another limitation to our study is the previously mentioned timeframe for obtaining EMA data on ER strategy use. Participants' experiences during those two weeks may not be representative of their typical experiences, which also impacts the generalizability of our findings. Lastly, the cross-sectional design of our study prevents us from inferring causality.

Future work should consider conducting experimental or longitudinal research to be able to establish cause-and-effect relationships between SC and ER as well as investigate long-term outcomes. For example, experimental studies may help determine how individual differences impact one's ability to be compassionate towards oneself. Incorporating assessments other than traditional self-report measures (e.g., behavioral indicators of ER and dysregulation) to examine the unique associations between these constructs may enhance the utility of the assessments of these variables. Relatedly, further investigation of not only SC capacity but also SC aversion and

related barriers to being kind and compassionate towards oneself may provide insights into the

different underlying mechanisms involved in these two constructs as well as inform current

intervention approaches. It may be that identifying individuals particularly resistant to accepting

the premise of SC require specific interventions to address those barriers before SC skills will be

adopted.

Conclusion

To the best of our knowledge, the present study was the first to examine the relationships

between different facets of SC (capacity for and aversion to), ER (difficulties with ER and

specific ER strategy use), and clinical outcomes relating to adolescent mood and anxiety

disorders (i.e., internalizing symptom severity, a history of NSSI, and a history of STBs) in a

sample of adolescents including those with diagnosed depressive and/or anxiety disorders as well

as healthy controls. In summary, we found that both SC capacity and SC aversion were

associated with internalizing symptom severity and a history of NSSI. Interestingly, only SC

aversion was associated with a history of STBs. Both SC measures (capacity and aversion) were

associated with ER difficulties as well as an engagement-based strategy use ratio. Mediation

analyses revealed that ER difficulties partially mediated the relationship between SC (both

capacity and aversion) and internalizing symptom severity. ER difficulties also partially

mediated the association between SC aversion and history of STBs. Furthermore, our results

indicate that the association between the SC variables and ER difficulties did not differ by sex.

The findings underscore the importance of targeting both SC and ER in interventions aimed at

improving mental health outcomes in adolescents.

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Appendix

Table 1. Operational Definitions and Conceptualizations

Construct	Definitions/Conceptualizations	Examples
Self-Compassion (SC)	**Self-Compassion Capacity:** *One's ability to extend compassion towards oneself and treat oneself with kindness, understanding, and warmth during times of suffering or distress*	- Adopting a balanced perspective in times of suffering - Awareness and acknowledgement of one's distress - Understanding of and patience towards one's perceived flaws and/or inadequacies
	Self-Compassion Aversion: *Barriers/aversion to and difficulties with SC (i.e., aversion to being open to it, accessing compassionate feelings, learning and/or practicing it)*	- Trouble receiving compassion from others or oneself - Negative beliefs about SC (e.g., SC will lead to laziness or self-indulgence) - Feeling unworthy of SC (i.e., I don't deserve to be kind to myself) - Reluctance to seek help when needed
Emotion Regulation (ER)	**Emotion Regulation (Competency) Difficulties:** *Difficulties in one's ability to recognize, understand, accept, effectively regulate/manage, and flexibly respond to their emotional experiences (including positive, neutral, and negative emotions)*	Difficulties surrounding: - Being open to experiencing emotions as they arise - Accurately identifying and understanding ones' emotions - Being able to notice the onset of emotional responses as well as potential triggers of ones' emotions - Effectively responding to and regulating ones' emotions
	Emotion Regulation Strategy Use: *Refers to the specific emotion regulation strategies one uses to respond to/regulate their emotional experiences; can include cognitive and/or behavioral strategies* **This measure is a ratio of engagement- to disengagement-based ER strategy use*	*Disengagement* Strategies: - suppression, distraction, rumination *Engagement* Strategies: - problem-solving, acceptance, reappraisal, sharing

Table 2. Sample Characteristics (n=113)

Age, years (mean ± SD)	15.47 ± 1.094
Sex, n (%)	
Males	43 (38.1%)
Females	70 (61.9%)
Race, n (%)	
South Asian	1 (0.9%)
Black	24 (21.2%)
White	76 (67.3%)
Interracial	12 (10.6%)
Ethnicity, n (%)	
Hispanic/Latino	13 (11.5%)
Non-Hispanic/Latino	100 (88.5%)
Clinical Diagnoses, n (%)	
Anxiety Disorder	30 (30.3%)
Depressive Disorder	11 (10.1%)
Comorbid Anxiety and Depressive Disorder	35 (32.1%)
No Psychiatric Disorder	30 (27.5%)

Table 3. Descriptive Statistics of Self-Compassion, Emotion Regulation, and Clinical Variables

Variable	Mean	SD	Range
Self-Compassion Capacity	2.84	0.53	2 - 4
Self-Compassion Aversion	18.40	11.72	0 - 50
ER Difficulties	44.38	12.88	20 - 80
ER Strategy Use	2.25	1.77	1 - 16
Internalizing Symptom Severity	139.72	39.63	76 - 259
History of Non-Suicidal Self-Injury	0.24	0.43	0 - 1
History of Suicidal Thoughts and Behaviors	0.32	0.47	0 - 1

Table 4. Correlations Between Self Compassion, Emotion Regulation and Clinical Variables

| Variable	1	2	3	4	5	6	7
1. Self-Compassion Capacity	-						
2. Self-Compassion Aversion	-.56*	-					
3. Emotion Regulation Difficulties	-.56**	.54*	-				
4. Emotion Regulation Strategy Use	.39**	-.28**	-.36**	-			
5. Internalizing Symptoms	-.58**	.60**	.73**	-.31**	-		
6. History of Non-Suicidal Self-Injury	-.40**	.34**	.38**	-.16	.47**	-	
7. History of Suicidal Thoughts and Behaviors	-.23*	.29**	.38**	-.20	.58**	.47**	-

*Correlation is significant at $p < .05$

**Correlation is significant at $p < .01$

Table 5. Regression (AIMS 1 & 2)

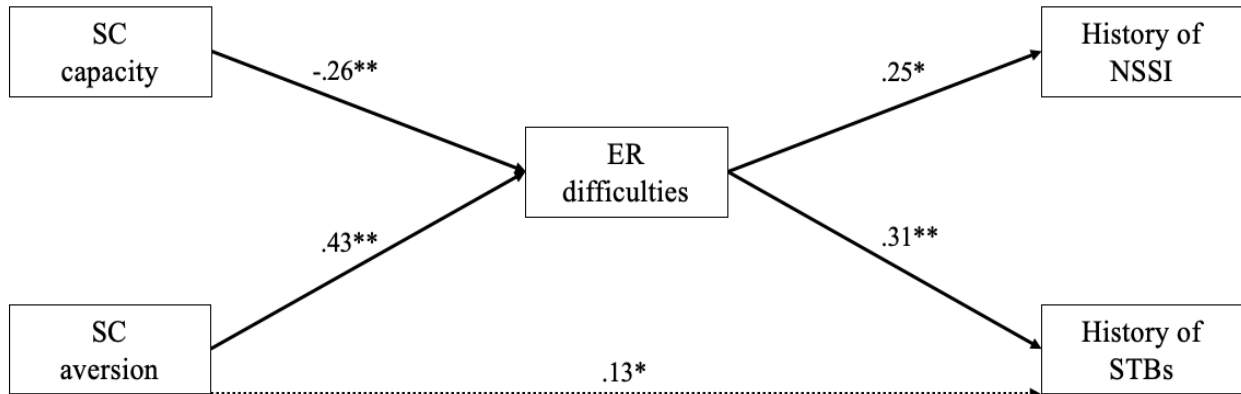| Variables	SC Capacity		SC Aversion	
	β	SE	β	SE
Internalizing Symptoms	-.31**	.09	.49**	.09
History of NSSI	-.22*	.11	.26*	.12
History of STBs	-.06	.11	.27*	.11
ER Difficulties	-.28**	.11	.44**	.10
ER Engagement Strategies	.29**	.07	-.18**	.07

*Significant at $p < .05$

**Significant at $p < .01$

Figure 1. (Aim 3) Mediating Effect of Emotion Regulation Difficulties on the Relationship Between Self-Compassion (Capacity and Aversion) and Internalizing Symptom Severity
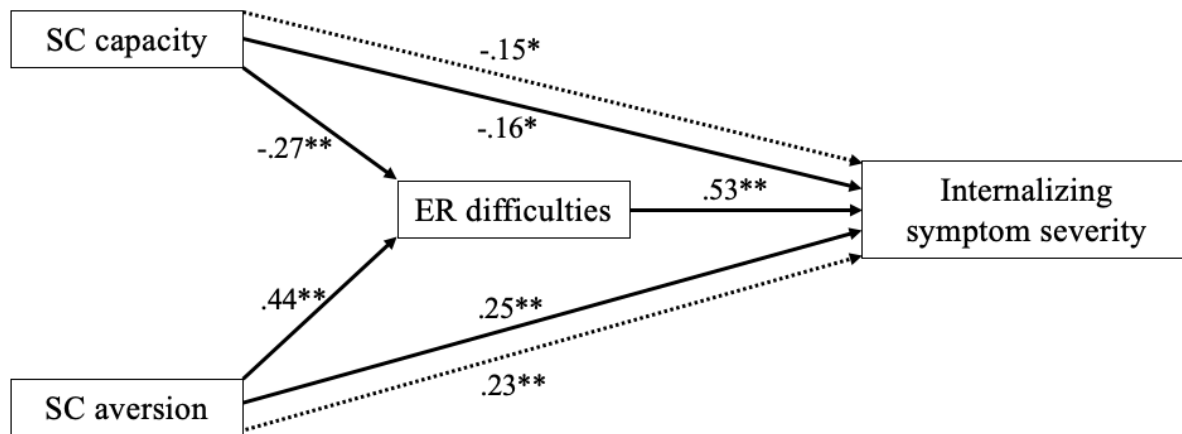
*Significant at $p < .05$

**Significant at $p < .01$

Figure 2. (Aim 3) Mediating Effect of Emotion Regulation Difficulties on the Relationship Between Self-Compassion (Capacity and Aversion) and a History of Non-Suicidal Self-Injury and Suicidal Thoughts and Behaviors.

*Significant at $p < .05$

**Significant at $p < .01$