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Social-Emotional Outcomes in Emerging Adults with ADHD: The Influence of Self-Compassion on Peer Rejection, Rejection Sensitivity, and Psychological Distress

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by

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Abstract

Emerging adulthood, the developmental period ranging from 18 to 29 years, is a critical stage of development in which individuals grow their social skills, set and achieve life goals, learn to live independently, and further develop brain regions involved in higher-level cognition, shaped by their environment and experiences throughout emerging adulthood. Attention-deficit/hyperactivity disorder (ADHD) is a neurodevelopmental disorder associated with adverse interpersonal outcomes. Approximately 5 to 8% of emerging adults are reported to have an ADHD diagnosis and may be at higher risk than typically developing emerging adults for unfavourable developmental outcomes. This heightened risk may be attributed to their challenging social environments (i.e., interpersonal challenges and systemic and systematic discrimination), which could be mitigated by self-compassion, as seen in typically developing populations. This work examined whether and how ADHD predicted peer rejection and rejection sensitivity (i.e., a learned disposition to be extremely sensitive to perceived or real criticism and rejection) compared to typically developing emerging adults, how these respective relationships contributed to psychological distress (i.e., depression and anxiety symptoms and perceived personal stress), and how self-compassion might moderate this relationship. Participants for this study included 604 emerging adults between the ages of 17 and 22 (n_{ADHD} = 315) who completed a self-report online questionnaire. Moderated mediation analyses were conducted to explore how self-compassion moderated the indirect effect of ADHD on depression, anxiety, and stress through peer rejection and rejection sensitivity. Additionally, simple moderation analyses were conducted separately for each group (i.e., ADHD and typically developing) to compare group differences in the moderating effect of self-compassion. Results revealed that ADHD, peer rejection, and rejection sensitivity were associated with higher levels of depression, anxiety, and

stress. ADHD predicted frequent experiences of peer rejection and higher levels of rejection sensitivity. Moreover, self-compassion was associated with lower stress when individuals reported more incidents of peer rejection but increased anxiety and stress when individuals reported higher levels of rejection sensitivity. Independent-group moderation analyses for each group yielded different effects, implying that self-compassion differentially influences the impact of peer rejection and rejection sensitivity on psychological distress in emerging adults with ADHD and typically developing controls. Implications for developing preventative and therapeutic interventions and directions for future research are discussed.

Keywords: social development, emotional development, attention-deficit/hyperactivity disorder (ADHD), peer rejection, rejection sensitivity, psychological distress, mental health, self-compassion

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Social-Emotional Outcomes in Emerging Adults with ADHD: The Influence of Self-Compassion on Peer Rejection, Rejection Sensitivity, and Psychological Distress

Globally, bolstering children's and adolescents' developmental outcomes is a top priority, and a rich field of literature has worked to identify factors in youth that predict physical well-being, educational and occupational success, and social-emotional prosperity later in life (Robson et al., 2020). It is well-recognized that peer relationships and friendships are critical predictors of school engagement, academic success, cognitive function, and overall well-being in adulthood (Juvonen et al., 2019; Opstoel et al., 2019). While literature has historically focused on social antecedents of developmental outcomes in children, contemporary literature increasingly emphasizes the implications of social antecedents during emerging adulthood (i.e., a period of development from the ages of 18 to 29; Arnett, 2000; Pozzi et al., 2021) to outcomes later in life. The present study aimed to extend knowledge on this topic of research by exploring social antecedents of developmental outcomes in emerging adults with attention-deficit/hyperactivity disorder (ADHD).

A significant increase in the prevalence of ADHD within the last 20 years has also inspired a growing focus on diagnoses in children and implications for development (Polanczyk, 2014). However, this disorder remains prevalent in emerging adulthood (Eddy et al., 2021). ADHD is typically defined as a neurodevelopmental disorder distinguished by patterns of hyperactivity-impulsivity and/or inattention symptoms that harm one's ability to function in daily life and in academic, home, or work settings (APA, 2013). Youth diagnosed with or presenting symptoms of ADHD have difficulty with language development, mathematic skills, focus, and social thinking (Daley & Birchwood, 2010; Demaray & Jenkins, 2011). Deficits in social development can predict poor cognitive function, structural differences in the brain,

frequent interpersonal challenges, and mental health concerns in this population (Bora & Pantelis, 2016; Ros & Graziano, 2018). While it is imperative that researchers prioritize developing treatments that bolster the social development of individuals with ADHD, it is equally important to explore factors that may ameliorate the unfavourable outcomes associated with social development deficits, such as interpersonal challenges and mental health concerns.

Self-conceptions, or ideas about oneself, are also said to significantly impact learning, interpersonal relationships, and mental health outcomes (Dweck, 1998; Redmond & Barrett, 2015; Swann et al., 1992). One self-conception of interest in recent literature is self-compassion. Self-compassion is "an emotionally positive self-attitude" that holds the potential to counter the adverse effects of "self-judgment, isolation and rumination" (Neff, 2003b). In part, the expanding allure of self-compassion stems from its emphasis on increasing one's understanding towards oneself. The body of literature on the significance of self-compassion suggests that self-compassion decreases the risk of developing psychopathology later in life and acts as a source of resilience during adverse experiences, thus improving individuals' life outcomes (Bluth & Neff, 2018). Informed by this evidence, it is presumable that self-compassion may moderate the impact of interpersonal challenges associated with poor social cognition on mental health outcomes in developing individuals with ADHD. Thus, this paper examined the relationships among self-compassion, interpersonal difficulties, and mental health issues commonly experienced by emerging adults with ADHD to help promote healthier social-emotional development in these individuals.

Emerging Adulthood

Expanding evidence from cognitive, behavioural, emotional, social, physical, and physiological measures indicates that the duration of human development has been

underestimated (Hochberg & Konner, 2020). Indeed, scientists have recognized that when adolescents grow to adult body size, a discrepancy in maturity remains. Consequently, researchers have recognized another developmental stage called emerging adulthood. Emerging adulthood is the transitional period capturing the life stage between graduating high school (late adolescence) and attaining life milestones (i.e., completing college/university, obtaining a stable career, marriage, and/or entering parenthood) that often indicate having reached "adulthood" (Arnett, 2000). This developmental period includes those between 18 and about 29 years of age and is often accompanied by mental health struggles as they explore their identity, relationships, values, and future goals (Arnett, 2000; Pozzi et al., 2021).

In addition to changes in self-conceptions and understanding, social cognitive development continues during emerging adulthood. Social cognition refers to a complex matrix of processes underpinning humans' social stimulus perception, storing, and interpretation (Frith, 2008). Skills across multiple domains, such as emotion recognition (ability to identify the emotions experienced by oneself and others), theory of mind (the capacity to understand that others have perspectives distinct from one's own and apply information about themselves and others in social contexts that delineate and predict the behaviours of themselves and others), empathy, social competence, perception (i.e., facial recognition), and interpersonal conflict resolution strategies, are continuously grown and refined during this time (Bora & Pantelis, 2016; Lapsley & Woodbury, 2016). These advanced social cognitive skills are associated with social adaptability. Children, adolescents, and emerging adults with well-developed social cognition are more likely to have greater peer popularity (i.e., experiences of peer acceptance), superior communication skills, higher academic achievement and educational attainment, better-quality social relationships, and fewer mental health concerns (Beaudoin et al., 2020). Scientists

have grown to understand that higher-order cognitive functions, such as decision-making, impulse control, planning, and connecting concepts, associated with the prefrontal cortex (PFC) are implicated in the processes underlying social cognition.

Literature has evidenced that the PFC, the brain region primarily responsible for emotional regulation, decision-making, executive functioning (i.e., higher-order functions), and social behaviours, does not reach full maturation until humans' thirties (Kolb et al., 2012; Kolk & Rakic, 2022). This prolonged development leaves emerging adults susceptible to deleterious structural changes in their prefrontal cortex as they navigate challenging environments, the effects of which may have equally damaging effects on their cognitive, emotional, and social functioning (Kolb et al., 2012; Kolk & Rakic, 2022). Unsurprisingly, findings indicate that 40% of emerging adults meet clinical thresholds for psychiatric disorders at one point during this time (Tanner, 2016). Given the critical nature of emerging adulthood on one's physical, cognitive, and social-emotional development, it is vital to identify factors that may protect individuals experiencing difficulties during this period to bolster their development. The current study's age of focus is informed by previous work concentrating on the continued development of self-conceptions, social cognition, emotion regulation, executive functioning, interpersonal skills, and the PFC across late adolescence and into emerging adulthood.

Ecological Systems and The Prefrontal Cortex

The emphasis on the importance of emerging adults' environment and experiences to their social-emotional, cognitive, and structural development draws from and aligns with a socioecological perspective. As suggested by Bronfenbrenner (1979) in his ecological systems theory, how a person develops depends on the relationships between and among individual (e.g., age, personality, cognition, behaviour), relational (e.g., family, friends), and contextual (e.g.,

neighbourhoods, schools, culture, historical and major life events) factors. After individual-level factors (e.g., anatomical structure, cognition, personality), the most immediate factors impacting development are a person's immediate surroundings and the relationships within them, including home, family, roommates, school, teachers, colleagues, and peers, within a structure known as the microsystem. The mesosystem consists of the interconnections between an individual's immediate settings and relationships, for instance, between a significant other and colleagues at a work holiday party. Settings and relationships not directly influencing an individual (e.g., a parent's work environment) exist within the exosystem. Next, the macrosystem considers how broader societal structures, including laws and cultural norms and practices, influence developmental factors (Bronfenbrenner, 1979). Finally, the chronosystem addresses how major life transitions and historical events (i.e., temporal factors), such as starting graduate school and the COVID-19 pandemic, respectively, shape development (Bronfenbrenner, 1995). These systems continuously inform one another to shape and determine an individual's developmental and life outcomes. A prime example of the dynamic relationships between individual and social factors influencing the outcomes of emerging adults are the associations among PFC development, social cognition, and social experiences.

Although various brain regions continue to develop throughout emerging adulthood, the PFC's maturation is critical during this developmental period due to its role in the development and execution of higher-order cognitive functions. However, its maturation appears to be a delicate process. A wealth of studies have reported that while the neurons of the PFC are produced prior to birth, "the differentiation of its neurons and development of synaptic connections in humans extends to the third decade of life" (Kolk & Rakic, 2022, p. 41; Lui et al., 2023; Pozzi et al., 2021; Taber-Thomas & Pérez-Edgar, 2015). The brain region's synaptic

connections and functioning are susceptible to changes from exposure to various environmental factors and life experiences (Kolb et al., 2012; Taber-Thomas & Pérez-Edgar, 2015).

The PFC's vulnerability to its environment is exemplified in emerging adulthood, where individuals learn to independently navigate experiences, emotions, and interpersonal relationships through novel experiences. As a result, emerging adults exposed to harmful environmental factors, such as difficulties in their interpersonal relationships, may experience detrimental effects on the development of synaptic connections in their PFC and associated higher-order functions, including emotion regulation and executive function (Kolb et al., 2012), both of which are vital to social cognition. Such deficits in these higher-order functions may catalyze greater social difficulties and subsequent mental health difficulties, thus perpetuating a cycle between structural deficits, social cognitive impairments, and adverse social outcomes. This damaging cycle is of particular concern for individuals diagnosed with ADHD who are at greater risk of relational problems, such as experiences of and sensitivity to rejection, compared to their typically developing peers (i.e., no diagnosed or suspected developmental concerns; Barkley, 1997; Bora & Pantelis, 2016).

Attention-Deficit/Hyperactivity Disorder

Approximately 5 to 8% of EAs are reported to be diagnosed with ADHD (Eddy et al., 2021). ADHD is a complex neurodevelopmental disorder that emerges in childhood, persists throughout the lifespan, and has notable implications for one's quality of life (Kerekes et al., 2021). The disorder is characterized by pervasive hyperactivity-impulsivity and inattention symptoms that impair one's ability to function across multiple environments (e.g., school, work, and home; Cardillo et al., 2020; Kerekes et al., 2021; Soman et al., 2023). Boys generally present with more hyperactivity/impulsivity symptoms, while girls present with more inattention

symptoms; however, both sexes struggle with both to some degree (Carbonneau et al., 2021). Advancing literature has also identified executive dysfunction as a symptom of and process underlying ADHD (Kofler et al., 2019). Executive dysfunction captures the impairment of executive function that entails higher-order (i.e., top-down) cognitive processes consisting of inhibitory control (i.e., cognitive, behavioural, and emotional self-control; Kofler et al., 2019), overall and selective attention (i.e., general capacity for attention and the ability to direct attention; Kofler et al., 2019), task-switching (i.e., ability to think about two or more tasks simultaneously and to switch between tasks; Kofler et al., 2019) and working memory (i.e., an element of short-term memory or ability to keep visuospatial and auditory information in mind and apply it somehow; Kofler et al., 2019). Executive functions allow us to plan, manage time, self-regulate emotions and behaviours, problem-solve, perspective-take, and much more (Diamond, 2013).

These functions underpin social cognition, are relevant to almost all facets of life, and, naturally, have been associated with better physical and mental outcomes and higher academic achievement (Daley & Birchwood, 2010; Kofler et al., 2019). Compared to their typically developing peers, youth with ADHD perform significantly worse across all components of executive function, and previous estimates of the prevalence of executive dysfunction in youth with ADHD are approximately 50% (Kofler et al., 2019). Youth with ADHD also demonstrate larger deficits in social cognition relative to typically developing youth in that they demonstrate impairments in theory of mind, affect perception and recognition, emotion regulation, and overall social competence (Uekermann et al., 2010) which are subsequently associated with interpersonal problems and psychopathology (Ros & Graziano, 2018). Additionally, up to 53.3% of individuals with ADHD have comorbid depression, anxiety, personality disorders, or conduct

disorders (Katzman et al., 2017). Notably, research examining sex differences in ADHD has reported slightly higher incidences of internalizing behaviours (i.e., depression and anxiety symptoms) in girls and externalizing behaviours (i.e., disruptive and misconduct symptoms) in boys (Carbonneau et al., 2021). This stark contrast in executive functioning and subsequent outcomes between youth with and without ADHD emphasizes the importance of identifying developmental differences to inform interventions and healthy development better.

Developmental Differences in ADHD

There has been an increasing urgency in exploring differences in the development of youth with ADHD and their typically developing peers. Advancements in technology have allowed scientists to identify psychophysiological and structural disparities between the two groups. Indeed, recent works have evidenced differential functioning in the central nervous systems of typically developing individuals and individuals with ADHD likely underlying ADHD symptoms using psychophysiological measures such as respiratory sinus arrhythmia (RSA; i.e., fluctuations in time between sequential heartbeats; Musser et al., 2011; Robe et al., 2021), impedance cardiography to gauge cardiac pre-ejection period (PEP; i.e., the duration of electrical activity and heart rate during left ventricular contraction with closed valves; Morris et al., 2020; Musser et al., 2011), and electrodermal activity (EDA; i.e., conduciveness of the skin modulated by eccrine gland activity; Morris et al., 2020; Musser et al., 2011).

The central nervous system is a network within the human body comprising the brain and spinal cord. It is responsible for “receiving, processing, and responding to sensory information,” internal regulation, and cognition (Thau et al., 2022). The central nervous system has two major divisions – the sympathetic and parasympathetic nervous systems. The sympathetic nervous system is the division of the nervous system that is mobilized during times of psychological or

physiological stress (Robe et al., 2021) and is measured using PEP, which has been associated with sympathetically conciliated functions such as emotional reactivity, approach behaviours, reward sensitivity; and EDA, which has been associated with emotional reactivity for anxiety and stress (Morris et al., 2020). Shorter PEP indicates increased sympathetic activity via beta-adrenoreceptors, while greater EDA indicates increased sympathetic activity via electrical impulses (Morris et al., 2020). Alternatively, the arousal of the parasympathetic nervous system is associated with restorative and calming functions (Robe et al., 2021) and is measured using RSA, which is related to parasympathetic control via vagus nerve activity and is an index of emotion regulation (Morris et al., 2020; Robe et al., 2021). Although greater vagal output decreases heart rate and suggests greater parasympathetic arousal, greater RSA can reflect poor parasympathetic response and emotion dysregulation (Morris et al., 2020; Robe et al., 2021). In a study on children's (i.e., 5 to 13 years old) emotion regulation and nervous system activation in children with ADHD and typically developing children, Morris and colleagues (2020) found significantly higher EDA reactivity and RSA, but not PEP, in children with ADHD compared to their typically developing peers, with a similar pattern of results across various projects (Musser et al., 2011; Robe et al., 2021). This suggests that relative to typically developing children, those with ADHD experienced greater sympathetic and weaker parasympathetic arousal and that this arousal pattern contributes to their high emotional reactivity to anxiety and stress and emotion dysregulation.

Moreover, it is theorized that in the presence of a perceived threat (i.e., a physical or psychological stressor or exertion of cognitive effort), vagal withdrawal and increased sympathetic activity are associated with an adaptive nervous system response. Vagal withdrawal refers to the withdrawal of vagus nerve activity to decrease parasympathetic arousal and allow

for increased sympathetic arousal and control (Robe et al., 2021). By contrast, after a perceived threat is removed, a return to previous or higher levels of parasympathetic activity reflects an adaptive nervous system response and effective coping (Robe et al., 2021). Existing studies have reported that children and adolescents with ADHD exhibit an adaptive sympathetic response in the presence of a stressor. However, prolonged vagal withdrawal after a perceived threat is removed suggests a lack of an adaptive response and parasympathetic restoration (Robe et al., 2021). A meta-analysis of the existing literature on vagal control in youth with ADHD conducted by Rash and Aguirre-Camacho (2012) revealed difficulties in establishing a different pattern of vagal control in youth with ADHD. However, relative to typically developing controls, youth with ADHD had significantly lower levels of vagal control, particularly following stressful tasks (Rash & Aguirre-Camacho, 2012). Thus, children and adolescents with ADHD may have dysregulated nervous systems relative to their typically developing peers, which may prolong their already heightened responses to negative emotional stimuli, such as sensitivity to rejection.

Beyond psychophysiological antecedents of dysregulation in youth with ADHD, findings from neuroimaging studies evidence structural differences in the ADHD brain. For example, functional magnetic resonance imaging (fMRI) research has identified differences in pathways within and between sensory networks within the brains of children with ADHD. Indeed, children with ADHD exhibit sensory processing issues in that they have a higher likelihood of searching for sensory input, being more cognizant of stimuli (Soman et al., 2023), being more disturbed by specific stimuli and noticing less sensory input compared to typically developing children (Delgado-Lobete et al., 2020). Furthermore, compared to their typically developing peers, youth with ADHD experience delayed maturation in the corticolimbic networks of the brain associated with emotion regulation and have greater corticolimbic connectivity overall, implying emotion

dysregulation (Soman et al., 2023). Structural differences within these neural networks may have behavioural and cognitive implications. However, the differential structure of the PFC in people with ADHD substantiates its symptomology.

Recall the associations between executive functions and social cognition, the role of PFC development and function in bolstering higher-order cognitive function, and that the PFC continues to develop into the third decade of life (Kolfer et al., 2019; Kolk & Rakic, 2022; Lui et al., 2023; Pozzi et al., 2021; Taber-Thomas & Pérez-Edgar, 2015). As emerging adults begin to navigate novel and challenging situations independently, the development of synaptic connections within this region is particularly vulnerable to the harmful effects of unfavourable social environments and adversity during its extended maturation period (Kolb et al., 2012; Kolk & Rakic, 2022). However, existing deficits in executive function and social cognition and poor synaptic connectivity are associated with greater social difficulty that may further impair executive function, social cognition, and PFC development and ultimately lead to more social problems (Kolb et al., 2012; Kolk & Rakic, 2022). This poses a significant risk of poor physical and mental health, academic achievement, and overall quality of life for emerging adults with ADHD who commonly experience executive dysfunction, social cognitive impairment, and adverse social outcomes and show significant differences in PFC structure (Kolfer et al., 2019; Kolk & Rakic, 2022).

Research using brain imaging has shown that not only is the PFC thinner in people with ADHD throughout childhood and into adulthood, thus hindering proper synaptic connection but also that the loss of this connectivity underlies many ADHD symptoms, including those linked to social cognition and behaviours (Diamond, 2011; Kolk & Rakic, 2022; Uekermann et al., 2010). Thus, extant evidence overwhelmingly indicates significant structural and cognitive differences

between individuals with and without ADHD throughout development and that social challenges arising in emerging adulthood may perpetuate these disparities and unfavourable outcomes such as mental health concerns. However, despite the high prevalence of mental health and social difficulties often experienced by people with ADHD, the cognitive and developmental impairments and differences underlying them, and the significance of emerging adulthood to PFC development, there is little literature exploring the relationship between adverse social outcomes and mental health, and whether these relationships vary as a function of development between typically developing emerging adults and emerging adults with ADHD in one study. This study aimed to provide insight into the pattern of effects among harmful social outcomes rooted in social cognitive deficits, psychological concerns, and ADHD in emerging adults.

Attention-Deficit/Hyperactivity Disorder and Social-Emotional Concerns

People with ADHD commonly face more adverse social outcomes compared to their typically developing peers (Barkley, 1997; Bora & Pantelis, 2016) – including peer rejection and exclusion and heightened sensitivity to rejection Matthys et al., 1999; Ros & Graziano, 2018). Kolfer and colleagues (2019) posit, in their well-evidenced theory on the social deficits observed in ADHD, that these social difficulties arise from deficits in executive function as they underpin skills such as impulse control and emotion regulation, which are vital to processes implicated in social cognition (Bora & Pantelis, 2016). The adverse social outcomes and experiences rooted in these impairments (i.e., peer rejection and rejection sensitivity) have been found to predict psychopathology later in life for those with ADHD and their typically developing peers (Ros & Graziano, 2018).

An unfavourable social outcome commonly experienced by individuals with ADHD is peer rejection (PR; i.e., social rejection and exclusion). While peer rejection can occur because of

bullying, the two constructs are distinct. Bullying involves intentional overt physical or verbal aggression or covert relational (social) aggression (Lee, 2009). PR can occur independently of bullying, for example, when better-liked peers are more sought out, but the rejected individual is not disliked or purposely excluded (de Boer & Pijl, 2016). PR is also distinct from rejection sensitivity as it refers to objective instances of social rejection and exclusion, as opposed to sensitivity to perceived teasing and criticism. Compared to their typically developing peers, middle-school children with ADHD are more likely to have higher PR and lower peer acceptance (de Boer & Pijl, 2016). Children diagnosed with ADHD are more likely to face rejection by their peers compared to typically developing children, which worsens the perceived quality of their social relations (Grygiel et al., 2014). Some research suggests that PR starts in childhood and worsens with age and that girls experience greater rates of PR relative to boys (Buitelaar et al., 2011). PR can also increase solitary play in girls with ADHD, thereby discouraging further social development (Mikami & Hinshaw, 2003). Facing interpersonal rejection by peers can predict increased emotional maladjustment in youth (Zimmer-Gembeck et al., 2013), increased brain activity in the subgenual region of the anterior cingulate cortex which is linked to depression (Masten et al., 2011), and delinquent behaviour, anxiety, and harmful habits (i.e., smoking) up to eight years later (Mrug et al., 2012).

Rejection sensitivity (RS), a “learned cognitive-affective processing disposition” to anxiously anticipate rejection and criticism and have heightened sensitivity to real or perceived rejection, teasing, or criticism during social interaction where either rejection or acceptance is possible (Bedrossian, 2021; Downey & Feldman, 1996), is a common social difficulty associated with ADHD (Ros & Graziano, 2018). There is conflicting evidence regarding sex differences in RS, but significant findings suggest an increased vulnerability to RS in girls relative to boys, that

outweigh the evidence against sex differences (Scharf et al., 2014). Interestingly, youth with greater ADHD symptomology experience substantially greater electrical brain activity during incidences of rejection and less activity during peer acceptance (Babinski et al., 2019). RS has implications for cognitive development and overall psychological well-being for those with or without ADHD (Bora & Pantelis, 2016; Gao et al., 2017) but could have a heightened influence on those with ADHD; as such, this work will investigate the influence of RS on the mental well-being of emerging adults with and without ADHD more closely.

Indeed, Gao and colleagues (2017) conducted the first meta-analytical review exploring rejection sensitivity and mental health in youth and adult samples. The authors investigated the relationship between rejection sensitivity and five psychological outcomes: (1) depression, (2) anxiety, (3) loneliness, (4) borderline personality disorder (BPD), and (5) body dysmorphic disorder. The final sample included 75 studies consisting of clinical (i.e., individuals diagnosed with a disorder from the five psychological outcomes included, minus loneliness) and community samples. A significant correlation was found between rejection sensitivity and each psychological outcome. The results suggest that increased RS can lead to detrimental psychological outcomes over time, raising concern for individuals with ADHD who demonstrate high RS levels and are, thus, more vulnerable to these negative outcomes. To make strides in improving developmental trajectories for emerging adults with and without ADHD, it is imperative to identify factors buffering against social adversity and bolstering favourable social-emotional and -cognitive outcomes, such as self-compassion. Accordingly, the present study aspired to provide novel insights into how self-compassion might alleviate the negative influence of PR and RS on mental health in emerging adults.

Conceptualizing Self-Compassion

Psychologists have spent decades defining conceptualizations of healthy self-attitudes to improve the relationship one has with oneself (Neff, 2003b). The idea of self-compassion primarily originates from Buddhist philosophy, which emphasizes the importance of showing kindness towards all living things. As Western literature borrows from Eastern teachings, self-compassion in psychology consists of three components: self-kindness, common humanity, and mindfulness (Bluth & Neff, 2018; Neff, 2003b). Self-kindness entails increasing kindness toward oneself during times of failure or pain and decreasing excessive self-criticism. Common humanity is the perception that a person's experiences fit into a more significant human experience, emphasizing the connections between oneself and others. The third component, mindfulness, encourages the "balanced awareness" of one's thoughts and emotions instead of over-identifying (i.e., becoming so preoccupied with one's current emotional state that they are unable to consider alternative emotional responses or interpretations) with them (Neff, 2003b).

The final component, mindfulness, draws from another Buddhist ideology and psychological construct of the same name. In relation to self-compassion, the state of mindfulness requires individuals to pay purposeful attention to their emotional experiences as they arise. One must create a state of "balanced awareness" to acknowledge and accept their feelings in the present without over-identifying with and ruminating over their experience (Neff, 2011, 2003b). In other words, self-compassion discourages the practice of self-pity. Despite the similarities between Western and Buddhist definitions of self-compassion, there are distinctions between the two. Namely, self-compassion in Western psychological literature centres on the idea of "common humanity," where psychologists place particular importance on the connection between individuals. In Buddhist philosophies, there is no talk of duality (i.e., the distinction of oneself from others); instead, the "oneness" of all people is emphasized (Zeng et al., 2016).

The agnostic adaptation of the Buddhist practice of self-compassion enabled further conceptualization of self-compassion within a Western context using existing psychological approaches. In Jordan's (1991a, 1991b) self-in-relation model for women's psychological development, she briefly touched on the concept of self-empathy. This process entails empathy for yourself and others while adopting a nonjudgmental and open attitude toward oneself. While Jordan's concept of self-empathy was not discussed in detail, it resembles the self-kindness component of self-compassion conceptualized in detail by Neff (2003b).

More recently, self-compassion partially coincides with work on emotional development. Specifically, the component of mindfulness in self-compassion is an aspect of the concept of emotion regulation, where emotion regulation refers to processes that occur in stressful environments where one attempts to focus on their emotional state to manage the intensity of or transform their feelings (Neff, 2003b; Stanton et al., 1994). Through the lens of emotional development, self-compassion can be employed as a tool to help with emotion regulation because it requires individuals to have a balanced awareness of their emotional states in hopes of achieving a sense of understanding, community, and perspective (Bluth & Neff, 2018; Neff, 2003b).

Similarly, recent literature (Neff, 2011, 2003b) emphasizes the parallels between acceptance of personal shortcomings and awareness of emotional states in self-compassion and the humanistic psychology concept of unconditional positive regard. For example, despite its origins in client-centred therapy techniques, the idea of unconditional positive regard shares many qualities with self-compassion. Both the concept of self-compassion and unconditional positive regard stress the importance of adopting unconditional positive attitudes and empathy. Importantly, unconditional positive regard is not the same as exhibiting selfishness or falsely

positive judgments about the self (Neff, 2011, 2003b). One of the most notable humanistic psychologists is Abraham Maslow, who argued that acknowledging one's pain and failure is necessary to overcome the fear of damaging one's self-esteem and, in turn, achieve growth (Maslow, 1968; Neff, 2003b). The emphasis self-compassion places on kindness toward oneself in the face of failure and damage to the ego is related to Maslow's argument and distinguishes it from ego-related concepts, such as self-esteem.

Distinguishing Self-Compassion from Self-Esteem

Self-esteem is defined as an evaluation of our individual goodness, value, and self-worth (Neff, 2011, 2003b). This evaluation is based on comparisons a person makes between themselves and others and their judgments about themselves and their performance. Self-esteem is influenced by self-perceptions and impacted by others' opinions of the individual (Neff, 2011, 2003b; Neff & Vonk, 2009). There is an affluent area of literature regarding the impact of self-esteem on developmental outcomes. Low self-esteem has been linked to negative psychological outcomes in adolescents and emerging adults, such as depression (Keane & Loades, 2016; Neff, 2011, 2003b; Trzesniewski, 2006), anxiety (Keane & Loades, 2016; Trzesniewski, 2006), other internalizing disorders (Keane & Loades, 2016), suicidal ideation (Neff, 2011, 2003b; Trzesniewski, 2006), loss of motivation (Neff, 2011, 2003b), poor physical health, and financial struggles (Trzesniewski, 2006).

Interestingly, not all effects of high self-esteem on development are positive. In a literature review, Neff (2011) discussed recent empirical findings regarding self-esteem and self-compassion. Individuals with high self-esteem or those trying to preserve self-esteem were more likely to engage in self-enhancement bias (a tendency to portray a more positive view of oneself purposely; Alicke & Govorun, 2005; Crocker & Park, 2004; Maxwell & Lopus, 1994; Sedikides

& Gregg, 2008). Those who scored high in trait narcissism were also more likely to have higher self-esteem (Neff & Vonk, 2009), which, when threatened, increased aggression (Bushman & Baumeister, 1998).

The distinction between self-compassion and self-esteem helps explain self-compassion's importance to development. Self-esteem is rooted in judgment and upward and downward comparisons to others (Neff, 2011, 2003b). In contrast, self-compassion does not compare, judge, or criticize one's thoughts or feelings and instead explores them with understanding (Neff et al., 2007). It is suggested that self-compassion can protect against adverse psychological outcomes when self-esteem and ego fail (Neff, 2011; Neff et al., 2007; Neff & Vonk, 2009). This protection may be especially important to individuals who experience poorer long-term self-esteem, such as children, adolescents, and young adults with ADHD who report lower levels of self-esteem across time than their typically developing peers (Harpin et al., 2013; Mazzone et al., 2013). It is then presumable that the protection offered by self-compassion can help to mediate other developmental influences that may negatively impact a growing person.

Indeed, self-compassion can protect individuals from the impact of low self-esteem and threats to their ego (Leary et al., 2007; Neff, 2011; Neff et al., 2007; Neff & Vonk, 2009). As described by Neff (2003b), Rogers' self theory (1961) suggests three components to one's self-conception: self-image, ideal-self, and self-esteem (see also self-worth). Self-esteem arises from an individual's evaluations of themselves and the comparisons they make between themself and others. According to Rogers, individuals with high self-esteem but conditional positive regard (positive self-attitudes only in the face of success) are likely to avoid challenging situations and struggle to accept that life can be difficult (Ismail & Tekke, 2015). Rogers also argues that high self-esteem enables individuals to accept failure and overcome challenges only if they possess

unconditional positive regard (Ismail & Tekke, 2015). The additional theoretical value of self-compassion can be illustrated by unconditional positive regard, which describes having empathy for oneself and unconditional positive self-attitudes even when experiencing failure (Neff, 2003b).

As self-compassion is a relatively new topic in developmental psychology, the processes involved in developing self-compassion are debated (Moreira et al., 2018). In line with previous research, literature on self-conceptions found gender differences in self-compassion. Data indicate that males show higher levels of self-compassion than females (Bluth et al., 2017; Murn & Steele, 2020; Yarnell et al., 2015), and in a sample of college-level student athletes' self-compassion was directly and negatively associated with burnout for female athletes only (Amemiya & Sakairi, 2020). Moreover, while children develop, their self-conceptions do as well. Differences in self-compassion are apparent throughout development, but particularly once adolescence begins.

Though literature indicates no significant differences in self-compassion for males across phases of adolescence, older adolescent females reported lower levels of self-compassion than younger adolescent females and adolescent males of all ages (Bluth & Blanton, 2015; Bluth et al., 2017). Contrary to research suggesting a direct link between age and self-compassion during adolescence for females only, other associations between age and self-compassion become evident as we consider emotional outcomes. For example, compared to younger adolescents, the inverse link between self-compassion and negative affect was more robust for older adolescents (Bluth & Blanton, 2015). Based on the history of operationalized self-compassion and its role in protecting individuals against adverse emotional outcomes throughout development, self-

compassion may reduce the risk of adverse developmental outcomes like psychopathology and social problems in the face of failure and rejection in diverse populations.

Self-Compassion and Mental Health Outcomes

The growing incorporation of Eastern philosophies in Western psychology has inspired scientific research on the impact of self-compassion on developmental outcomes (Neff, 2011, 2003b). Research on self-esteem and self-compassion supports the extended value of self-compassion beyond self-esteem. High self-compassion, rather than high self-esteem, is linked to a decrease in self-reported anxiety when one's ego is threatened (Neff et al., 2007), increased resilience when presented with negative or neutral feedback (Leary et al., 2007), and lower levels of social comparison, public self-consciousness, self-rumination, anger (Neff & Vonk, 2007), and humiliation in embarrassing situations (Leary et al., 2007). Therefore, self-compassion may be a vital tool for buffering against the harmful effects of interpersonal conflict, mental health concerns, heightened emotional reactivity, and self-esteem issues in vulnerable populations, such as emerging adults with ADHD.

The potential effects of self-compassion in emerging adults are understudied relative to other age groups; nevertheless, its value is increasingly evident with the flood of empirical support for the inverse relationship between self-compassion and adverse psychological outcomes across all ages. In emerging adults, self-compassion has reliably predicted less comparison between self and others' appearance in men with eating disorders (Rodgers et al., 2017), fewer depressive and anxiety symptoms (Egan et al., 2022; Fenzel & Richardson, 2021; Joss et al., 2019; Sajjadi et al., 2022), lower stress (Amanda et al., 2021), and less internal shame (Sajjadi et al., 2022).

Marsh and colleagues (2018) completed a meta-analytical review synthesizing the associations between self-compassion and psychological distress in children, adolescents, and emerging adults aged 10 to 19. Additionally, the studies reviewed in this meta-analysis included various research questions and methodological designs, including those evaluating self-compassion-related intervention programs. The inclusion of various methodological designs is essential as trait self-compassion and the active practice of self-compassion may differentially predict psychological distress. The analysis consisted of a final set of 19 studies, where five studies produced non-significant findings on the inverse relationship between self-compassion and psychological distress, and one study found no correlation. The study reported that, for the 13 studies with significant findings, high self-compassion was associated with lower levels of three main components of psychological distress: (1) anxiety (Bluth et al., 2017; Bluth, Roberson et al., 2016; Kemper et al., 2015; Neff & McGehee, 2010), (2) depression (Bluth et al., 2017; Castilho et al., 2017; Galla, 2016; Kemper et al., 2015; Neff & McGehee, 2010; Stolow et al., 2016; Trollope, 2009; Williams, 2013), and (3) general stress (Bluth and Blanton, 2014, 2015; Bluth et al., 2017; Bluth et al., 2015; Bluth, Roberson et al., 2016; Galla, 2016; Kemper et al., 2015). The combined uncorrected random effects estimate was significant and corresponded to a large effect size, suggesting that higher self-compassion levels predicted lower levels of psychological distress. Findings also revealed that while the inverse relationship between self-compassion and psychological distress was significant across all ages, the effect of self-compassion was weaker in older adolescents and emerging adults. However, there is empirical support for self-compassion's ability to buffer against the effects of adverse experiences and negative developmental outcomes in emerging adults. For instance, in emerging adults with eating disorders, self-compassion weakened the effect of adverse childhood experiences on

depression, Body Mass Index, and disordered eating symptomology (Hazzard et al., 2021). Overall, the results of the studies included in this review suggest that self-compassion plays a role in reducing the probability of adverse psychological outcomes in youth, and the current research worked to investigate whether similar findings would emerge from research in emerging adults with ADHD.

In addition to predicting fewer adverse psychological outcomes, self-compassion can predict positive developmental outcomes. Extensive literature associates high self-compassion with greater happiness and satisfaction in life, self-control, and feelings of connectedness in adolescent and emerging adult populations (Bluth & Blanton, 2015; Fenzel & Richardson, 2021; Neff & McGehee, 2010). For emerging adults, self-compassion has also been observed to mediate the impact of burnout and the imposter phenomenon on overall well-being (Amemiya & Sakairi, 2020; Patzak et al., 2017). Moreover, while self-esteem is typically resistant to training (Neff, 2011), self-compassion has been observed to be a malleable trait that can be fortified through the acquiring and practicing of self-compassion skills across youth and adulthood (Bluth & Eisenlohr-Moul, 2017).

Training interventions to cultivate self-compassion in adults and adolescents have reported significant improvements in self-compassion, life satisfaction, and compassion for others from pre- to post-intervention compared to control groups sustained at a one-year follow-up (Bluth & Eisenlohr-Moul, 2017). Evaluations of the effectiveness of such training programs on improving the self-compassion and positive outcomes of emerging adults, however, are far and few (Bluth et al., 2023); nevertheless, preliminary work has garnered support for self-compassion-based interventions. For example, *Embracing Your Life: A Mindful Self-Compassion Program for Emerging Adults*, requiring just a 9-hour commitment across the 6-week course,

was an online intervention tailored to training self-compassion in emerging adults. Findings from a randomized control trial implementing this intervention reported improvements in overall mental well-being, resilience, and self-compassion from pre- to post-intervention (Bluth et al., 2023). These findings suggest that cultivating kindness toward oneself and feelings of oneness and learning how to mindfully acknowledge and respond compassionately to harsh or unfavourable experiences and self-evaluations may allow for disengagement from ruminative thoughts, self-judgement, and isolation in emerging adults with diverse characteristics. Thus, there is value in exploring whether self-compassion shares a similar relationship with special populations' adverse experiences, such as negative social outcomes (i.e., PR and RS) on emerging adults with ADHD.

Self-Compassion and Interpersonal Relationships

Robust social systems are essential to achieving positive outcomes throughout life. For instance, strong friendships with peers and family relationships predict greater social competence, life satisfaction, trust in others, and community engagement for emerging adults (O'Connor et al., 2010). Self-compassion appears to augment social, health, and life outcomes associated with social cognition across diverse age groups. A meta-analysis conducted by Lathren and her colleagues (2021) assessed the association between self-compassion and various interpersonal domains. An analysis of the existing literature revealed that self-compassion has positive correlations with constructive conflict, friendship (Crocker & Canevello, 2008; Xavier et al., 2016; Yarnell & Neff, 2013) and romantic (Jacobson et al., 2018; Santerre-Baillargeon et al., 2017; Yarnell & Neff, 2013) functioning, secure attachment (Huang & Berenbaum, 2017; Neff & McGehee, 2010; Øverup et al., 2017; Raque-Bogdan et al., 2011; Wei et al., 2011), healthy family (Berryhill et al., 2018; Grevenstein et al., 2019; Hood et al., 2020; Neff &

McGehee, 2010), and adaptive parenting behaviours (Gouveia et al., 2018; Moreira et al., 2017, 2018).

The predictive value of self-compassion for bolstering mental health and social outcomes suggests that it could be a great tool to improve related developmental outcomes for at-risk groups. Specifically, self-compassion at times of PR or elevated RS may weaken the adverse impact of these two unfavourable social outcomes on mental health during emerging adulthood. Weakening the influence of PR and RS may also disrupt the perpetuating cycle between structural deficits in the PFC, executive function and social cognitive skills, and subsequent social and mental health consequences. Furthermore, evaluating the effects of self-compassion on the relationships among PR, RS, and psychopathologies all in one study may help to further inform the differential effects of PR and RS on development and the psychophysiological processes underpinning them. Thus, the current study elucidated the relationships among self-compassion and interpersonal difficulties in emerging adults with ADHD and began to bridge the gap in research concerning self-compassion and its impact on RS and PR and their distinctive effects on mental health in this vulnerable population.

Summary

To date, little research has been conducted to explore the relationship between ADHD and self-compassion. Most literature in the area has assessed the outcomes of mindfulness-based cognitive therapy (MBCT) in adults with ADHD, finding that the intervention increases levels of self-compassion and positive psychological outcomes following the program (Geurts et al., 2021; Janssen et al., 2018). As self-compassion is associated with a lower risk of adverse psychological outcomes, increased healthy development, and improved quality of interpersonal relationships, it follows that self-compassion would help with the social-emotional, cognitive, and structural

development of emerging adults with ADHD. However, it remains unclear whether the effects of self-compassion on developmental outcomes vary as a function of developmental differences between typically developing emerging adults and those with ADHD. Studies on MBCT provide promising support that self-compassion can be trained and used to promote healthy psychological and social development.

A more applicable study to the current work, and seemingly the only one of its kind, was completed by Beaton and colleagues (2020), who found that adults with ADHD possessed significantly lower levels of self-compassion than adults without ADHD. Adults with ADHD also demonstrated higher levels of perceived criticism than the control group. Preliminary research on the relationship between self-compassion, RS, and PR in typically developing samples provides promising results; however, these associations need replication and further exploration. In typically developing samples, RS was correlated to lower levels of self-compassion (Saricam et al., 2012), and among typically developing youth, self-compassion weakened the connection between PR and poor mental health (Jiang & Chen, 2020). Informed by the existing literature on self-compassion, RS, PR, and related mental health outcomes in typically developing samples, the current study examined whether self-compassion moderated the relationships between RS and PR and mental health outcomes in emerging adults with ADHD against a typically developing control group (i.e., typically developing emerging adults).

Purpose of the Current Study

This work examined whether and how ADHD predicted RS and PR compared to typically developing emerging adults, how these respective relationships contributed to mental health outcomes, and how self-compassion moderated this relationship. This study evaluated mental health outcomes associated with psychological distress (symptoms of depression and

anxiety and perceived stress levels) as defined in the meta-analysis conducted by Marsh and colleagues (2018). The rationale for the present research is rooted in understanding how individual factors (i.e., executive function, social cognition, psychophysiological, and structural differences) and environmental factors (i.e., adverse social experiences) impact social-emotional outcomes and how these effects implicate one another. Additionally, emerging adults with ADHD are at a greater risk of facing social difficulties such as RS and PR than their typically developing peers (Ros & Graziano, 2018). As RS and PR are associated with later psychopathology and poor mental health, people with ADHD are more likely to face adverse psychological outcomes than typically developing individuals.

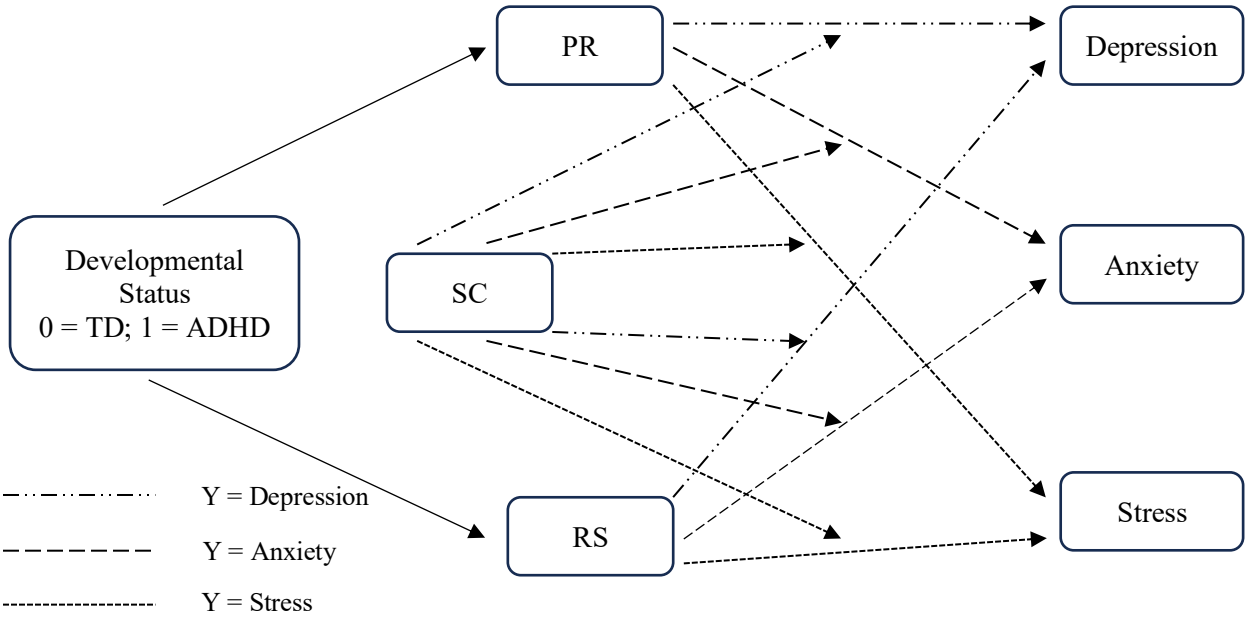
Findings from this work will help us understand whether self-compassion is a viable means of coping with the adverse developmental outcomes associated with RS and PR among those with ADHD. Extant research supports the value of self-compassion in predicting improved psychological and interpersonal development in emerging adults. This evidence instills confidence that this pattern of effects will translate to emerging adults with ADHD. The current study had three research questions: (1) how (i.e., statistically) does ADHD differentially predicts RS and PR in emerging adults compared to typically developing samples? (2) does ADHD then indirectly predict psychological distress (i.e., depression, anxiety, stress) through PR and RS? (3) does self-compassion moderate the influence of PR and RS on mental health outcomes among emerging adults with ADHD and typically developing emerging adults?

Path analysis, using Hayes' PROCESS macro (2023), was used to test the model, where developmental group (i.e., ADHD or typically developing) directly predicted incidences of negative social outcomes (i.e., peer rejection and rejection sensitivity) and indirectly predicted psychological distress (i.e., depressive and anxiety symptoms and perceived stress levels)

through PR and RS in emerging adults. Additionally, the current study examined the moderating role of self-compassion. Specifically, it explored how levels of trait self-compassion may influence emerging adults' experiences of interpersonal difficulties and buffer potential psychological distress associated with these concerns and ADHD (see Figure 1). Moreover, the current study examined differences in the effects of negative social outcomes on psychological distress as a function of developmental group and the moderating role of self-compassion and how it may buffer psychological distress associated with the differential effects of PR and RS between emerging adults with ADHD and typically developing controls (see Figures 2 and 3).

Figure 1

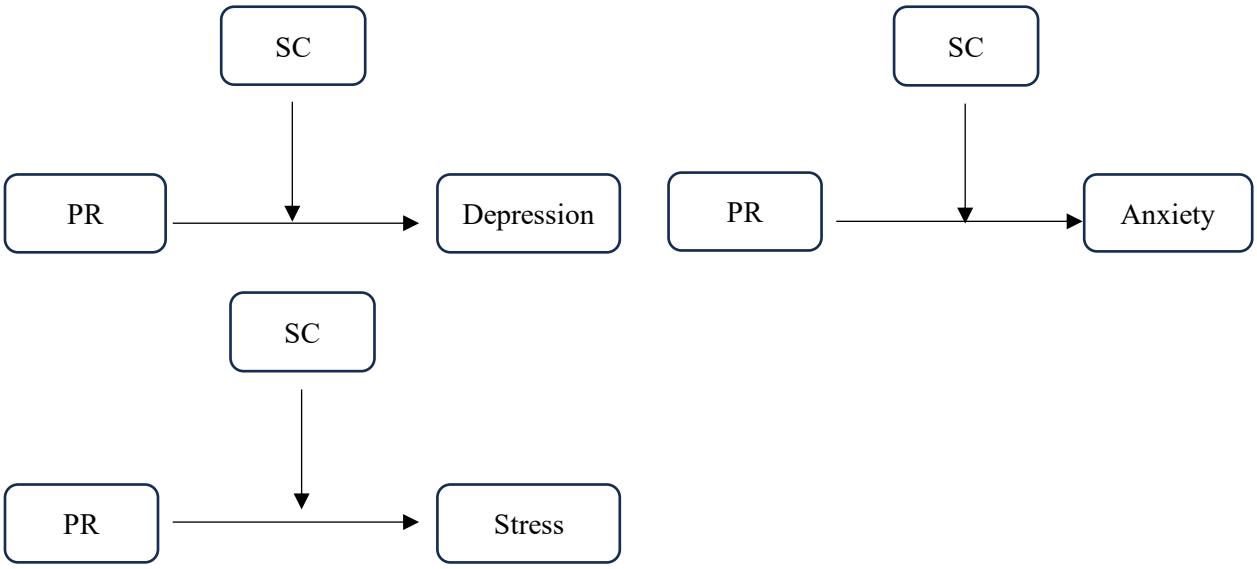
Pathway Model 1



Note. TD = typically developing. PR = peer rejection. RS = rejection sensitivity. SC = self-compassion.

Figure 2

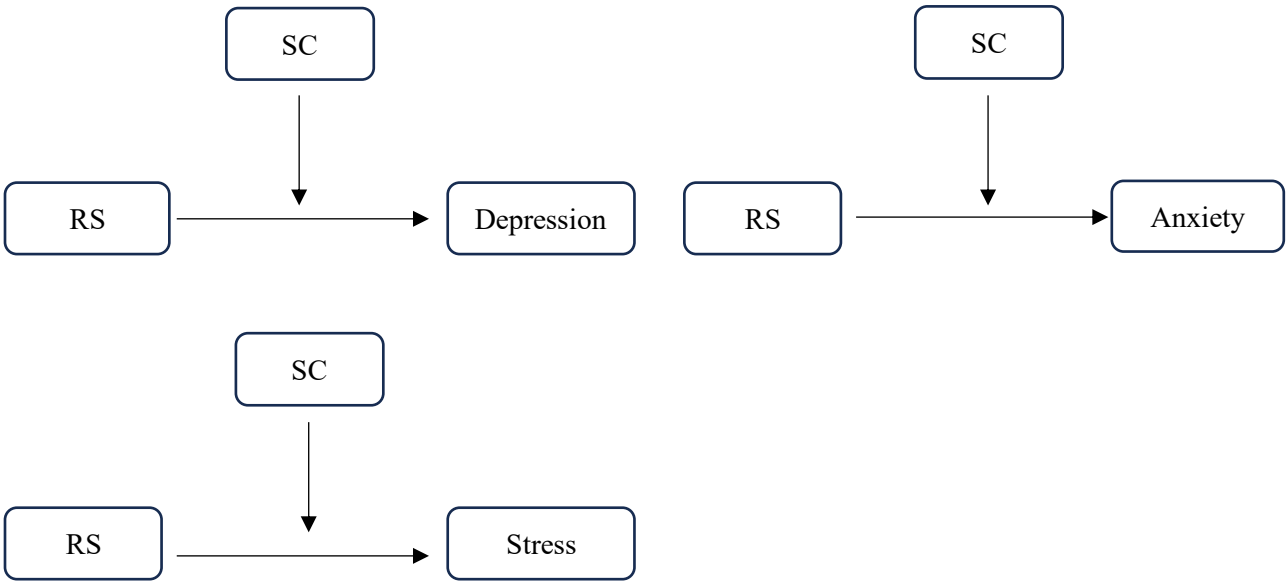
Peer Rejection (PR) Moderation Models



Note. Each model was run for both developmental groups (i.e., typically developing and ADHD) individually. PR = peer rejection. SC = self-compassion.

Figure 3

Rejection Sensitivity (RS) Moderation Models



Note. Each model was run for both developmental groups (i.e., typically developing and ADHD) individually. RS = rejection sensitivity. SC = self-compassion.

It was hypothesized that developmental group would significantly predict the incidence of social concerns and severity of psychological distress, self-compassion would significantly moderate the influence of social concerns on psychological distress, and these effects would vary for each developmental group. Several hypotheses were explored:

H1: If developmental group significantly predicts social difficulties, then emerging adults with ADHD will report more PR experiences and higher RS levels compared to typically developing emerging adults.

H2a: If social difficulties significantly predict psychological distress, then more PR experiences and higher RS levels will predict greater depressive and anxiety symptoms and perceived stress levels in emerging adults with ADHD and typically developing emerging adults.

H2b: If social difficulties significantly predict psychological distress, then high RS levels will more strongly predict greater depressive and anxiety symptoms and perceived stress levels than more PR experiences in emerging adults with ADHD and typically developing emerging adults.

H2c: If social difficulties differentially predict psychological distress for each developmental group independently, then more PR experiences and higher RS levels will predict greater depressive and anxiety symptoms and perceived stress levels in emerging adults with ADHD relative to typically developing emerging adults.

H3a: If self-compassion significantly moderates the influence of varying incidences of social difficulties on psychological distress, then high self-compassion will significantly weaken the impact of PR and RS on depressive and anxiety symptoms and perceived stress levels to lower levels of psychological distress in emerging adults with ADHD and typically developing emerging adults.

H3b: If self-compassion significantly moderates the differential influence of varying incidences of social difficulties on psychological distress, then the moderating effect of self-compassion on the differential effects of PR and RS for each developmental group will be stronger for emerging adults with ADHD relative to typically developing emerging adults. Specifically, self-compassion will more significantly weaken the impact of PR and RS on depressive and anxiety symptoms and perceived stress levels for emerging adults with ADHD relative to typically developing emerging adults, demonstrated by a greater drop in psychological distress.

Methods

Participants

Following ethics approval from the Wilfrid Laurier University (WLU) ethics board, participants from the Waterloo and Brantford campuses were recruited through the university's

Psychology Research Experience Program (PREP); an undergraduate psychology student database and participant recruiting tool. Students were invited to participate remotely through non-technical study recruitment postings outlining the study's overall objective, duration , compensation (i.e., participation credit toward a first-year psychology course), and eligibility criteria. A second recruitment posting, consisting of the same information, was advertised specifically toward undergraduates with ADHD to improve the study's chances of recruiting a sufficient sample size. An a priori power analysis was conducted using G*Power version 3.1.9.7 (Faul et al., 2007) to calculate the minimum sample size required to test the study hypotheses. Results suggested that the necessary sample size to achieve 80% power for detecting a small effect, at a significance of $\alpha = .05$, was $N = 395$. To obtain an optimal sample size, the present study aimed to recruit 400 emerging adults between the ages of 17 and 22, with 50 percent with no clinical diagnosis of ADHD (i.e., typically developing) and 50 percent clinically diagnosed with ADHD ($n_{ADHD} = 200$; $n_{TD} = 200$).

Recruitment efforts yielded an initial sample of 1112 participants. A Little's missing completely at random (MCAR) analysis was conducted to determine whether the dataset had a pattern of missing values. The analysis yielded a significant chi-squared value ($p < .05$), suggesting that the missing values were not missing at random. Thus, listwise deletion was employed. Participants were excluded from the analyses if they reported any other neurodevelopmental (e.g., autism spectrum disorder, learning and intellectual disorders, neurogenetic disorders, and fetal alcohol spectrum disorders), personality (e.g., borderline, paranoid, and avoidant personality disorder), or cognitive disorders (e.g., obsessive-compulsive disorder, schizophrenia, bipolar affective disorder, posttraumatic stress disorder) to control for other traits and symptomology that may influence the variables measured in this study.

Participants were also excluded if they did not provide demographic information, had missing responses, or responded incongruently to more than half of forward- and reverse-coded item pairs in the survey. In other words, reverse-coded items acted as an attention check. After thorough data cleaning, 604 participants were included in the analysis (N = 604; 72.3% female, 26.5% male, 1.2% non-binary; M_{age} = 18 years, SD_{age} = .97). A total of 47.8 % (n_{TD} = 289) of participants from the final sample were "assigned" to the Typically Developing (i.e., control) group and 52.2% (n_{ADHD} = 315) of participants in the ADHD group. The self-identified racial and ethnic composition of the total sample was 63.1% White, 16.7% South Asian, 9.8% East or Southeast Asian, 6.3% Black, African, or Caribbean, 5.8% Middle Eastern, 3% Latin American, 1% West Asian, .7% Indigenous, and 1.2% Other.

Measures and Materials

Self-report questionnaires were administered electronically through Qualtrics. Prior to completing any measures, participants were presented with an information letter about the study and provided informed consent (please see Appendix A for the informed consent form). Subjects completed the demographic questionnaire first, with subsequent measures administered in a randomized order to minimize bias. Participants were asked to complete the questionnaires independently on their devices (e.g., cellphones, tablets, laptops) with access to the internet. After completing the self-report measures, participants responded to a qualitative question asking them to reflect on a positive experience before exiting the survey to deter participants from experiencing rumination and negative affect.

Emerging Adult Questionnaire

The emerging adult self-report questionnaire included the demographic questionnaire, the Center for Epidemiological Studies Depression Scale (CES-D), the State-Trait Anxiety Inventory

– Trait Anxiety Inventory (STAI-TAI), Perceived Stress Scale (PSS), the Experience of Social Exclusion (ESE) Scale, the Rejection Sensitivity Adult Questionnaire (A-RSQ), the Self-Compassion Scale (SCS), and a qualitative reflection question.

Demographic Information

Participants were asked to share and self-report demographic information, including their age, gender, and ethnicity. The items in the survey were open-ended (e.g., "Please specify your age…") and closed-ended (e.g., "Which of the following best describes your ethnicity?"). Research subjects were also asked to voluntarily disclose an ADHD diagnosis (e.g., "Are you/have you ever been diagnosed with attention-deficit/hyperactivity disorder (ADHD)?") through a closed-ended question with the options: '*yes,'* '*suspected/self-diagnosed ADHD,'* '*no,'* and '*would rather not say.'* They were also asked to disclose any other formal diagnoses of a neurodevelopmental or cognitive disorder (e.g., "Are you/have you ever been formally diagnosed with any developmental or cognitive disorders and/or delays other than ADHD?"). The demographic questionnaire was constructed to obtain background information on the participants and context for the data obtained (see Appendix B for the questionnaire).

"Developmental Group"

Participants completed the 18-item Adult ADHD Self-Report Scale version 1.1 (ASRS v1.1; Kessler et al., 2005), developed on behalf of the World Health Organization, to measure ADHD symptoms. This scale was developed not to diagnose individuals with ADHD but as a screening scale for ADHD symptomology. In anticipation of a scenario in which we could not recruit an adequate sample size of those formally diagnosed with ADHD, we incorporated the ASRS v1.1 so that participants who scored at or beyond the threshold of ADHD could be included in the ADHD group at the time of analysis. As our goal sample size was surpassed, this

measure was not used to ensure an adequate sample size but to confirm that their self-disclosed developmental group aligned with their ASRS v1.1 score to assign participants to either the typically developing or ADHD group. The original version of the scale, the ASRS v1.1, can accurately identify (i.e., with an appropriate level of sensitivity) approximately 70% of people with ADHD and is reported to have high internal consistency ($\alpha = .84$; Adler et al., 2006). The more recent ASRS-5, an updated scale version, is reported to identify more than 90% of people with ADHD accurately (Ustun et al., 2017). Despite the higher sensitivity of the ASRS-5, the present research employed the ASRS v1.1 in line with current Canadian ADHD practice guidelines requiring the use of the ASRS v1.1 to screen individuals over 18 years old for ADHD (CADDRA, 2018).

The ASRS v1.1, which from this point on will be referred to as the ASRS, consists of two parts, Part A and Part B. Part A has six questions inquiring about various hyperactive-impulsive and inattentive symptoms associated with ADHD (e.g., “How often do you have problems remembering appointments or obligations?”). Part B is comprised of 12 questions furthering assessing the same categories of symptoms as Part A (e.g., “How often do you have difficulty concentrating on what people say to you, even when they are speaking to you directly?”). Participants responded to items on a 5-point Likert scale with the frequency at which they experienced symptoms of ADHD in the last six months (0 = *never*, 4 = *very often*). Although both parts of the ASRS were completed, only responses to Part A were used to score the measure as advised by the instructions provided by Kessler and colleagues (2005). To pass the screening threshold for ADHD, participants had to respond to at least four of the six items in Part A with *often* (3) or *very often* (4) and have a sum score of 14 or higher across all six items. Sum scores for Part A ranged from 0 to 24. Participants who reported a formal diagnosis of ADHD were

automatically assigned to the ADHD group regardless of scores on the ASRS, as the demographic questionnaire did not inquire about treatments and supports (e.g., medication, ADHD coaching, academic accommodations) that could help manage symptoms. Subjects that identified as self-diagnosed with ADHD, without ADHD (i.e., no formal or self-diagnosis), or did not disclose diagnostic status were assigned to the ADHD group if they met the threshold for ADHD according to the scoring above (n = 6) or the typically developing group if they did not (n = 7). Like past literature, an internal validity analysis of SPSS yielded a high internal consistency score for Part A of the scale (α = .78; see Appendix C for the complete scale).

Psychological Distress

Psychological stress for each participant was measured across the three components of psychological distress reported on by Marsh and colleagues (2018) – symptoms of depression, anxiety, and perceived stress levels – using self-report questionnaires. Pathological thresholds for each component of psychological distress are identified below; however, we did not use them as a diagnostic tool but rather as a tool to indicate the severity of symptoms.

Participants' *depressive symptoms* were measured using the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977), designed to assess feelings of depression experienced by individuals within the past week. The CES-D is comprised of 20 items (e.g., "I felt that everything I did was an effort") on a 4-point response scale ranging from 0 (*rarely or none of the time – less than one day)* to 3 (*most or all of the time – five to seven days)* where higher scores indicate higher levels of depressive symptoms. Items 4, 8, 12, and 16 were reverse scored (i.e., 0 = *3*, 3 = *0*). As instructed by Radloff (1977), a sum score was derived by calculating the sum, with possible scores ranging from 0 to 60. Scores above 24 indicate severe depressive symptomology. Many recent studies have reported a high internal consistency (α

= .82 to .91) across emerging and older adults cross-culturally (Sakakibara et al., 2009; Shi et al., 2022). Congruent to previous literature, results from a reliability analysis conducted via SPSS for this study maintained high internal consistency across the CES-D (α = .92; see Appendix D for the complete measure).

The 20-item State-Trait Anxiety Inventory (STAI; Spielberger et al., 1983) was employed to measure *anxiety*. The 40-item STAI consists of two sub-inventories, the State Anxiety Inventory (STAI-S) and Trait Anxiety Inventory (STAI-T), assessing different dimensions of anxiety symptoms. The STAI-S consists of 20 statements assessing individuals' current emotional state (e.g., "I feel upset..."). The STAI-T consists of 20 statements assessing individuals' anxiety-related traits and general feelings across time (e.g., "I lack self-confidence…"), responded to on a 4-point scale (1 = *almost never*, 4 = *almost always*), with half of the items (1, 3, 6, 7, 10, 13, 14, 16, 19) reverse coded (i.e., 1 = *4*, 4 = *1*). For the objective of the present study, the STAI-S was omitted from the survey, and only the STAI-T was completed by participants. A sum score was calculated using the sum scores across items in the STAI-T, with scores ranging from 20 to 80, with higher scores indicating higher levels of trait anxiety and anxiety symptomology. Scores over 39 pass the pathological threshold for anxiety. Consistent with recent studies with adolescents reporting a high internal consistency (α = .86; Philippot et al., 2019), a reliability analysis conducted via SPSS for this test revealed a high internal consistency for the STAI-T (α = .89; see Appendix E for complete measure).

Stress was measured using the Perceived Stress Scale (PSS; Cohen et al., 1983). The PSS is a 10-item questionnaire assessing perceived personal stress experienced within the past month (e.g., "In the last month, how often have you felt nervous or stressed?"). The scale was designed to evaluate how various situations impact an individual's feelings and perceived stress level.

Questions are responded to on a 5-point Likert scale (0 = *never*, 4 = *very often*), except items 4, 5, 7, and 8, which were reverse scored (i.e., 0 = *4*, 4 = *0*; see Appendix F for the full measure). The sum scores of each item were totalled to calculate a composite score for the measure. Higher scores suggest higher levels of perceived personal stress, with possible scores ranging from 0 to 40. Scores over 27 are considered high perceived stress. A high internal consistency for the present data was yielded from an analysis in SPSS (α = .82), reflecting the internal consistencies reported in recent research in adolescents and emerging adults (α = .80 to .86; Denovan et al., 2019; Lindholdt et al., 2022).

Peer Rejection

To measure *Peer Rejection* more objectively, we employed the 17-item Experience of Social Exclusion Scale (ESE; Masui et al., 2013; Yanagisawa et al., 2010) to assess the frequency of experiences of rejection from participants' peers. The ESE was initially constructed in Japanese, and an English version, used in the present study, was subsequently developed and reported to have a high internal consistency (α = .88; Masui et al., 2013). The measure was constructed to evaluate the frequency that individuals experienced different instances of social exclusion during interactions with friends over the past three months. Some items in the ESE were slightly modified for the present study to make social situations more applicable to Western culture (e.g., question 12 was modified from "You were invited to go shopping by your friends" to "You were invited to go out by your friends."). Participants responded with how often they experienced occurrences of exclusion (e.g., "You sent a text to your friend, but did not get a response.") on a 5-point Likert scale (0 = *not at all*, 4 = *very often*; see Appendix E), or how often they experienced occurrences of inclusion (e.g., Your friend asked you for advice.") for reverse-coded items (i.e., items 2, 4, 6, 8, 12, 13, 16, 17; 0 = *4*, 4 = *0*) in the last three months.

The inclusion of items inquiring about experiences of social inclusion was intended to prevent priming participants for negative affect and social exclusion. Composite scores, with possible scores ranging from 0 to 68, were determined by summing the scores of each item. Higher scores indicated higher levels of PR. An internal consistency analysis on SPSS revealed a high internal consistency for the present study (α = .86; see Appendix G for the complete modified measure).

Rejection Sensitivity

The Rejection Sensitivity Adult Questionnaire (A-RSQ; Berenson et al., 2009) is a modified version of the original RSQ developed by Downey and Feldman (1996) and was used in this study to measure *sensitivity to rejection*. The 9-item A-RSQ assesses individuals' predisposition to anxiously expect and be sensitive to perceived rejection (α = .89; Berenson et al., 2011). Each item comprises a hypothetical social situation with a person in their life (e.g., friend, family, co-worker) followed by a question gauging rejection concern and a statement gauging acceptance expectancy. For each situation (e.g., You ask your parents or another family member for a loan to help you through a difficult financial situation.", participants responded on a 6-point scale with the level of anxiety they felt regarding the outcome (e.g., "How concerned or anxious would you be over whether or not your family would want to help you?"; 1 = *very unconcerned*, 6 = *very concerned*), and the perceived likelihood that they would be accepted by the other person in that situation (e.g., "I would expect that they would agree to help me as much as they can."; 1 = *very unlikely*, 6 = *very likely*). Statements inquiring about acceptance expectancy were reverse-coded to obtain a rejection expectancy score (1 = *very likely*, 6 = *very unlikely*). Scores for each situation were calculated by weighting (i.e., multiplying) the anxiety felt about a situation by their expectation that they would be rejected, with scores ranging from 1 to 36. To calculate a composite score for the entire measure, scores for each situation were

summed up and averaged. Possible composite scores range from 1 to 36, and higher scores indicate higher levels of RS. Internal consistency for the current data, as indicated by an analysis in SPSS, was high (α = .89; see Appendix H for the full measure).

Self-Compassion

The Self-Compassion Scale (SCS) developed by Neff (2003a) employs 26 items to assess individuals' levels of *self-compassion*. In the present study, the SCS was used to evaluate global and local (i.e., component-specific) levels of self-compassion. The scale consists of six subscales, two for each of the three components of self-compassion: Self-Kindness (items 5, 12, 19, 23, 26) and Self-Judgement items (1, 8, 11, 16, 21), Common Humanity (3, 7, 10, 15) and Isolation (items 4, 13, 18, 25), and Mindfulness (9, 14, 17, 22) and Over-Identification (items 2, 6, 20, 24). Items inquired about various self-compassionate thoughts and behaviours and were responded to on a 5-point Likert Scale (e.g., "I'm kind to myself when I'm experiencing suffering."; 1 = *almost never*, 5 = *almost always*). The Self-Judgement, Isolation, and Over-Identification subscales were reverse scored (i.e., 1 = *5*, 5 = *1*) as they reflected negative behaviours and thoughts. Subscale scores were calculated by averaging subscale item responses. A global self-compassion score was computed by calculating the mean of subscale scores. Possible subscale and global scores range from 1 to 5. Higher subscale and global scores indicate higher levels of self-compassion. While there are no formal cut-off scores for the SCS, informally, scores from 3.5 to 5 are considered to indicate high levels of self-compassion. Previous research reports high internal consistency for global self-compassion (α = .92) and across all six subscales (α = .75 to .81; Neff & Tóth-Király, 2022). Analyses conducted in SPSS to compute internal consistency for the current study evidenced high internal consistencies for

global self-compassion (α = .93) and across all subscales (α = .75 to .85; see Appendix I for complete scale).

Positive Interpersonal Experiences

One open-ended question was included at the end of the questionnaire to allow participants to end the study on a positive note and counteract rumination or negative affect potentially experienced when completing the other measures on PR, RS, and mental health outcomes. Participants were prompted to write a short reflection on positive aspects of their close interpersonal relationships in response to a qualitative question (i.e., "Please share a recent positive experience with a friend, family member, co-worker, community member, or pet.") after completing all other measures in the questionnaire. As this question did not directly apply to the present research's objectives, participants' responses were not analyzed at this time (please see Appendix J for the qualitative reflection question).

Results

The current study examined the connections among ADHD status (i.e., "developmental group"), Peer Rejection (PR), Rejection sensitivity (RS), psychological distress (i.e., symptoms of depression and anxiety and perceived personal stress levels), and self-compassion in emerging adults.. Descriptive analyses were conducted to examine numerous variables associated with emerging adults' varying developmental identities (AKA developmental groups), peer rejection experiences, rejection sensitivity levels, and psychological distress. For both the ADHD and typically developing groups, standardized values of PR, RS, self-compassion, depressive symptoms, anxiety symptoms, and perceived personal stress levels were reported. Correlational analyses were run to examine the relationships among the predictor and outcome variables. Preliminary analyses were conducted to evaluate the linear relationships between age and PR,

RS, depression, anxiety, and stress; the same preliminary analyses ran for age were conducted for gender. The results evidenced significant correlations between age and both developmental group and RS. Significant correlations were also found between gender and depression, anxiety, PR, RS, and self-compassion. Main analyses focused on discerning how differences in PR experiences and RS levels differentially predict psychological distress (i.e., symptoms of depression and anxiety and perceived levels of personal stress) and how self-compassion moderates this influence in emerging adults with ADHD and typically developing emerging adults, after controlling for the influence of age and gender. To test the hypotheses, models 1 and 15 of Hayes' (2023) "PROCESS" macro version 4.3.1 in SPSS Statistic Version 28 (IBM Corp., 2021) were employed. Preliminary analyses revealed no violations of assumptions for multicollinearity, homoscedasticity, normality, outliers, and linearity for models with PR, depression, or anxiety as the dependent (i.e., outcome) variable. Models with RS or stress as the outcome variable violated assumptions for homoscedasticity. Methods were employed to address heteroscedasticity. Moderation and moderated mediation analyses to test our hypotheses yielded significant moderation (i.e., conditional), mediation (i.e., indirect), and moderated mediation (i.e., conditional indirect) effects.

Descriptive Analyses

Descriptive analyses were employed to evaluate variables central to our research goals (i.e., PR, RS, self-compassion, depression, anxiety, and stress) for both developmental groups (i.e., typically developing and ADHD) and the entire sample (see Table 1). Independent sample *t*-tests (two-tailed) were conducted to assess differences between the typically developing and ADHD-diagnosed groups across these variables. Please see Table 1 for group means, standard deviations, *t*-test results, and effect sizes.

Findings suggested that, on average, participants reported few experiences of PR; as a result, producing low PR scores with 62.3% of participants (n = 382) reporting scores below the mean (i.e., of the total sample; M = 20, SD = 9, Min. = 1.00, Max. = 50.00). Analyses revealed that subjects in the ADHD group experienced significantly more PR than their typically developing peers. Similarly, results indicated that participants reported low levels of RS on average (M = 9.85, SD = 4.44, Min. = 1.00, Max. = 30.67), and 12.4% (n = 75) scored up to 2 standard deviations below the mean. Findings also reported that typically developing participants had significantly lower levels of RS than participants with ADHD.

Descriptive analyses of psychological distress indicated that participants generally reported high levels of depression (M = 26, SD = 12, Min. = 0.00, Max. = 59.00) and anxiety symptoms (M = 52, SD = 11, Min. = 22.00, Max. = 79.00), thus, scoring high on both variables and surpassing the thresholds for severe symptomology. Additionally, participants reported moderate stress levels, as indicated by their mean perceived personal stress scores (M = 24, SD = 6, Min. = 6.00, Max. = 37.00). When examining group-specific averages, findings revealed that typically developing individuals experienced moderate levels of depression. In contrast, individuals with ADHD remained within the parameters of severe depression. Both the typically developing group and ADHD group remained beyond the threshold for high levels of anxiety. Interestingly, typically developing participants and participants with ADHD remained within the parameters for moderate stress levels; however, the mean for the ADHD group did approach the threshold for high stress levels. Independent samples t-tests revealed that individuals in the ADHD group experienced significantly higher levels of depression, anxiety, and stress than those in the typically developing group. Moreover, findings suggested that participants generally reported moderate levels of self-compassion. Analyses revealed a significant difference between

both groups, where typically developing participants higher levels of self-compassion than their peers with ADHD.

Table 1

Means, Standard Deviations, and Independent Samples t-tests for Adverse Social Outcomes, Psychological Distress, and Self-Compassion by Developmental Group

Variable	Developmental Group	*N*	*M*	*SD*	Min	Max	*t*-test[a]	df	d	95% Confidence Interval Lower	95% Confidence Interval Upper
Depression Symptoms	Typically Developing	289	22	11	0	51	8.81***	602	.72	.55	.88
	ADHD	315	30	12	4	59					
	Total Sample	604	26	12	0	59					
Anxiety Symptoms	Typically Developing	289	48	10	22	73	8.34***	602	.68	.52	.84
	ADHD	315	55	10	26	79					
	Total Sample	604	52	11	22	79					
Perceived Personal Stress Levels	Typically Developing	289	22	6	6	34	7.25***	575	.60	.44	.77
	ADHD	315	25	5	13	37					
	Total Sample	604	24	6	6	37					
PR	Typically Developing	289	18	9	1	44	4.69***	602	.38	.22	.54
	ADHD	315	22	10	2	50					
	Total Sample	604	20	9	1	50					
RS	Typically Developing	289	8.73	3.82	1.22	26.33	6.12***	574	.50	.34	.66
	ADHD	315	10.88	4.71	1.00	30.67					
	Total Sample	604	9.85	4.44	1.00	30.67					
Self-Compassion	Typically Developing	289	2.89	.63	1.31	4.83	-6.42***	602	-.52	-.69	-.36
	ADHD	315	2.57	.59	1.13	4.07					
	Total Sample	604	2.72	.63	1.13	4.83					

Note. PR = peer rejection. RS = rejection sensitivity. ***p < 0.001 (2-tailed).

[a]Independent samples t-test comparing group means between participants with ADHD and typically developing participants. Positive values t-test values indicate higher averages for participants in the ADHD group compared to those in the typically developing group, and negative values indicate lower averages for participants in the ADHD group compared to those in the typically developing group.

Correlations

Bivariate correlations using Pearson's *r* were conducted to determine whether statistically significant linear relationships surfaced between the study's variables for the ADHD group (see Table 2) and the typically developing group (see Table 3). The results of the bivariate correlations in the ADHD group evidenced that the mediating variables, PR and RS, were positively and significantly correlated ($r(313) = .212$, $p < .01$), indicating that more experiences of PR were associated with increasing levels of RS. Both mediators demonstrated significant linear relationships with depression and anxiety ($rs(313) > .248$, $ps < .01$), where increases in PR and RS were associated with increases in depression and anxiety symptoms. Unexpectedly, results indicated that RS, but not PR, was significantly correlated with stress levels, where higher RS levels were linked to higher perceived stress levels ($r(313) = .402$, $p < .01$) for participants with ADHD. Moreover, findings suggested that PR ($r(313) = -.155$, $p < .001$) and RS ($r(313) = -.474$, $p < .01$) had significant negative correlations with the moderator, self-compassion. That is, increases in PR and RS were associated with lower levels of self-compassion. Self-compassion shared similar statistically significant linear relationships with depression, anxiety, and stress ($rs(313) > -.592$, $ps < .01$), where self-compassion was negatively correlated with each component of psychological distress. Finally, analyses revealed that depression, anxiety, and stress shared significant positive linear relationships amongst themselves, $rs(313) > .649$, $ps < .01$. In other words, higher levels of depression, anxiety, or stress were associated with higher levels of the other two psychological distress facets in emerging adults with ADHD.

Bivariate correlations conducted for the typically developing group revealed that PR and RS shared a significant linear relationship ($r(287) = .415$, $p < .01$), suggesting that more PR experiences were associated with higher RS levels. Both mediators had significant and positive

correlations with all three facets of psychological distress ($rs(287) > .131$, $ps < .05$), where increases in PR and RS were associated with higher levels of depression, anxiety, and stress in typically developing participants. Additionally, PR ($r(287) = -.223$, $p < .01$) and RS ($r(287) = -.436$, $p < .01$) were significantly and negatively correlated with self-compassion. Specifically, in emerging adults without ADHD, increases in PR and RS were linked to lower self-compassion. The moderator also shared significant negative linear relationships with depression, anxiety, and stress, $rs(287) > -.607$, $ps < .01$. Namely, in the typically developing group, higher self-compassion was associated with decreases in all three psychological distress facets. Lastly, results demonstrated that depression, anxiety, and stress were significantly and positively correlated with one another ($rs(287) > .683$, $ps < .01$), where increases in depression, anxiety, or stress were associated with increases in the other two psychological distress facets.

Preliminary Analyses

Pearson's correlation coefficients were calculated to examine the linear relationships between age and our target variables in each group independently. As shown in Table 2, findings revealed that, in the ADHD group, age (i.e., in years) had a statistically significant and positive linear relationship to RS only ($r(313) = .115$, $p < .01$). In contrast, results indicated that, for typically developing participants, age was significantly and positively associated with both RS ($r(287) = .128$, $p < .05$) and self-compassion ($r(287) = .120$, $p < .05$; see Table 3). As the variable Gender was coded as a multicategorical variable, it was not included in bivariate correlation analyses. However, a rich area of literature evidences gender differences across different dimensions of mental health (Rosenfield & Smith, 2010), PR (Buitelaar et al., 2011; Mikami & Hinshaw, 2003), RS (Scharf et al., 2014), and self-compassion (Yarnell et al., 2015). Thus, age and gender were included as covariates in the moderated mediation and moderation models.

Table 2

Bivariate Correlations for Age, Adverse Social Outcomes, Psychological Distress, and Self-Compassion in Participants with ADHD

Variable	1	2	3	4	5	6	7
1. Age	–						
2. Depression Symptoms	-.020	–					
3. Anxiety Symptoms	.062	.744**	–				
4. Perceived Personal Stress	-.013	.650**	.710**	–			
5. Peer Rejection	.077	.335**	.249**	.070	–		
6. Rejection Sensitivity	.115**	.346**	.555**	.402**	.212**	–	
7. Self-Compassion	-.050	-.593**	-.776**	-.713**	-.155**	-.474**	–

Note. *p < 0.05 (2-tailed). **p < 0.01 (2-tailed).

Table 3

Bivariate Correlations for Age, Adverse Social Outcomes, Psychological Distress, and Self-Compassion in Typically Developing Participants

Variable	1	2	3	4	5	6	7
1. Age	–						
2. Depression Symptoms	.040	–					
3. Anxiety Symptoms	.018	.771**	–				
4. Perceived Personal Stress	-.022	.683**	.685**	–			
5. Peer Rejection	-.036	.368**	.322**	.132*	–		
6. Rejection Sensitivity	.128*	.415**	.495**	.291**	.415**	–	
7. Self-Compassion	.120*	-.608**	-.746**	-.633**	-.223**	-.436**	–

Note. *p < 0.05 (2-tailed). **p < 0.01 (2-tailed).

Hayes' (2023) "PROCESS" macro version 4.3.1, used in our main analyses, tests simple and complex models for conditional and indirect effects using multiple regression. Hence, prior to conducting our main analyses to test the hypotheses, preliminary tests were run to identify any violation of assumptions for multicollinearity, homoscedasticity, normality, and linearity. Our preliminary analyses revealed no violation in the assumptions listed for paths and models with PR, depressive symptomology, or anxiety symptomology as the outcome variable, indicating it was safe to continue. In contrast, paths and models where RS or perceived stress were outcome variables violated homoscedasticity, as indicated by significant Breusch-Pagan tests against heteroscedasticity (non-constant variance) in SPSS. To address the violations, a threshold for Cook's distance was calculated to identify influential outliers for each violating variable. Cook's distance measures the residuals and leverage (i.e., the difference of an observation from the variable mean, where higher leverage increases the probability of the observation changing regression parameters) of each observation to determine their influence. Cases (i.e., participants) with a Cook's distance beyond the calculated threshold were interpreted as outliers with too much influence and removed listwise to create a "clean" data set for each variable.

After removing cases listwise with A_RSQ values, a new dataset was created that surpassed the Cook's distance threshold set for rejection sensitivity (N = 576; M_{age} = 18; 72.2% female; 26.7% male, 1.1 % non-binary). The total developmental composition of this dataset was 51.4% participants (n = 296) with ADHD and 48.6% typically developing participants (n = 280). Analyses checking for multiple regression assumption violations found no violations, including homoscedasticity. Thus, proceeding with analyses where RS was an outcome variable was acceptable. The same procedure was undergone to create a new dataset for stress by removing cases containing PSS values that surpassed the Cook's distance threshold for the variable (N =

577; M_{age} = 18; 72.8% female; 26% male, 1.12% non-binary). This dataset comprised 52.9% participants with ADHD (n =305) and 47.1% typically developing participants (n = 272). After testing for assumptions, no violations were reported, allowing us to proceed with any main analyses where stress was the dependent variable.

Main Analyses

Model 15 of Hayes' PROCESS macro was utilized to evaluate whether developmental group, PR, and RS predict levels of depression, anxiety, and stress while controlling for the impact of age and gender. Moderation analyses also examined how self-compassion altered the relationship between our independent variable, developmental group, mediators, PR and RS, and outcome variables, depression, anxiety, and stress. Next, Model 1 of Hayes' PROCESS macro was employed to separately examine whether PR and RS predict depression, anxiety, and perceived personal stress levels and how these relationships are influenced by self-compassion differentially in the typically developing and ADHD groups. A final set of analyses was conducted in which each SCS subscale replaced self-compassion in the models illustrated in Figures 2 and 3.

Developmental Group, Adverse Social Outcomes, and Psychological Distress

To test our first hypothesis, we evaluated the effects of developmental group on PR and RS, where age and gender were entered as covariates. In predicting adverse social outcomes, developmental group significantly predicted PR (b = 3.276, p < .001, 95% CI [1.81, 4.74], R^2 = .059, F(3, 600) = 12.60, p < .001) and RS (b = 1.751, p < .001, 95% CI [1.16, 2.34], R^2 = .075, F(3, 572) = 11.68, p < .001), therefore indicating that ADHD is positively associated with more experiences of PR and higher levels of RS. Note that to examine the effects of developmental group on RS, the clean dataset for this path, as described under preliminary analyses, was

employed ($N = 576$; $n_{ADHD} = 296$, $n_{TD} = 280$). The models accounted for 5.93% of the variance in PR and 7.53% in RS, respectively.

The effects of developmental group, PR, and RS on depression symptoms were explored by entering PR and RS as mediators (i.e., instead of outcomes variables) to examine the hypotheses for our second research question. Developmental group had a direct effect on depression as demonstrated by a positive and significant linear relationship ($b = 3.69$, $p < .001$, 95% CI [2.25, 5.13], $R^2 = .510$, $F(9, 594) = 68.55$, $p < .001$). In other words, ADHD predicted an increase in depressive symptomology. Both PR and RS significantly predicted depression, where more experiences of PR and higher levels of RS predicted higher levels of depressive symptomology (i.e., peer rejection, $\beta = .275$, $p < .001$, 95% CI [.19, .36], $R^2 = .510$, $F(9, 594) = 68.55$, $p < .001$; i.e., rejection sensitivity, $\beta = .406$, $p < .001$, 95% CI [.20, .61], $R^2 = .510$, $F(9, 594) = 68.55$, $p < .001$).

To examine the influence of developmental group, PR, and RS on anxiety symptoms, we ran the same analyses for anxiety as we did for depression. Congruent to its relationship with depression, developmental group directly predicted anxiety symptoms in that ADHD was associated with increased symptoms of anxiety ($b = 2.049$, $p < .001$, 95% CI [1.01, 3.08], $R^2 = .676$, $F(9, 594) = 137.39$, $p < .001$). Analyses of the mediating effects of PR and RS on anxiety indicated that both PR ($\beta = .106$, $p < .001$, 95% CI [.05, .16], $R^2 = .676$, $F(9, 594) = 137.39$, $p < .001$) and RS ($\beta = .540$, $p < .001$, 95% CI [.39, .69], $R^2 = .676$, $F(9, 594) = 137.39$, $p < .001$) were significant predictors of anxiety, where more PR experiences and higher RS levels predicted higher levels of anxiety symptoms.

Finally, the same analyses conducted for depression and anxiety were run to evaluate the predictive values of developmental group, PR, and RS for stress, using the clean dataset created

for models where stress was the outcome variable (N = 577). Results expectedly revealed that developmental group significantly predicted stress, suggesting that ADHD predicted higher levels of perceived personal stress (b = 1.330, p < .001, 95% CI [.70, 1.96], R^2 = .542, F(9, 567) = 74.54, p < .001). RS was found to be a significant predictor of stress (β = .186, p < .001, 95% CI [.09, .28], R^2 = .542, F(9, 567) = 74.54, p < .001), where higher levels of RS predicted increased perceived stress levels. Unexpectedly, findings revealed that PR was a significant negative predictor of stress (β = -.038, p < .05, 95% CI [-.075, -.002], R^2 = .542, F(9, 567) = 74.54, p < .001). That is, more experiences of PR predicted lower levels of perceived personal stress.

To review, emerging adults with ADHD experienced adverse social outcomes and psychological distress compared to their typically developing peers. In other words, emerging adults with ADHD experienced more rejection from their peers were more sensitive to rejection, and had higher levels of depression and anxiety symptoms, and stress. Additionally, emerging adults who experienced PR more frequently or had higher RS levels reported increased depression and anxiety. Those who reported higher RS levels also perceived themselves to have higher personal stress levels. In contrast, individuals who experienced more frequent PR yielded lower perceived stress levels. Please see Figure 4 for an illustration of these effects within the path analysis model.

The Moderating Role of Self-Compassion on Psychological Distress

Depression

To address our hypotheses on how self-compassion might moderate the influence of RS and PR on psychological distress (i.e., depressive and anxiety symptomology and perceived personal stress) in emerging adults with and without ADHD, self-compassion was entered into

the above models as a moderator (see Figure 4). Analyses revealed that self-compassion did not significantly moderate the relationship between PR and depression (β = -.084, p = .18, 95% CI [-.21, .04], R^2 = .510, F(9, 594) = 68.55, p < .001), nor RS and depression (β = -.084, p = .18, 95% CI [-.21, .04], R^2 = .510, F(9, 594) = 68.55, p < .001). Overall, as there were no significant interactions, there was no evidence of moderated mediation. However, there was a significant direct effect of self-compassion on depression, where higher levels of self-compassion predicted lower levels of depression (β = -8.480, p < .001, 95% CI [-10.32, -6.64], R^2 = .510, F(9, 594) = 68.55, p < .001). This model's main effects, interactions, and covariance accounted for 51% of the variance in depression.

Anxiety

Analyses of the direct effects of self-compassion on anxiety revealed that self-compassion was a statistically significant predictor of anxiety, where higher self-compassion predicted lower levels of anxiety (β = -9.624, p < .001, 95% CI [-10.94, -8.30], R^2 = .676, F(9, 594) = 137.39, p < .001). The same analyses conducted to explore the moderating role of self-compassion on depression were employed to elucidate its moderating effect on anxiety. Self-compassion did not have a significant interaction with PR, indicating that self-compassion does not moderate the effect of PR experiences on symptoms of anxiety (β = -.022, p = .62, 95% CI [-.11, .07], R^2 = .676, F(9, 594) = 137.39, p < .001).

In contrast, findings revealed that self-compassion significantly moderated the relationship between RS and anxiety (β = .247, p < .05, 95% CI [.08, .42], R^2 = .676, F(9, 594) = 137.39, p < .001). This finding, quite surprisingly, suggests that self-compassion exacerbates the consequences of RS in that the interaction between the two variables is linked to higher anxiety levels. A simple slopes analysis was run to inspect this relationship in greater detail (see Figure

5). For individuals with lower self-compassion, anxiety levels were higher when RS was also high (b = .383, t = 5.13, p < .001, 95% CI [.24, .53]). For individuals with higher self-compassion, anxiety levels were higher when RS was also high (b = .696, t = 6.28, p < .001, 95% CI [.48, .91]). However, while there was a more considerable moderating effect on RS and anxiety for those with higher self-compassion, those with lower self-compassion reported relatively higher anxiety symptoms when RS was low and high.

In summation, self-compassion significantly impacted anxiety in that the relationship between RS and anxiety was significantly moderated by self-compassion. Indeed, the interaction between self-compassion and RS predicted higher levels of anxiety. Simple slope analyses revealed that higher levels of self-compassion increased anxiety symptoms when accompanied by higher RS levels. The moderated mediation of anxiety was not supported when PR mediated the effect of developmental group, 95% CI [-.36, .26]. Conversely, results indicated that self-compassion significantly moderates the indirect effect of developmental group (i.e., ADHD) on anxiety through RS, thus indicating a statistically significant moderated mediation with confidence intervals outside of zero (moderated mediation index = .50, 95% CI [.10, .97]; please see Figure 4 for an illustration of self-compassion's moderating effects). Overall, the main, mediating, and moderating effects and covariance in this model account for 67.6% of the variance in anxiety.

Stress

Finally, the same tests were conducted to examine the direct effects of self-compassion on stress and whether and how self-compassion moderates the effects of developmental trajectory, PR, and RS on stress using the dataset filtered for Cook's distance violations (N = 577, n_{ADHD} = 305, n_{TD} = 272). Analyses on the direct effects of self-compassion on stress

revealed that self-compassion was a significant negative predictor of stress, where higher self-compassion was associated with lower perceived stress levels (β = -4.890, $p < .001$, 95% CI [-5.71, -4.07], $R^2 = .542$, $F(9, 567) = 74.54$, $p < .001$).

Moderation analyses revealed that self-compassion was indeed a significant moderator of the link between PR and stress (β = -.103, $p < .001$, 95% CI [-.16, -.05], $R^2 = .542$, $F(9, 567) = 74.54$, $p < .001$), where self-compassion weakened the impact of PR on stress, reducing perceived stress. Simple slope analyses were conducted to explore this interaction further. As illustrated in Figure 6, stress was not significantly higher when more PR was experienced ($b = .025$, $t = 1.13$, $p = .26$, 95% CI [-.02, .07]) for individuals with lower self-compassion. Conversely, for individuals higher in self-compassion, levels of personal stress were higher when more PR was experienced ($b = -.102$, $t = -3.64$, $p < .001$, 95% CI [-.16, -.05]). Overall, those with lower self-compassion reported relatively higher levels of stress regardless of PR, and those high in self-compassion reported relatively lower stress levels regardless of PR.

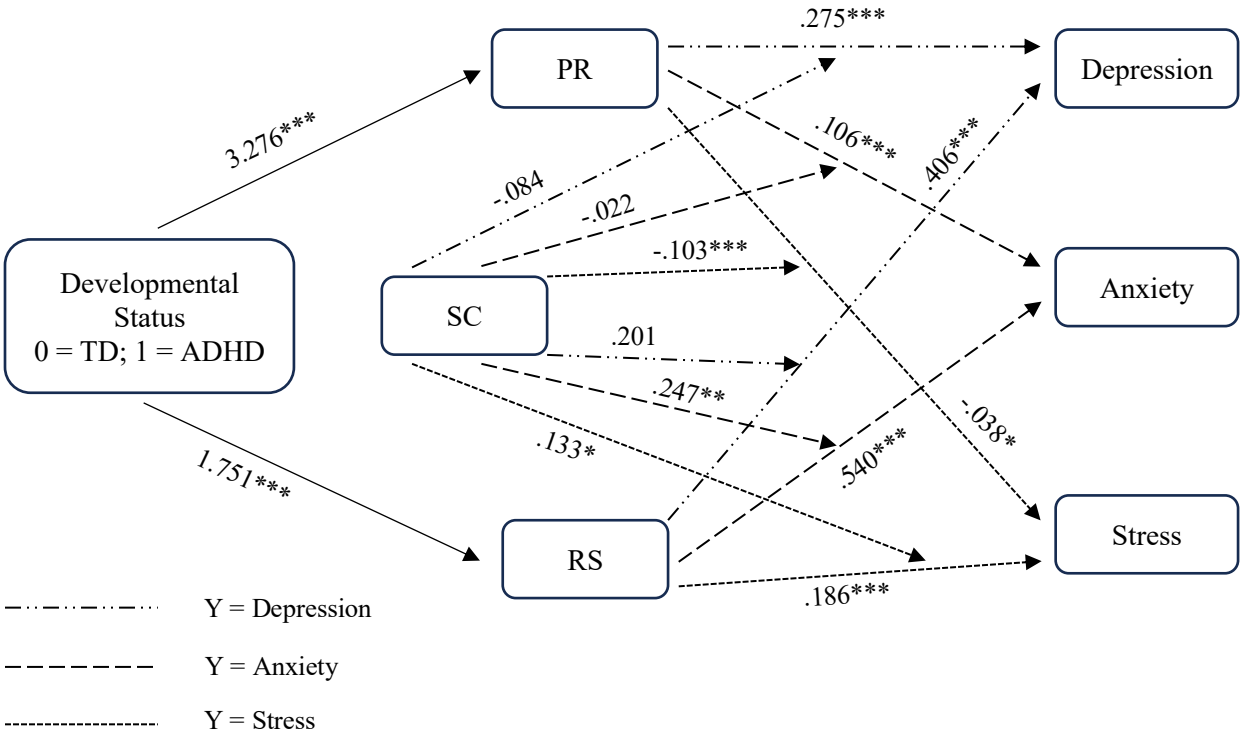
Next, moderation analyses were run to examine the effect of self-compassion on the association between RS and stress, revealing that self-compassion was a significant moderator of the relationship between RS and stress (β = .133, $p < .05$, 95% CI [.02, .25], $R^2 = .542$, $F(9, 567) = 74.54$, $p < .001$), where self-compassion worsened the impact of RS on stress, increasing perceived stress. Simple slopes were again performed to inspect this interaction further. As shown in Figure 7, for emerging adults with low self-compassion, personal stress levels were higher when RS was high ($b = .105$, $t = 2.24$, $p < .05$, 95% CI [.01, .20]). Similarly, for emerging adults with higher self-compassion, personal stress levels were higher when RS was high ($b = .268$, $t = 3.83$, $p < .001$, 95% CI [.13, .41]). Although self-compassion had a larger effect on the link between RS and stress when self-compassion was low compared to when it was high,

individuals with higher self-compassion had relatively lower stress levels overall, regardless of RS levels. Consequently, individuals with lower self-compassion reported experiencing higher levels of personal stress overall, notwithstanding RS levels.

In summary, self-compassion significantly moderated the effects of PR and RS on stress. Specifically, the interaction between self-compassion and PR predicted lower stress levels, where those higher in self-compassion experienced less stress when exposed to more PR. The interaction between self-compassion and RS predicted higher stress levels, where those high in self-compassion reported higher stress levels at higher levels of RS. Moreover, the overall moderated mediation model for stress comprised of our focal predictor, developmental group, and moderator, self-compassion, was supported for both mediators with PR's index of moderated mediation = -.34, 95% CI [-.56, -.15], and RS' index of moderated mediation = .26, 95% CI [.08, .48]. As zero is not within the confidence intervals, findings revealed a significant conditional (i.e., moderating) effect of self-compassion on the indirect effect of developmental group (i.e., ADHD) on stress via PR and RS (i.e., our mediators; please see Figure 4 for an illustration of self-compassion's moderating effects). This model, including main effects and covariance, accounted for 54.2% of the variance in stress.

Figure 4

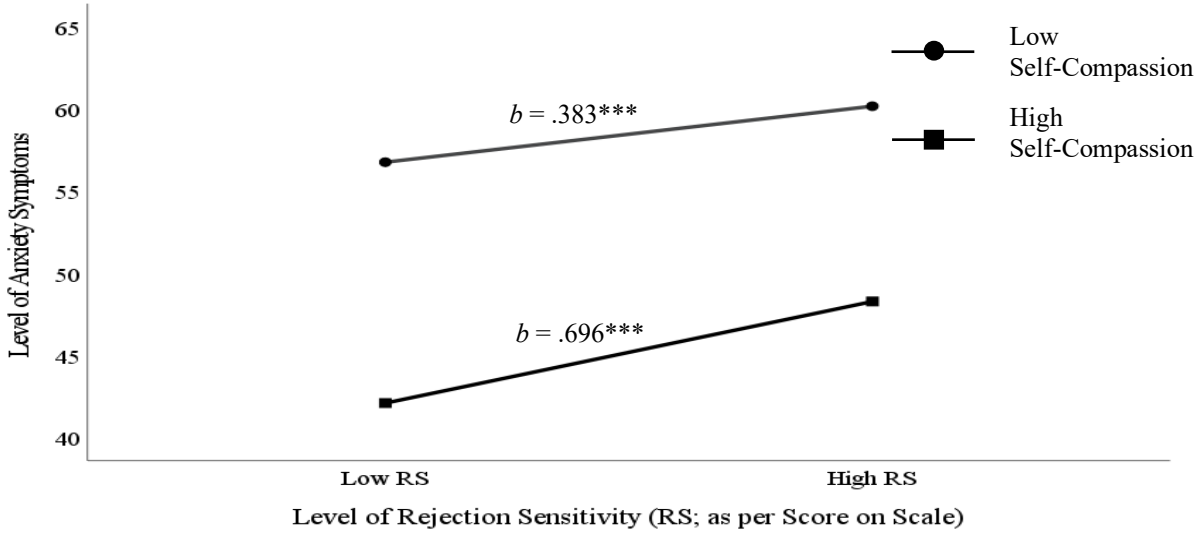
Pathway Model 1 Findings



Note. *p < 0.05. **p < 0.01. ***p < 0.001. TD = typically developing. PR = peer rejection. RS = rejection sensitivity. SC = self-compassion.

Figure 5

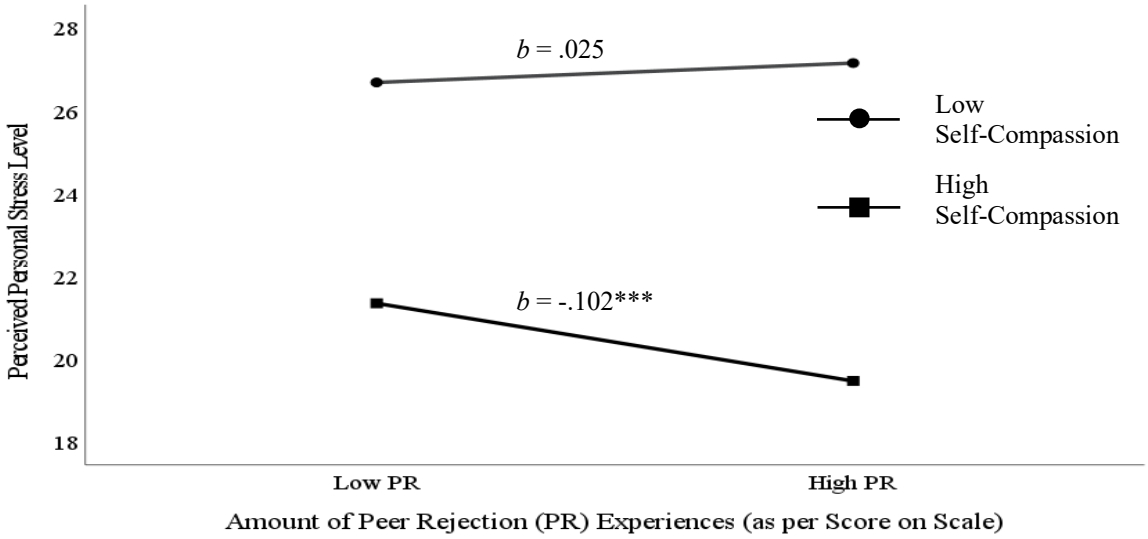
Simple Slopes Analysis of the Interaction Between Rejection Sensitivity and Self-Compassion for Anxiety Symptoms



Note. $N = 604$. *p < 0.05. **p < 0.01. ***p < 0.001.

Figure 6

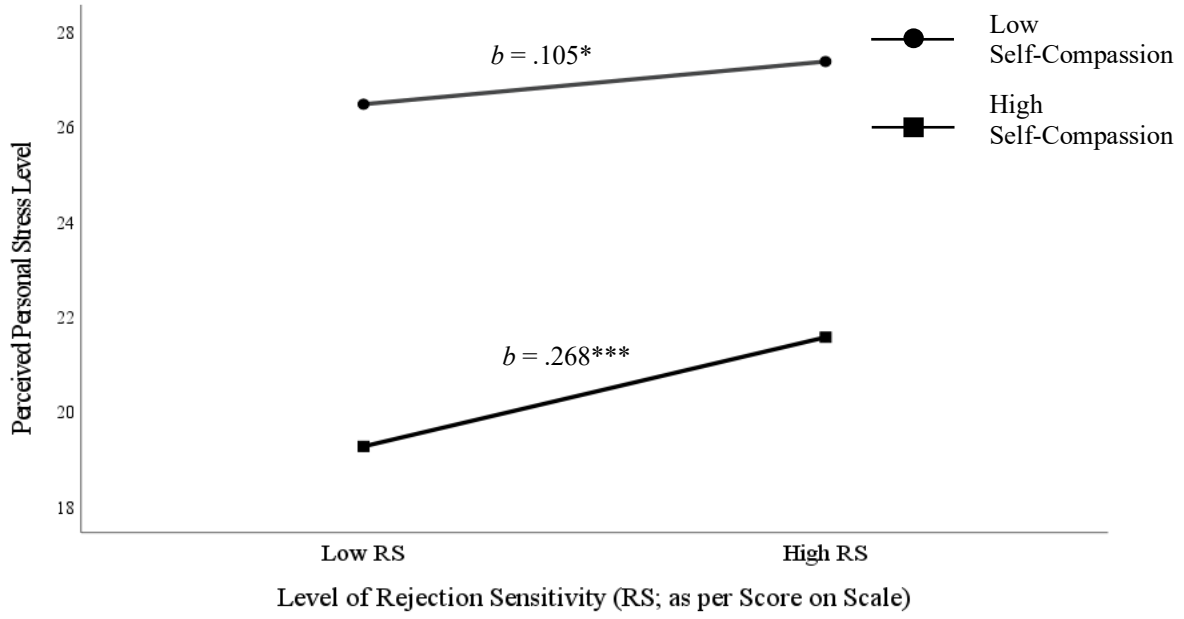
Simple Slopes Analysis of the Interaction Between Peer Rejection and Self-Compassion for Perceived Personal Stress



Note. $N = 577$. *p < 0.05. **p < 0.01. ***p < 0.001.

Figure 7

Simple Slopes Analysis of the Interaction Between Rejection Sensitivity and Self-Compassion for Perceived Personal Stress



Note. $N = 577$. *p < 0.05. **p < 0.01. ***p < 0.001.

Within-group Moderations

To test our hypotheses on differences in the effects of RS, PR, and self-compassion on depression, anxiety, and stress between developmental groups, simple moderation analyses were run separately for both the typically developing and ADHD groups. Given the nature of our data, rather than making direct comparisons between groups, we identified differences in the effects of our focal and moderating variables on psychological distress. For this approach, the dataset was split according to developmental group. PR and RS were entered as focal predictors, self-compassion was entered as a moderator, and depression, anxiety, and stress were entered as outcome variables. Additionally, age and gender were added to the models as covariates. The

models were also run with each self-compassion subscale as the moderator to further explain any differences in effects between the typically developing and ADHD groups.

Depression

Analyses were conducted to examine the effects of PR and self-compassion on depression for typically developing participants (n = 289). Findings revealed that PR was a significant predictor of depression (β = .337, p < .001, 95% CI [.22, .45], R^2 = .463, F(5, 283) = 48.76, p < .001). In other words, for individuals in the typically developing group, greater PR exposure predicted increased symptoms of depression. Self-compassion had a direct effect on depression (β = -10.01, p < .001, 95% CI [-11.69, -8.33], R^2 = .463, F(5, 283) = 48.76, p < .001), where higher self-compassion predicted fewer depressive symptoms in typically developing controls. However, there was no significant interaction between self-compassion and PR (β = -.131, p = .14, 95% CI [-.31, .04], R^2 = .463, F(5, 283) = 48.76, p < .001), suggesting it did not moderate the relationship between PR and depression. The same set of analyses conducted for participants with ADHD (n = 315) revealed that both PR and self-compassion were direct predictors of depression, where more PR experiences predicted higher levels of depressive symptoms (β = .325, p < .001, 95% CI [.22, .43], R^2 = .427, F(5, 309) = 45.99, p < .001). Additionally, higher levels of RS predicted fewer depressive symptoms (β = -10.60, p < .001, 95% CI [-12.29, -8.92], R^2 = .427, F(5, 309) = 45.99, p < .001). As seen for the typically developing group, there was not a significant interaction effect between self-compassion and PR on depression for the ADHD group (β = -.018, p = .14, 95% CI [-.31, .04], R^2 = .463, F(5, 283) = 48.76, p < .001).

Next, the effects of RS and self-compassion on depression were examined. Findings indicated that in typically developing individuals, RS significantly predicted more symptoms of

depression (β = .618, $p < .001$, 95% CI [.30, .94], $R^2 = .421$, $F(5, 283) = 41.22$, $p < .001$). In contrast, self-compassion significantly predicted fewer symptoms of depression (β = -8.850, $p < .001$, 95% CI [-10.77, -6.93], $R^2 = .421$, $F(5, 283) = 41.22$, $p < .001$). Additionally, self-compassion did not significantly moderate the effect of RS on depression for typically developing participants (β = .094, $p = .59$, 95% CI [-.25, .43], $R^2 = .421$, $F(5, 283) = 41.22$, $p < .001$). Similarly, the same tests run for the ADHD group revealed that RS was a significant predictor of depression (β = .612, $p < .001$, 95% CI [.35, .88], $R^2 = .398$, $F(5, 309) = 40.83$, $p < .001$), meaning that higher RS levels were associated with increased depressive symptomology. Furthermore, self-compassion significantly predicted fewer depressive symptoms (β = -9.45, $p < .001$, 95% CI [-11.38, -7.51], $R^2 = .398$, $F(5, 309) = 40.83$, $p < .001$). No significant interaction was found between self-compassion and RS (β = .240, $p = .09$, 95% CI [-.09, .57], $R^2 = .398$, $F(5, 309) = 40.83$, $p < .001$).

To review, more PR experiences and higher levels of RS significantly predicted higher levels of depression in both the typically developing and ADHD groups. Regardless of developmental group, higher self-compassion significantly predicted fewer depressive symptoms, and self-compassion did not significantly influence the link between PR or RS and depression. As such, there were no group differences in the effects of PR, RS, and self-compassion on depression between emerging adults with ADHD and typically developing emerging adults (see Table 4).

Table 4

Summary of Moderation Analyses Examining the Moderating Role of Self-Compassion on Depression Symptoms for the Typically Developing and ADHD Groups

Effect	Typically Developing (n = 289)				ADHD (n = 315)			
	β	*SE*	95% Confidence Interval		β	*SE*	95% Confidence Interval	
			LL	UL			LL	UL
PR	.337***	.06	.22	.45	.325**	.05	.22	.43
PR x Self-Compassion	-.131	.09	-.31	.04	-.018	.08	-.17	.13
RS	.618***	.16	.30	.94	.612***	.13	.35	.88
RS x Self-Compassion	.094	.17	-.25	.43	.240	.17	-.09	.57

Note. *p < 0.05. **p < 0.01. ***p < 0.001.

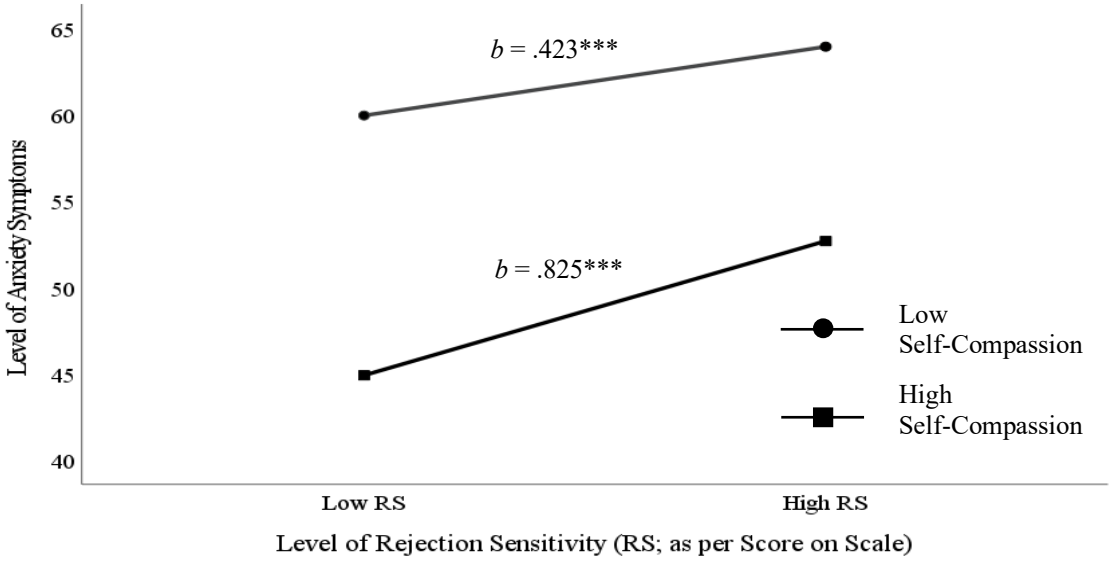
Anxiety

Analyses of the direct effects of PR and self-compassion on anxiety were conducted first for the typically developing group (n = 289). It was found that more experiences of PR predicted higher levels of anxiety (β = .213, p < .001, 95% CI [.12, .31], R^2 = .601, F(5, 283) = 85.25, p < .001), while higher levels of self-compassion predicted lower anxiety levels (β = -11.309, p < .001, 95% CI [-12.62, -10.00], R^2 = .601, F(5, 283) = 85.25, p < .001). Moderation analyses revealed that self-compassion did not significantly moderate the relationship between PR and anxiety for typically developing controls (β = .025, p = .72, 95% CI [-.11, .16], R^2 = .601, F(5, 283) = 85.25, p < .001). Similarly, direct effect and moderation analyses run for the ADHD group (n = 315) revealed that PR positively predicted anxiety symptoms (β = .144, p < .001, 95% CI [.07, .22], R^2 = .621, F(5, 309) = 101.37, p < .001) and self-compassion negatively predicted anxiety symptoms (β = -12.68, p < .001, 95% CI [-13.87, -11.49], R^2 = .621, F(5, 309) = 101.37, p < .001), whereas the interaction between the two did not (β = .016, p = .77, 95% CI [-.12, .09], R^2 = .601, F(5, 309) = 101.37, p < .001).

Tests were then employed to examine the effect of RS and self-compassion on anxiety in both groups. Indeed, higher RS levels predicted more symptoms of anxiety (β = .620, $p < .001$, 95% CI [.38, .86], $R^2 = .608$, $F(5, 283) = 87.75$, $p < .001$), and higher self-compassion predicted fewer symptoms of anxiety (β = -10.12, $p < .001$, 95% CI [-11.55, -8.68], $R^2 = .608$, $F(5, 283) = 87.75$, $p < .001$) in typically developing emerging adults. However, for typically developing individuals, self-compassion did not significantly moderate the relationship between RS and anxiety (β = .136, $p = .29$, 95% CI [-.12, .39], $R^2 = .608$, $F(5, 283) = 87.75$, $p < .001$). For individuals with ADHD, the same analyses revealed that RS was a significant positive predictor of anxiety (β = .624, $p < .001$, 95% CI [.45, .80], $R^2 = .659$, $F(5, 309) = 119.31$, $p < .001$). At the same time, self-compassion was a significant negative predictor of anxiety (β = -11.08, $p < .001$, 95% CI [-12.34, -9.81], $R^2 = .659$, $F(5, 309) = 119.31$, $p < .001$). Notably, self-compassion significantly influenced the effect of RS on anxiety in that the interaction between self-compassion and RS predicted higher anxiety levels in emerging adults with ADHD (β = .339, $p < .05$, 95% CI [.12, .56], $R^2 = .659$, $F(5, 309) = 119.31$, $p < .001$). Simple slope analyses revealed that, in the ADHD group, for individuals with low self-compassion, anxiety was higher when RS was also high ($b = .423$, $t = 4.78$, $p < .001$, 95% CI [.25, .60]). Congruently, those high in self-compassion reported greater anxiety when RS levels were high ($b = .825$, $t = 6.47$, $p < .001$, 95% CI [.57, 1.08]). Participants with ADHD high in self-compassion reported relatively lower levels of anxiety, regardless of RS (see Figure 8).

Figure 8

Simple Slopes Analysis of the Interaction Between Rejection Sensitivity and Self-Compassion for Anxiety Symptoms in Emerging Adults with ADHD



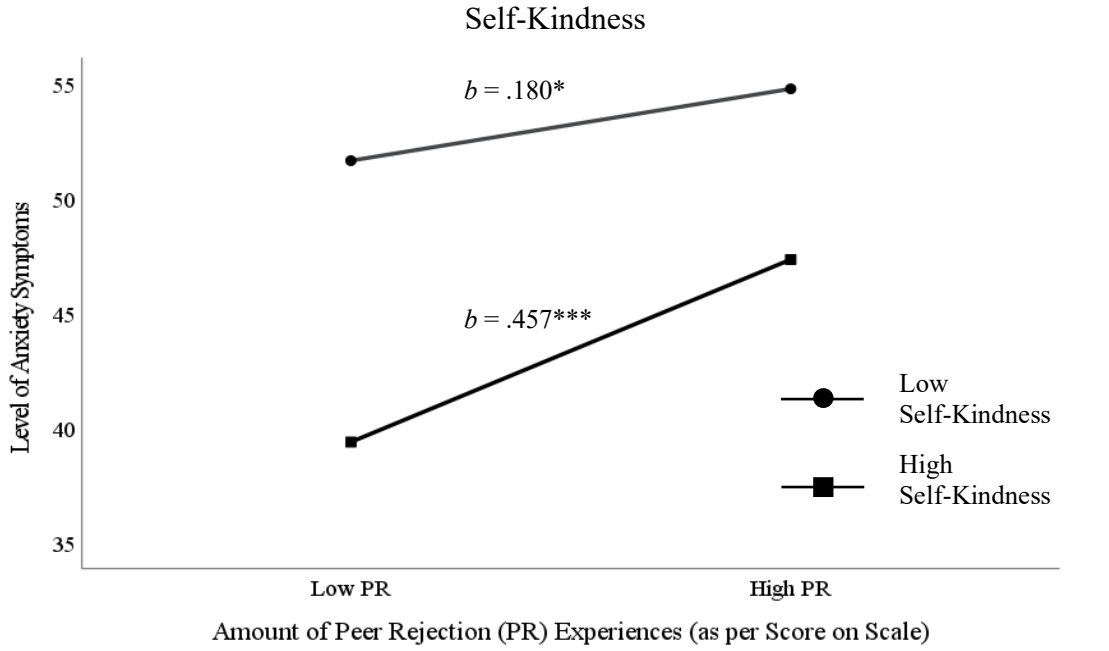
Note. n_{ADHD} = 315. *p < 0.05. **p < 0.01. ***p < 0.001.

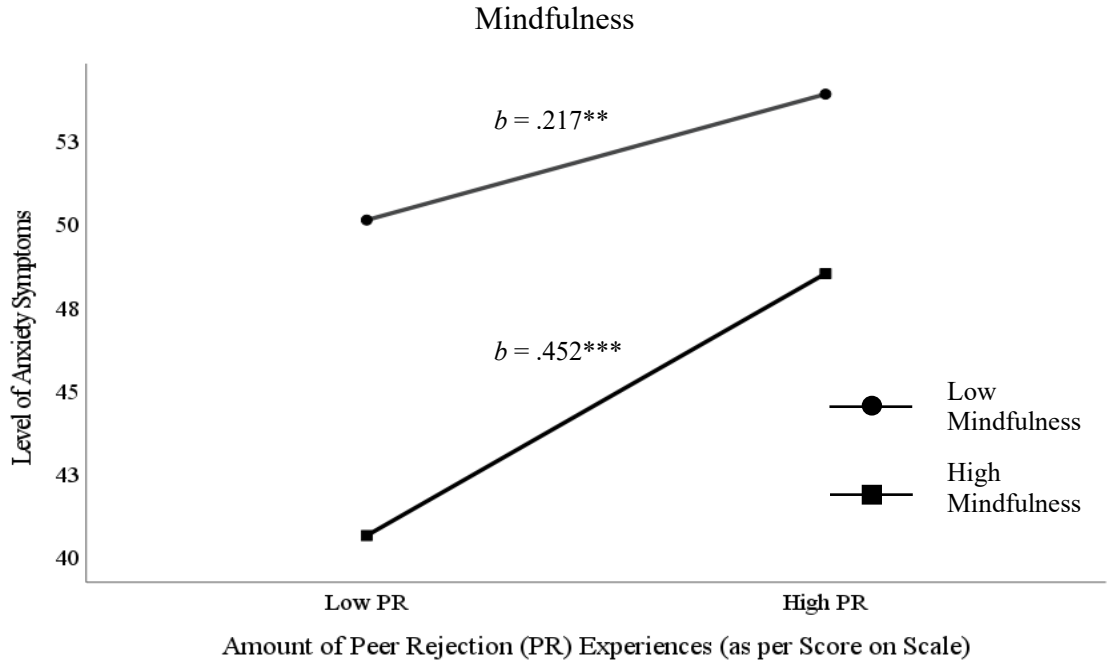
Analyses were conducted to examine the moderating role of each SCS subscale (i.e., self-kindness, self-judgement, common humanity, isolation, mindfulness, and over-identification) on anxiety for both developmental groups. Tests revealed that, for typically developing emerging adults, self-kindness (β = .175, $p < .05$, 95% CI [.05, .30], $R^2 = .404$, $F(5, 283) = 38.36$, $p < .001$), isolation (β = -.112, $p < .05$, 95% CI [-.21, -.01], $R^2 = .502$, $F(5, 283) = 57.02$, $p < .001$), and mindfulness (β = .164, $p < .05$, 95% CI [.01, .32], $R^2 = .297$, $F(5, 283) = 23.90$, $p < .001$) significantly moderated the relationship between PR and anxiety. Simple slope analyses revealed that for typically developing controls low in self-kindness ($b = .180$, $t = 2.45$, $p < .05$, 95% CI [.04, .32]) or mindfulness ($b = .217$, $t = 2.82$, $p < .05$, 95% CI [.07, .37]) or high in self-kindness ($b = .458$, $t = 5.86$, $p < .001$, 95% CI [.30, .61]) or mindfulness ($b = .452$, $t = 4.99$, $p < .001$, 95% CI [.27, .63]; see Figure 9), more anxiety symptoms were reported when greater PR was

experienced. Anxiety symptomology was higher for typically developing controls low (b = .383, t = 5.16, p < .001, 95% CI [.24, .53]) or high (b = .176, t = 2.70, p < .05, 95% CI [.05, .31]) in isolation when more PR was experienced (see Figure 10). In contrast, findings for the ADHD group indicated that only the over-identification subscale significantly moderated the relationship between PR and anxiety (β = .115, p < .05, 95% CI [.001, .229], R^2 = .451, F(5, 309) = 50.74, p < .001). Tests of simple slopes revealed that for participants with ADHD high in over-identification, elevated anxiety symptomology was reported when more PR was experienced (b = .280, t = 4.83, p < .001, 95% CI [.17, .39]; see Figure 11).

Figure 9

Simple Slopes Analysis of the Interaction Between Peer Rejection and Self-Kindness and Mindfulness for Anxiety Symptoms in Typically Developing Emerging Adults

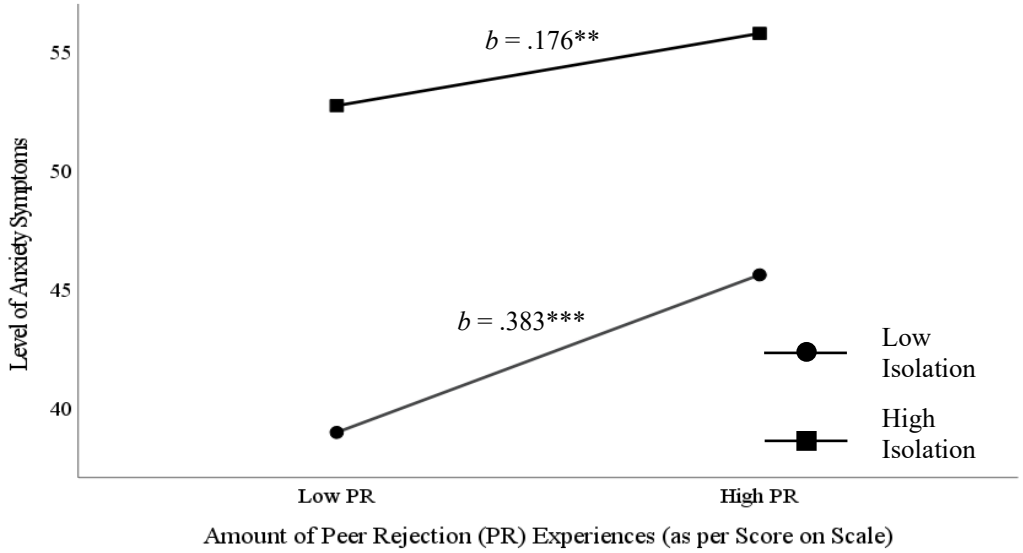




Note. n_{TD} = 289. *p < 0.05. **p < 0.01. ***p < 0.001.

Figure 10

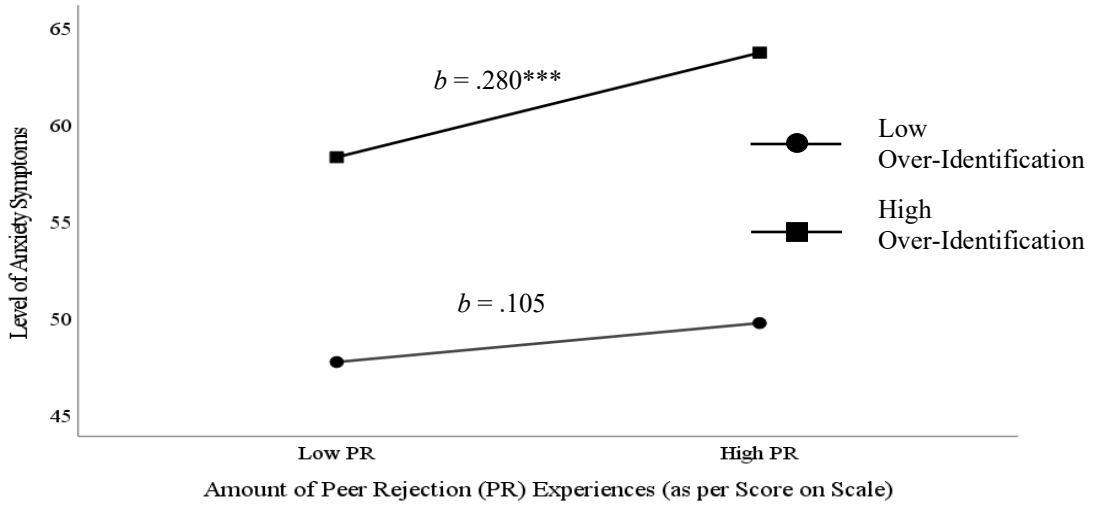
Simple Slopes Analysis of the Interaction Between Peer Rejection and Isolation for Anxiety Symptoms in Typically Developing Emerging Adults



Note. n_{TD} = 289. *p < 0.05. **p < 0.01. ***p < 0.001.

Figure 11

Simple Slopes Analysis of the Interaction Between Peer Rejection and Over-Identification for Anxiety Symptoms in Emerging Adults with ADHD

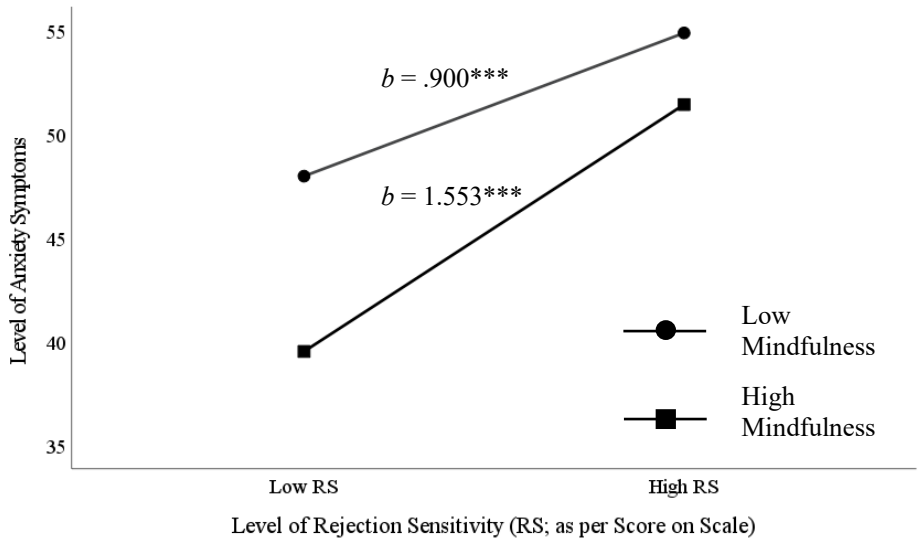


Note. n_{ADHD} = 315. *p < 0.05. **p < 0.01. ***p < 0.001.

Moderation analyses conducted to elucidate the moderating effect of the SCS subscales on RS and anxiety first revealed that mindfulness was a significant moderator of the association between RS and anxiety for typically developing participants (β = .456, $p < .05$, 95% CI [.17, .75], $R^2 = .413$, $F(5, 283) = 39.84$, $p < .001$). Simple slope analyses indicated that for typically developing participants who were lower ($b = .900$, $t = 5.86$, $p < .001$, 95% CI [.60, 1.2]) or high ($b = 1.553$, $t = 8.75$, $p < .001$, 95% CI [1.20, 1.90]) in mindfulness, more anxiety symptoms were reported at higher RS levels (see Figure 12). It was also found that for emerging adults with ADHD, common humanity (β = .204, $p < .05$, 95% CI [.001, .406], $R^2 = .406$, $F(5, 309) = 42.16$, $p < .001$), isolation (β = -.230, $p < .05$, 95% CI [-.43, -.03], $R^2 = .550$, $F(5, 309) = 75.63$, $p < .001$), and mindfulness (β = .257, $p < .05$, 95% CI [.04, .48], $R^2 = .436$, $F(5, 309) = 47.86$, $p < .001$) significantly moderated the effect of RS on anxiety symptoms. Further exploration of these effects through simple slope tests suggested that for participants in the ADHD group who were lower in common humanity ($b = .900$, $t = 7.69$, $p < .001$, 95% CI [.67, 1.13]), isolation ($b = .943$, $t = 5.94$, $p < .001$, 95% CI [.63, 1.26]), or mindfulness ($b = .819$, $t = 7.32$, $p < .001$, 95% CI [.60, 1.04]) or higher in common humanity ($b = 1.23$, $t = 8.58$, $p < .001$, 95% CI [.95, 1.51]), isolation ($b = .567$, $t = 5.60$, $p < .001$, 95% CI [.37, .77]), or mindfulness ($b = 1.21$, $t = 7.95$, $p < .001$, 95% CI [.91, 1.51]) experienced elevated anxiety symptomology when RS was high (see Figure 13**)**. Notably, there was a relatively steeper increase in anxiety symptoms at lower than higher isolation scores and at higher than lower common humanity or mindfulness scores for the ADHD group.

Figure 12

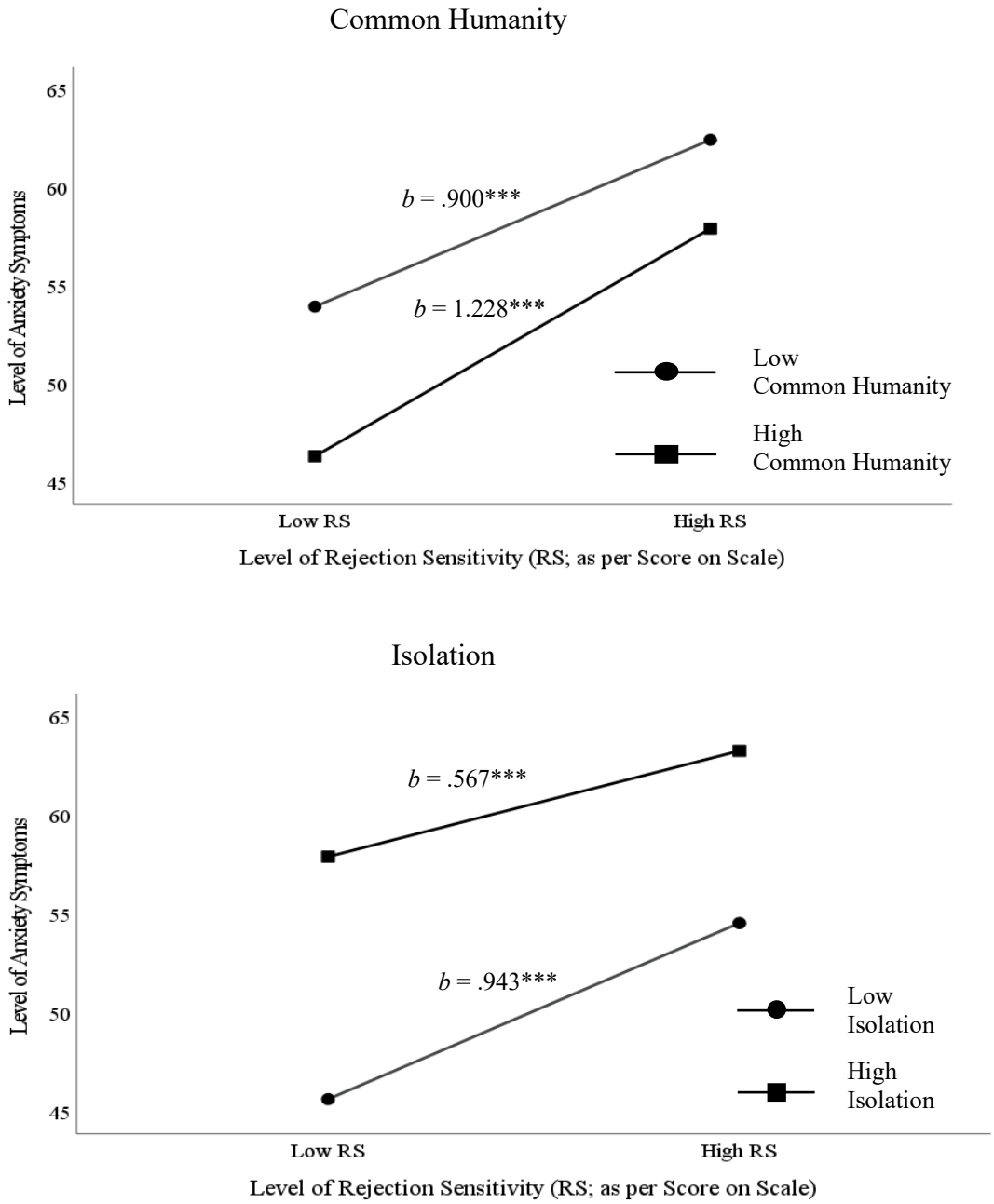
Simple Slopes Analysis of the Interaction Between Rejection Sensitivity and Mindfulness for Anxiety Symptoms in Typically Developing Emerging Adults

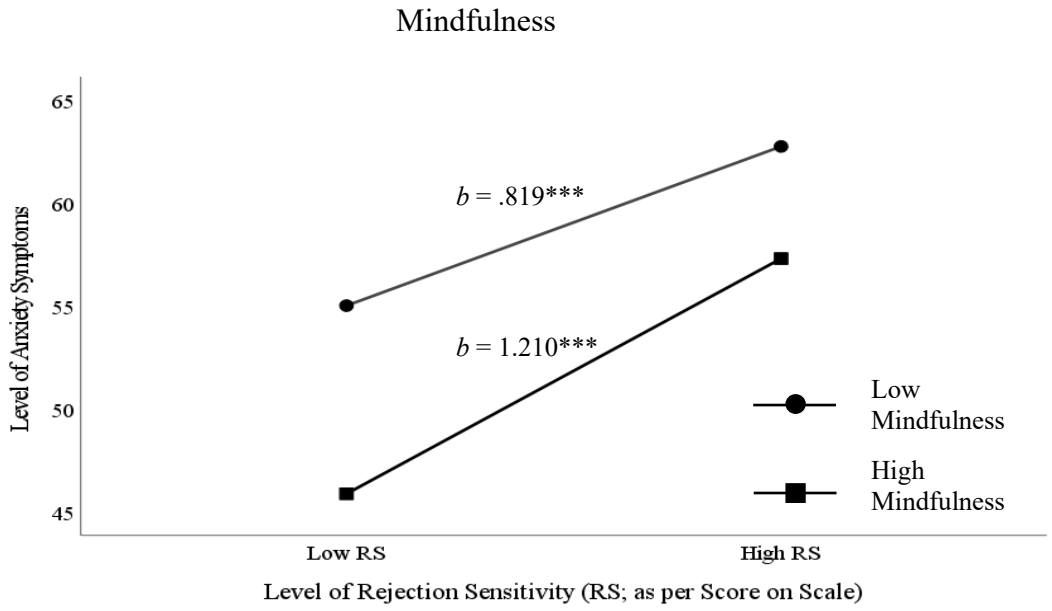


Note. n_{TD} = 289. *p < 0.05. **p < 0.01. ***p < 0.001.

Figure 13

Simple Slopes Analysis of the Interaction Between Rejection Sensitivity and Common Humanity, Isolation, and Mindfulness for Anxiety Symptoms in Emerging Adults with ADHD





Note. n_{ADHD} = 315. *p < 0.05. **p < 0.01. ***p < 0.001.

As detailed above, for individuals who are typically developing or have ADHD, frequent PR exposure and greater RS predicted increased anxiety symptoms. Moreover, self-compassion did not significantly impact the influence of PR on anxiety regardless of developmental group. There were no differences in these effects on anxiety between groups. However, there was a difference in the moderating effect of self-compassion on the link between RS and anxiety between the typically developing and ADHD group. While the impact of self-compassion on the influence of RS on anxiety was not significant in the typically developing group, self-compassion was a significant moderator of the relationship between RS and anxiety for those with ADHD. Specifically, in our ADHD group, those with higher self-compassion reported greater anxiety levels at higher and lower levels of RS. An analytical breakdown of the effects of each SCS subscale revealed that self-kindness and mindfulness exacerbated the effects of PR on anxiety symptoms while isolation weakened it for typically developing participants. However, for participants with ADHD, higher over-identification strengthened the effect of PR on anxiety symptomology. Mindfulness worsened the effect of RS on anxiety symptoms for emerging

adults with or without ADHD. Additionally, common humanity worsened, and isolation weakened RS's effect on anxiety symptoms for emerging adults with ADHD. Overall, the moderating effects of self-compassion and its dimensions differed as a function of developmental group (see Table 5).

Table 5

Summary of Moderation Analyses Examining the Moderating Role of Self-Compassion and the SCS Subscales on Anxiety Symptoms for the Typically Developing and ADHD Groups

Effect	Typically Developing (n = 289)				ADHD (n = 315)			
	β	SE	95% Confidence Interval		β	SE	95% Confidence Interval	
			LL	UL			LL	UL
PR	.213***	.05	.12	.31	.144***	.04	.07	.22
PR x Self-Compassion	.025	.07	-.11	.16	-.016	.06	-.12	.09
PR x Self-Kindness	.175**	.07	.05	.30	-.051	.05	-.15	.05
PR x Self-Judgement	-.092	.05	-.20	.02	.007	.05	-.09	.11
PR x Common Humanity	.068	.07	-.08	.21	.017	.06	-.09	.13
PR x Isolation	-.112*	.05	-.21	-.01	-.017	.05	-.12	.08
PR x Mindfulness	.164*	.08	.01	.32	-.006	.06	-.12	.11
PR x Over-Identification	-.098	.06	-.21	.01	.115*	.06	.01	.23
RS	.620***	.12	.38	.86	.624***	.09	.45	.80
RS x Self-Compassion	.136	.13	-.12	.39	.339**	.11	.12	.56
RS x Self-Kindness	.226	.13	-.03	.48	.183	.10	-.01	.38
RS x Self-Judgement	-.207	.11	-.42	.01	-.191	.10	-.39	.01
RS x Common Humanity	.236	.12	-.01	.48	.204*	.10	.001	.406
RS x Isolation	-.150	.11	-.36	.06	-.230*	.10	-.43	-.03
RS x Mindfulness	.456*	.15	.17	.74	.257*	.11	.04	.48
RS x Over-Identification	-.213	.11	-.44	.01	-.159	.10	-.36	.04

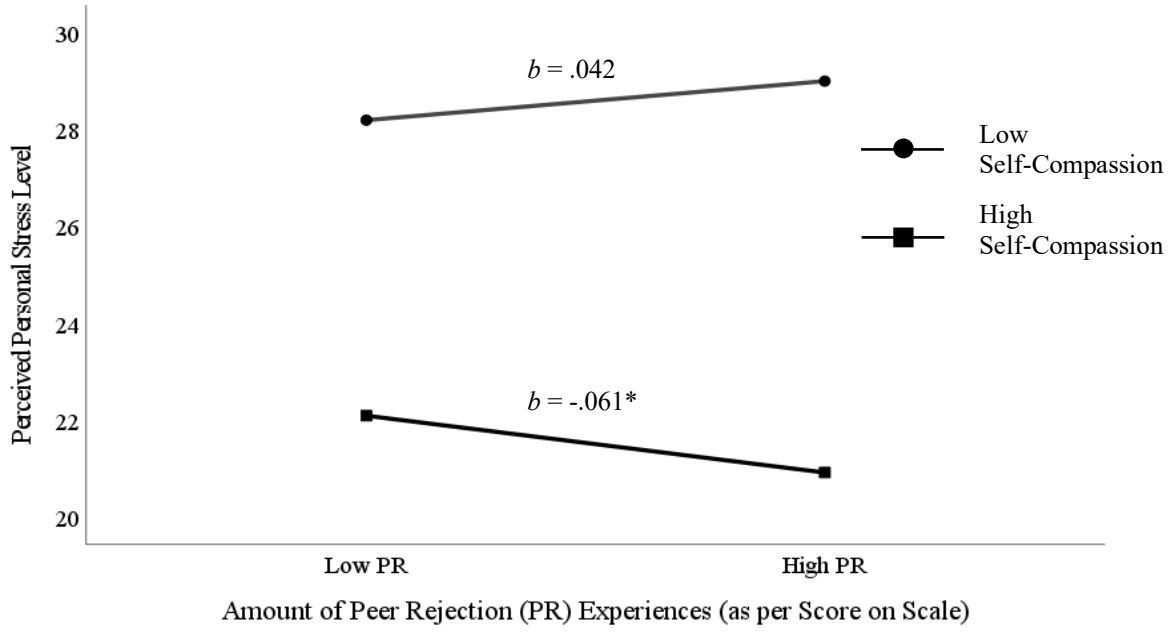
Note. *p < 0.05. **p < 0.01. ***p < 0.001.

Stress

Another set of analyses was run to determine the effects of PR, RS, and self-compassion on stress for typically developing participants (n = 272) and participants with ADHD (n = 305). Tests on the direct and moderating effects of PR and self-compassion on stress in the typically developing group revealed that self-compassion significantly predicted lower stress levels (β = -5.406, p < .001, 95% CI [-6.24, -4.57], R^2 = .424, F(5, 283) = 39.20, p < .001). Neither PR (β = -.012, p = .70, 95% CI [-.07, .05], R^2 = .424, F(5, 283) = 39.20, p < .001) nor the interaction between PR and self-compassion (β = -.080, p = .08, 95% CI [-.17, .01], R^2 = .424, F(5, 283) = 39.20, p < .001) had a significant effect on stress. Direct effect analyses for the ADHD group similarly indicated that self-compassion significantly predicted lower stress (β = -6.090, p < .001, 95% CI [-6.77, -5.40], R^2 = .548, F(5, 309) = 72.48, p < .001), but no significant effect of PR on stress was found (β = -.010, p = .66, 95% CI [-.05, .03], R^2 = .548, F(5, 309) = 72.48, p < .001). In contrast, moderation analyses found that self-compassion significantly moderated the relationship between PR and stress (β = -.089, p < .05, 95% CI [-.15, -.03], R^2 = .548, F(5, 309) = 72.48, p < .001). As shown in Figure 14, the probing of simple slopes revealed that for emerging adults with ADHD, higher self-compassion levels were associated with lower stress levels when PR was experienced more frequently (b = -.061, t = -2.03, p < .05, 95% CI [-.120, -.002]).

Figure 14

Simple Slopes Analysis of the Interaction Between Peer Rejection and Self-Compassion for Perceived Personal Stress in Emerging Adults with ADHD



Note. n_{ADHD} = 305. *p < 0.05. **p < 0.01. ***p < 0.001.

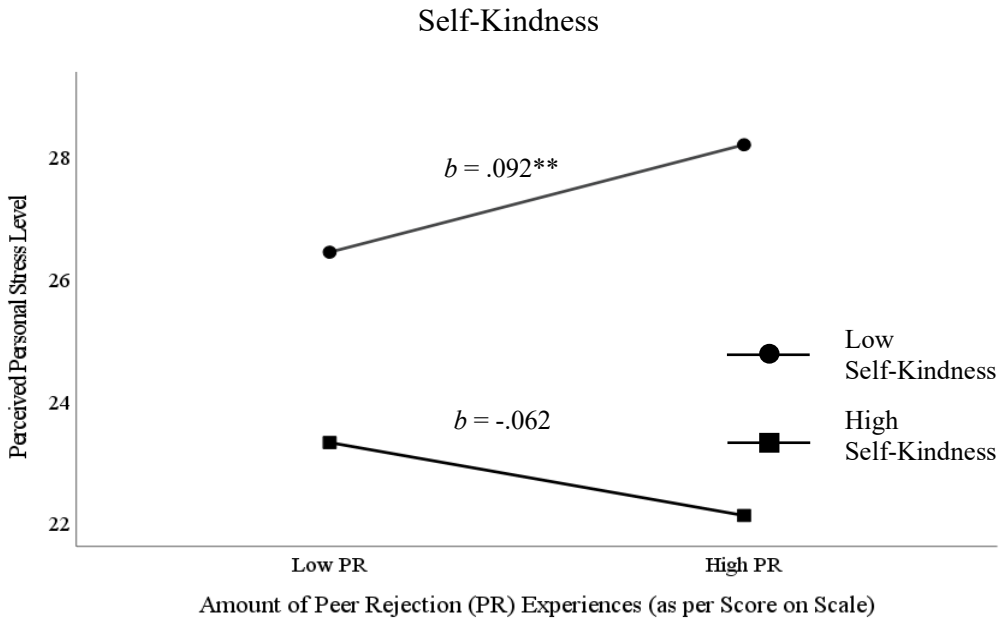
Tests looking at the effects of RS and self-compassion in typically developing controls found that self-compassion significantly predicted lower stress levels (β = -4.769, $p < .001$, 95% CI [-5.69, -3.85], $R^2 = .426$, $F(5, 283) = 39.55$, $p < .001$), and no significant effects of RS (β = .140, $p = .07$, 95% CI [-.01, .29], $R^2 = .426$, $F(5, 283) = 39.55$, $p < .001$) nor the interaction between the two variables (β = -.016, $p = .85$, 95% CI [-.18, .15], $R^2 = .426$, $F(5, 283) = 39.55$, $p < .001$) on anxiety. When the same tests were employed to explore the effects of RS and self-compassion on stress for the ADHD group, it was revealed that higher levels of RS predicted greater levels of personal stress (β = .147, $p < .05$, 95% CI [.04, .25], $R^2 = .547$, $F(5, 283) = 72.32$, $p < .001$). At the same time, self-compassion predicted a decrease in stress levels (β = -5.610, $p < .001$, 95% CI [-6.36, -4.86], $R^2 = .547$, $F(5, 283) = 72.32$, $p < .001$). As seen in the

typically developing group, self-compassion was not a significant moderator of the effect of RS on stress in emerging adults with ADHD (β = .070, p = .32, 95% CI [-.07, .21], R^2 = .547, F(5, 283) = 72.32, p < .001).

The next set of analyses was employed to explore the moderating role of the SCS subscales on stress for both developmental groups. Tests indicated that the effects of PR on stress were not significantly moderated by any of the six SCS subscales for typically developing emerging adults. In contrast, results for the ADHD group revealed that self-kindness and self-judgment significantly moderated the relationship between PR and stress (i.e., self-kindness, β = -.098, p < .001, 95% CI [-.16, -.04], R^2 = .285, F(5, 299) = 23.83, p < .001); self-judgement, β = .068, p < .05, 95% CI [.01, .12], R^2 = .462, F(5, 299) = 51.35, p < .001). Simple slope analyses revealed that for participants with ADHD low in self-kindness (b = .092, t = 2.76, p < .05, 95% CI [.03, .16]) or high in self-judgement (b = .071, t = 2.30, p < .05, 95% CI [.01, .13]), elevated anxiety symptomology was reported when more PR was experienced (see Figure 15). Moderation analyses conducted to explore the moderating effect of the SCS subscales on RS and stress revealed that the SCS subscales did not significantly moderate this relationship for either developmental group. The SCS subscales were not significant moderators of the effects of PR and RS on stress for emerging adults with or without ADHD, except for self-kindness and self-judgement, which were found to significantly moderate the impact of PR on stress for the ADHD group only.

Figure 15

Simple Slopes Analysis of the Interaction Between Peer Rejection and Self-Kindness and Self-Judgement for Perceived Personal Stress in Emerging Adults with ADHD



Note. n_{ADHD} = 305. *p < 0.05. **p < 0.01. ***p < 0.001.

The above results showed no significant differences in the direct or moderating effect of self-compassion on stress between the typically developing and ADHD groups. In both groups, higher self-compassion predicted lower stress but did not significantly moderate the relationship between RS and stress. Alternatively, while RS was not a significant predictor of stress for typically developing individuals, greater RS levels predicted greater personal stress for individuals with ADHD (see Table 6).

Table 6

Summary of Moderation Analyses Examining the Role of Self-Compassion and the SCS Subscales on Perceived Personal Stress for the Typically Developing and ADHD Groups

Effect	Typically Developing (n = 272)				ADHD (n = 305)			
	β	SE	95 %Confidence Interval		β	SE	95% Confidence Interval	
			LL	UL			LL	UL
PR	-.012	.03	-.07	.05	-.010	.02	-.05	.03
PR x Self-Compassion	-.080	.05	-.17	.01	-.089**	.03	-.15	-.03
PR x Self-Kindness	.027	.05	-.06	.11	-.098***	.03	-.16	-.04
PR x Self-Judgement	.030	.04	-.04	.10	.068***	.03	.01	.13
PR x Common Humanity	-.020	.04	-.11	.07	-.030	.03	-.10	.03
PR x Isolation	.021	.03	-.04	.09	.051	.03	-.002	.103
PR x Mindfulness	-.006	.05	-.11	.09	-.045	.03	-.11	.02
PR x Over-Identification	.003	.03	-.07	.07	.050	.03	-.01	.11
RS	.140	.08	-.01	.29	.147**	.05	.04	.25
RS x Self-Compassion	-.016	.08	-.18	.15	.070	.07	-.07	.21
RS x Self-Kindness	.062	.08	-.10	.22	-.030	.06	-.15	.09
RS x Self-Judgement	-.075	.07	-.21	.06	-.084	.06	-.20	.03
RS x Common Humanity	.041	.07	-.10	.18	.024	.06	-.10	.14
RS x Isolation	-.047	.07	-.18	.09	-.019	.06	-.14	.10
RS x Mindfulness	.104	.09	-.07	.28	.043	.07	-.09	.18
RS x Over-Identification	-.046	.07	-.18	.09	-.067	.06	-.32	.45

Note. *p < 0.05. **p < 0.01. ***p < 0.001.

Discussion

The current research produced fascinating results on differences in negative social outcomes and mental health difficulties between typically developing emerging adults and emerging adults with ADHD. The models employed to examine the primary variables in this study allowed us to concentrate on various adverse social outcomes (i.e., PR and RS) and psychological distress (i.e., depression, anxiety, and stress) to further understanding the effect pattern among these variables. Additionally, the models examined in this study enabled us to explore the protective value of self-compassion against developing issues with various mental health concerns resulting from social challenges associated with social cognitive deficits that may lead to further loss of connectivity in the prefrontal cortex (PFC) and more extensive impairments in social cognition and executive function. As such, these findings may help to identify differences in social antecedents and potential buffers involved in predicting psychological distress between various developmental identities and offer substantial contributions to this line of research.

The main objective of this study was to evaluate how and whether PR and RS may vary as a function of developmental group (i.e., has ADHD or is typically developing) and how PR and RS further influenced mental health outcomes (i.e., depressive and anxiety symptoms and stress levels) during emerging adulthood. Furthermore, we were interested in how self-compassion moderated the influence of PR and RS on depression, anxiety, and stress levels. Path analyses (i.e., moderated mediation analyses) using hierarchical multiple regression were conducted to examine (1) how ADHD may impact emerging adults' experiences of peer rejection or their sensitivity to perceived rejection and criticism (i.e., PR and RS); (2) how poor social outcomes (i.e., PR and RS) may further predict psychological distress (i.e., symptoms of

depression and anxiety and perceived stress levels); and (3) how self-compassion may influence PR, RS, and psychological distress during emerging adulthood.

Developmental Group, Adverse Social Outcomes, and Psychological Distress

Direct Effects of Developmental Group

The direct effects of developmental group evidenced that ADHD was a significant predictor of emerging adults' self-reported experiences of PR and levels of trait RS. This finding reflects prior research indicating that youth with ADHD are more likely to experience exclusion than their typically developing classmates and more likely to be perceived negatively by their peers (Gardner & Gerdes, 2015). A possible explanation offered for this exclusion is rooted in the underdevelopment of the PFC illustrated in neuroimaging studies on children, adolescents, and adults with ADHD, which is associated with impairments in executive function and social cognition (Kolfer et al., 2019; Kolk & Rakic, 2022). Underdevelopment of the PFC is associated with poor inhibitory control and emotion regulation, among many other effects critical to social functioning. Thus, typically developing individuals are very likely able to identify peers with ADHD through these deficits, which can ultimately lead to typically developing people subconsciously avoiding or excluding their counterparts with ADHD (Gardner & Gerdes, 2015). Deficits in social cognitive functioning in youth with ADHD may intensify as more experiences of rejection contribute to hostile social environments, which may further inhibit synaptic connections in the PFC, resulting in more social exclusion (Bora & Pantelis, 2016; Kolfer et al., 2019; Kolk & Rakic, 2022; Uekermann et al., 2010). This cycle of PR and cognitive dysfunction may also contribute to the development of RS, a personality disposition learned over time from experiences of rejection, where more experiences of PR result in higher RS (Downey & Feldman, 1996; McLachlan et al., 2010; Schaan et al., 2020). Thus, we hypothesized that

emerging adults with ADHD would report greater exposure to PR and greater RS than their typically developing peers (i.e., hypothesis 1a). Thus, this hypothesis was confirmed by the findings of this study. Moreover, while not explicitly hypothesized, results from this study also indicated a direct effect of developmental group on depression, anxiety, and stress in that ADHD predicted more depressive and anxiety symptomology and higher perceived personal stress levels. The effect of developmental group on psychological distress did not come as a surprise because, as mentioned earlier, approximately 53% of individuals with ADHD have comorbid mood, anxiety, and other psychological disorders in their lifetime (Katzman et al., 2017).

Direct Effects of PR and RS

In addition to the direct effect of ADHD on depression, anxiety, and stress, both PR and RS were revealed as significant predictors of depressive and anxiety symptomology and perceived stress levels. An abundance of literature has supported the influence of one's social environment and interpersonal relationships on one's overall well-being and the development of psychopathology. Namely, an overwhelming amount of research indicates that frequent experiences of social adversity, such as PR and RS, worsen these outcomes (Gao et al., 2017; Mrug et al., 2012; Zimmer-Gembeck et al., 2013). Informed by such findings, we hypothesized that PR and RS would significantly predict more depressive and anxiety symptoms and higher stress levels in typically developing emerging adults and emerging adults with ADHD (i.e., hypothesis 2a). This hypothesis was only partly supported as our findings suggested that RS significantly predicted increased depression and anxiety symptoms and stress levels, while PR significantly predicted greater depression and anxiety symptoms but lower perceived stress. As data was collected over two semesters, differences in stress levels at different points of each semester (i.e., Thanksgiving break versus exam season) may have influenced participants'

perceived personal stress levels and, subsequently, the effect of PR on stress (Garett et al., 2017). This variation of stress, depending on response time during the semester, may have influenced the results of this study. It may also be possible that PR lowered stress for participants who responded during an examination period because less time spent with friends would allow for more time to study.

Beyond the explanations involving the study methods, one possible explanation for the effect of PR on stress, in that more experiences of PR are associated with lower perceived stress levels, may be partially explained by the effects of social exclusion (i.e., a component of PR). Particularly, PR may indirectly predict lower levels of perceived stress through social withdrawal and isolation (Nonaka & Sakai, 2021). Research has consistently demonstrated that social exclusion has many ramifications on adolescents' and emerging adults' developmental outcomes and mental well-being, some of which are mediated by social isolation. Emerging adults who experience frequent social exclusion are more likely to socially withdraw or be socially isolated from others (Nelson & Millett, 2021). Although this isolation can bring forth mental health problems (Nelson & Millett, 2021), it may be associated with lower stress levels as individuals are less likely to be in situations where there is a chance of being socially rejected by their peers.

Differential Effects of PR and RS

Extant literature on PR and RS, rather than identifying differences in the directionality of their effects on depression, anxiety, and stress, as found in this study, focuses on establishing causality between the two constructs. As reviewed above, the rejection sensitivity model (Downey & Feldman, 1996) posits that their effects are sequential and vary in strength. Indeed, the very definition of RS describes the trait as a disposition to anxiously anticipate rejection developed by cognitive-social learning experiences (Downey & Feldman, 1996), suggesting that

experiences of PR shape it. The sequence of effects theorized by this model is supported by findings that more PR predicts higher RS levels (London et al., 2007; McLachlan et al., 2010; Schaan et al., 2020).

Although this research may suggest a more substantial effect of PR over RS on developmental outcomes, the present study followed Bronfenbrenner's (1979) ecological systems framework that argues that both individual-level factors (e.g., personality, ADHD) and environmental influences (e.g., interpersonal relationships, culture) are critical determinants of development. To this point, RS, a personality trait that informs social behaviours and is informed by social experiences, works across multiple ecological levels compared to PR. Consequently, RS was hypothesized to be a stronger predictor of depression, anxiety, and stress than PR (i.e., hypothesis 2b). Although there were significant direct effects of PR and RS on depression, anxiety, and stress, this hypothesis was seemingly met as our analyses revealed relatively larger beta values for RS over those of PR across all three psychological distress outcomes measured in this study. This finding further evidences the influence of environment and subjective experience on development and later psychopathology.

Between-Group Differences in PR and RS

Moreover, the current findings are consistent with prior literature emphasizing the vulnerability of youth with ADHD to deficits in cognitive functions associated with PFC, related social cognitive deficits, and the undesirable social and mental health outcomes associated with those challenges (Bora & Pantelis, 2016; Kolfer et al., 2019; Kolk & Rakic, 2022; Uekermann et al., 2010). Research has consistently found that individuals with ADHD are more likely to experience PR, have higher RS, and experience comorbid mood (i.e., depression) and anxiety disorders in their lifetime compared to individuals without ADHD (Bora & Pantelis, 2016;

Kolfer et al., 2019). Given the configuration of effects substantiated by existing literature, we expected that PR and RS would be stronger predictors of depression, anxiety, and stress for participants in the ADHD group compared to those in the typically developing group (i.e., hypothesis 2c). Instead, analyses of our models revealed marginal differences between the beta values (used as an indicator of effect size) for the direct effects of PR and RS on depression for emerging adults with and without ADHD. While there was only a marginal difference in the effect of RS on anxiety between groups, findings indicated a relatively larger effect of PR on anxiety for typically developing participants than for participants in the ADHD group. Moreover, a significant direct effect of PR on stress was not found for those in the typically developing or ADHD group. Alternatively, RS significantly predicted stress for those in the ADHD group only. Overall, our hypothesis was not met, but the findings from our analyses still provide insight into how the effects of PR and RS may be contingent on developmental differences between groups.

Consider the affluent line of research illustrating developmental differences between emerging adults with ADHD and typically developing emerging adults on the cognitive, psychophysiological, and structural levels. Typically developing emerging adults have thicker PFCs that show more extensive synaptic connectivity compared to those with ADHD. This structural advantage allows for better cognitive functioning associated with the PFC, including executive function and social cognitive skills. This advantage is evidenced by studies where typically developing youth consistently show better executive functioning (i.e., inhibitory control, task switching, selective attention, and working memory) and social cognition (i.e., theory of mind, social competence, emotion regulation, and affect perception and recognition) relative to youth with ADHD (Kofler et al., 2019; Uekermann et al., 2010). Thus, it is possible that PR did not significantly affect stress for typically developing participants because they are

equipped with the self-regulatory skills necessary to minimize the impact of PR on perceived stress levels. Moreover, extant literature shows that less ADHD symptomology is associated with lower levels of psychophysiological activity following rejection (Babinski et al., 2019), suggesting less sensitivity to rejection relative to youth with more ADHD symptoms. Thus, the negligible effects of PR and RS on perceived stress levels for typically developing emerging adults may reflect an adaptive and optimal central nervous system response and superior self-regulatory skills.

Congruently, the nonsignificant influence of PR and the substantial effect of RS on perceived stress levels for emerging adults with ADHD may be explained by the same findings; however, they are now used to highlight the impairments experienced by this population. Neuroimaging has enabled scientists to discover deviant connectivity in the corticolimbic networks in the brain that may explain heightened emotional reactivity and dysregulation in youth with ADHD (Delgado-Lobete et al., 2020; Soman et al., 2023). Previous research using psychophysiological measures has also demonstrated that adolescents and emerging adults with ADHD show prolonged sympathetic nervous system arousal even after removing a psychological stressor, indicating a dysregulated nervous system response (Rash & Aguirre-Camacho, 2012). Perhaps the notable effect of RS on stress for participants with ADHD can be attributed to this well-documented multidimensional dysregulation. Furthermore, within the current study, standardized beta values indicated that the differential effect of RS was greater than the effect of PR for the ADHD group across all facets of psychological distress. It is plausible that the constant anticipation of rejection associated with RS and extended sympathetic nervous system arousal overshadow or inhibit the effects of PR on perceived stress. Future studies should incorporate various psychophysiological and neuroimaging measurements to

explore the relationships among the variables further and test subsequent explanations offered in the current study.

The Moderating Role of Self-Compassion

Research on self-compassion demonstrates its value in improving social-emotional outcomes as self-compassion is associated with enhanced functioning in friendships and romantic relationships, more constructive conflict, more secure attachment, improved perceived life quality, and decreases in psychological distress (Bluth & Blanton, 2015; Fenzel & Richardson, 2021; Lathren et al., 2021; Marsh et al., 2018; Neff & McGehee, 2010). It was hypothesized that self-compassion would significantly moderate and weaken the impact of PR and RS on psychological distress for emerging adults with ADHD and typically developing emerging adults (i.e., hypothesis 3a). Specifically, it was hypothesized that self-compassion would ameliorate the effects of PR and RS, resulting in lower levels of depression, anxiety, and stress. This hypothesis was largely unmet, as significant interactions were found for only three out of six of the moderation analyses run. Of those three, two of the moderation effects found were outside the direction we anticipated.

Depression

First, we found that self-compassion had no significant moderating effect on the relationships between PR, RS, and depression (i.e., hypothesis 3a). Informed by findings that youth with ADHD are not only more likely to experience rejection from their peers but also are more sensitive to rejection compared to their typically developing peers (Barkley, 1997; Bora & Pantelis, 2016; Matthys et al., 1999; Ros & Graziano, 2018), we hypothesized that the moderating effect of self-compassion on PR, RS, and depression would be more robust for emerging adults with ADHD compared to typically developing emerging adults (i.e., hypothesis

3b). As self-compassion did not significantly influence the relationships between PR and depression nor RS and depression for either developmental group, hypothesis 3b was not met for depression.

The insignificant interactions between self-compassion and PR and RS can be explained in two ways; first, it could, again, be because participants' self-reported levels of depression are based on their cumulative experience, which may include circumstantial factors beyond PR and RS that may not be ameliorated by self-compassion. Alternatively, the finding that self-compassion does not moderate the relationship between PR and depression may be consistent with previous literature emphasizing the link between social isolation and depression (Bowker et al., 2021). Existing literature on adolescents and emerging adults has demonstrated that social isolation consistently predicts depression. Research also supports that youth who have experienced heightened peer rejection levels are more likely to socially withdraw further (Bowker et al., 2021; Nelson & Millett, 2021; Nonaka & Sakai, 2021). Thus, it is possible that while self-compassion may predict a lower chance of withdrawal, its effects may not buffer the effects of social isolation on depression following PR. Moreover, self-compassion's inability to moderate the link between RS and depression may be attributed to the link between PR and RS. Indeed, if the effect of PR on depression is not improved by self-compassion, the effect of RS, a trait informed by instances of PR, would not be significantly moderated by self-compassion either. Future research should work to evaluate the pattern of effect among these variables when risk factors, such as social isolation and protective factors, such as self-compassion, are integrated into models investigating youth with ADHD experiencing social difficulties and presenting with depressive symptoms.

Anxiety

Next, analyses revealed that self-compassion was not a significant moderator of the relationship between PR and anxiety (i.e., hypothesis 3a). This finding suggests that, against our expectations, self-compassion did not weaken the association between PR and anxiety levels. This unexpected result could be explained, in part, by circumstantial factors that contributed to participants' anxiety levels beyond the variables measured in this study that cannot be addressed by self-compassion. It was also initially hypothesized that self-compassion would more significantly weaken the effects of PR and RS on anxiety for emerging adults in the ADHD group compared to the typically developing group (i.e., hypothesis 3b). This expectation was not met for PR because self-compassion did not significantly moderate the relationship between PR and anxiety for either group.

In recent years, scientists have employed psychophysiological methods to examine brain activity in individuals with and without ADHD following PR. For example, in a study conducted by Babinski and colleagues (2019), youth with greater ADHD symptomology who received negative feedback following a laboratory task had more significant neurophysiological activity (i.e., event-related potentials characterized by electrical activity) compared to youth with fewer symptoms, suggesting greater sensitivity to rejection. Notably, participants with greater ADHD symptoms were also found to have less neurophysiological activity following positive feedback than participants with fewer symptoms, indicating that ADHD symptoms are associated with less sensitivity to peer acceptance (Babinski et al., 2019).

Growing literature using psychophysiological methodology and neuroimaging continues to evidence heightened emotional reactivity to negative affect in individuals with ADHD throughout the lifespan (Delgado-Lobete et al., 2020; Rash & Aguirre-Camacho, 2012; Soman et al., 2023). Thus, emerging adults with ADHD may be less sensitive to the benefits of self-

compassion because it is a practice that encourages understanding and acceptance of oneself, compared to the consequences of PR, one of which may be higher RS, which is closely related to anxiety. The varying effects of the SCS subscales on anxiety between emerging adults with and without ADHD observed in the present study offer some preliminary support for this theory. Moderation analyses exploring the effect of self-compassion and its subdimensions for each group revealed that while self-compassion, in general, did not have a substantial impact on the effect of PR on anxiety for typically developing or ADHD participants, for participants with ADHD who were low in over-identification, anxiety was lower at greater PR. In other words, this finding shows that the only subdimension of self-compassion that significantly weakens the effect of PR on anxiety for individuals in the ADHD group consists not of the presence of a positive self-attitude but rather the absence of a negative self-attitude. Thus, emerging adults with ADHD may be not only more reactive to PR and less reactive to peer acceptance, but also more reactive to self-rejection and less reactive to self-acceptance. Moreover, anxiety was higher at greater PR for typically developing participants who were high in self-kindness or mindfulness or low in isolation. Such findings indicate that, regardless of the directionality of effects, typically developing participants are sensitive to self-compassion subscales measuring both the presence of positive self-attitudes and the absence of negative self-attitudes, suggesting that typically developing emerging adults are equally sensitive to both self-acceptance and self-rejection.

The directionality of the effects of self-kindness, mindfulness, and isolation found in the typically developing group can be explained by the well-evidenced relationship among empathy, prosocial behaviours, and anxiety. Existing works have identified a range of factors that have directly and indirectly predicted anxiety, such as empathy, self-reflection, and rumination.

Particularly, empathy, self-reflection about one's interactions with others, and rumination about how one's actions impact others are associated with higher levels of anxiety. Therefore, self-kindness and mindfulness may encourage rumination about oneself in relation to others following incidences of PR, which in turn can increase anxiety. Mindfulness can also emphasize one's responsibility for one's actions and the impact of these actions on others, subsequently increasing anxiety. To this point, isolation may reduce the chance of experiencing PR and ruminating about one's social behaviours, indirectly reducing their anxiety levels. Notably, the overall effect of the interaction between PR and isolation predicted lower stress levels, which contrasted with the results of simple slope analyses, which revealed that stress levels were higher for participants who were lower or higher in isolation when more PR was experienced. However, the increase in perceived stress was relatively steeper at lower levels of isolation than at higher levels when PR was experienced more frequently. It is possible that while isolation may lower the risk of PR experiences and subsequent perceived personal stress levels, the overall effects of social isolation and loneliness are more consequential to stress than the modicum of relief offered within the context of the current variables.

The results above demonstrate a heightened sensitivity to rejection-based components of self-compassion when considering objective experiences of PR for emerging adults with ADHD. Nevertheless, there are differences in the effect of self-compassion on anxiety when we instead consider sensitivity to perceived rejection, whether it has occurred or not. Namely, the results from moderation analyses conducted to explore the overall effect of self-compassion on the relationship between RS and anxiety revealed that self-compassion worsened the effect of RS on anxiety, subsequently predicting more anxiety symptoms. Thus, our hypothesis that self-compassion would ameliorate the adverse effect of RS on anxiety was not met (i.e., hypothesis

3a). There are two potential explanations for this finding. Firstly, within the context of this study, RS and anxiety are measured as traits rather than states of affect. It is possible that self-compassion may not be able to ameliorate the long-term effect of RS on anxiety at a trait level but may offer protection and temporary relief against the short-term effect of RS on anxiety at a state level. The consistent practice of self-compassion to address feelings of RS and anxiety after specific experiences may eventually weaken the effect of RS on anxiety over time. Therefore, research may benefit from expanding on this line of inquiry to examine the moderating effect of a self-compassion task on the relationship between state RS and state anxiety following conditions where criticism and rejection were distinctly present, ambiguous, or absent. Employing this experimental methodology could help to identify whether self-compassion can protect against temporary RS on anxiety-related affect.

The directionality of the effects of self-compassion on the link between RS and anxiety may also be explained by the relationship between empathy and anxiety. Moreover, this explanation may apply to the effects of the SCS subscales on RS and anxiety found for each developmental group. These effects were explored after results indicated that our hypothesis that the overall effect of self-compassion on the link between RS and anxiety would be more beneficial for participants in the ADHD group than the typically developing group was not supported (i.e., hypothesis 3b). Specifically, we observed that the interaction between self-compassion and RS did not substantially affect anxiety for typically developing emerging adults and instead increased anxiety for emerging adults with ADHD.

Analyses of the self-compassion subdimensions unveiled that, for emerging adults with ADHD who were higher in common humanity or mindfulness or lower in isolation, elevated anxiety levels were reported when RS was greater. Similarly, typically developing emerging

adults with higher mindfulness or isolation reported greater anxiety levels when RS was also high. Extant literature has identified that empathy, self-reflection about one's effect on others, and rumination predict more anxiety symptoms. Components of self-compassion, such as self-kindness, common humanity, and mindfulness, may illicit rumination or increase one's connection to and concern for others, which can, thus, elevate anxiety when interacting with an anxiety-related trait pertaining to social relationships. It may be beneficial to explore whether the relationship between RS and self-compassion indirectly predicts anxiety through empathy.

As discussed earlier, sympathetic nervous system arousal may play a role in the effects of RS on the mental health outcomes of individuals with anxiety or ADHD. Recall how prolonged sympathetic nervous system arousal, an indicator of nervous system dysregulation, has been frequently witnessed in those with higher anxiety and adolescents with ADHD, even when a stressor was not present (Rash & Aguirre-Camacho, 2012). Again, anxiety is closely related to RS (Rash & Aguirre-Camacho, 2012), suggesting the same fight or flight activation patterns may be seen in emerging adults with ADHD who are higher in RS. When isolated, emerging adults with ADHD who are higher in RS may experience respite from the constant anticipation of rejection, minimizing sympathetic nervous system activation and reducing anxiety. Thus, the findings and explanations provided continually emphasize the need for future work to extend our understanding of the observed pattern of effects among the variables measured in the current research (i.e., ADHD, PR, RS, depression, anxiety, stress, and self-compassion) by incorporating psychophysiological measures into its methodology.

Stress

Finally, self-compassion significantly moderated the relationships between PR and stress and RS and stress. The latter finding met our hypothesis (i.e., hypothesis 3a), which was apprised

by prior findings associating self-compassion with reduced stress levels and better-quality interpersonal relationships (Lathren et al., 2021; Marsh et al., 2018). Our expectation that this effect would be more substantial for emerging adults with ADHD than their typically developing peers was also met (i.e., hypothesis 3b). Surprisingly, findings from our analyses showed that the interaction between self-compassion and PR for participants in the ADHD group predicted lower stress levels, and the same interaction had an insignificant effect for participants in the typically developing group. It is possible that self-compassion is not a moderator of the significant relationship between PR and stress for typically developing participants because they have an adaptive nervous system response, and self-compassion would not further enhance an already adaptive response in a well-regulated nervous system. Upon taking a closer look at these interactions by exploring the moderating effect of the self-compassion subscales on the relationship between PR and stress, we found no significant moderating effects for the typically developing group. However, unlike the pattern of effects commonly seen throughout this study, results revealed that higher self-kindness and lower self-judgement levels predicted lower stress levels at greater PR for the ADHD group. Although these effects align with previous literature on self-compassion and perceived stress, it comes as a surprise within the context of our other findings. Self-compassion may improve overall nervous system regulation in the presence of PR, an objective stressor, allowing for more appropriate responses to rejection and acceptance, ultimately lowering perceived stress levels in emerging adults with ADHD.

As mentioned, self-compassion exacerbated the effect of RS on stress. Within-group moderation analyses were conducted to identify differences in self-compassion's moderating effect on the relationship between RS and stress. Results revealed that the influence of RS on stress was not moderated by self-compassion for participants with or without ADHD (i.e.,

hypothesis 3b). Additionally, the subdimensions of self-compassion were not significant moderators of this relationship for either developmental group. Perhaps self-compassion was not a substantial moderator of RS' influence on perceived stress levels in typically developing emerging adults because RS had little direct influence on their stress levels. Opposingly, RS did notably predict perceived stress levels in the ADHD group; however, the interaction between RS and self-compassion was still negligible. Recall that participants with ADHD reported marginally moderate self-compassion levels in the current study. It is conceivable that self-compassion did not moderate this effect because it may be connected to nervous system dysregulation, which may need significantly higher self-compassion levels to be addressed.

It is worth noting that despite the increase in anxiety and stress predicted by higher levels of RS and self-compassion, self-compassion directly predicted lower levels of depressive and anxiety symptoms and perceived stress levels for all participants. Future research should continue investigating how self-compassion may influence youth's social, cognitive, and emotional development at different maturational periods. Furthermore, follow-up research should explore how and why the influence of PR and RS may vary due to developmental differences, as alluded to by the findings above (e.g., why did high RS elevate stress for emerging adults with ADHD relative to their typically developing peers?).

Limitations

The current study has several significant limitations that should be taken into account when interpreting the findings. Firstly, this study aimed to provide a foundational framework in evidencing a pattern of effect across developmental groups (i.e., ADHD, typically developing) and adverse social outcomes (i.e., PR and RS), and psychological distress (i.e., depressive and anxiety symptomology and perceived personal stress) in one extensive model. However,

causation cannot be concluded due to the correlational methods employed. Future studies should consider compounding these two lines of inquiry to evaluate interactions among these variables in more elaborate models. Incorporating psychophysiological and neuroimaging measures may further elucidate the observed effects' psychological underpinnings, permitting scientists to define the relationships among the variables more explicitly. Furthermore, subsequent literature could use structural equation modelling to analyze the path model, allowing for a more intricate analysis and to test the model holistically.

Secondly, a clinical or demographically representative sample was not recruited for this research. While the study intended to investigate how adverse social challenges and psychological distress differed as a function of developmental group, our sample composition may have impeded this objective. Using a community sample of emerging adults with ADHD in the present research may have produced different results from research conducted in a clinical sample. Specifically, differences in observed effects may stem from factors such as reliance on self-reported diagnoses and variance in symptoms and functionality. Efforts in identifying developmental differences and differential effects of social adversity on mental health between emerging adults with ADHD and their typically developing counterparts would benefit from extensions of this line of inquiry in clinical samples.

Moreover, as an undergraduate student database was used to recruit participants, the present findings may only be generalizable to emerging adults attending university. The current study’s capacity to obtain a representative sample was restricted, thus decreasing the variability in SES and life paths pursued by emerging adults. Consequently, the current findings may be most generalizable to university-educated emerging adults with and without ADHD with better access to social support and medical resources, enabling them to pursue higher-level education.

For example, undergraduate students with ADHD may access academic accommodations or medication to help alleviate symptoms that may otherwise make it difficult to manage their workload that emerging adults pursuing other goals (e.g., vocational school, the workforce) may not have access to. However, the observed effect patterns may be more pronounced in populations with limited social and medical care available to them. Future studies may consider employing reasonable efforts to recruit participants outside of WEIRD (i.e., Western, educated, industrialized, rich, and democratic; Henrich et al., 2010) samples historically studied in psychology to prevent oversampling a specific demographic and better represent marginalized developmental groups (i.e., emerging adults with ADHD with varying levels of access to social and medical interventions; people of colour with ADHD). This may look like advertising studies in more accessible spaces, offering compensation to participants, and engaging in community sampling efforts outside of university premises.

Lastly, the limitations of the study design must be acknowledged. The self-report questionnaire employed to obtain data for this study is accompanied by a range of concerns that have been associated with this approach, such as susceptibility to social desirability bias, response bias, inability to accurately recall emotions and events across long periods (e.g., recalling experiences of PR over three months), and differences in survey item interpretations. Precautions were taken to filter and remove responses that indicated response bias (i.e., reverse-coding attention checks). However, social desirability bias and inaccurate recall remain concerns as individuals with ADHD are more likely to engage in social desirability bias and struggle with memory (Kofler et al., 2019).

Implications and Future Directions

Characterized by a myriad of social, physiological, and cognitive changes, emerging adulthood can be a taxing developmental period for many youths. Having yielded support for the role of ADHD in predicting PR and RS and the subsequent role of these interpersonal concerns in developing depression and anxiety symptoms and increasing perceived stress levels for emerging adults, this study makes salient contributions to theoretical underpinnings and clinical practice. This study is one of many to maintain and underlie the relationships between PR and RS and depression, anxiety, and stress. However, it may be one of the first to illustrate the differential effects of PR and RS on psychological distress as a function of developmental differences between emerging adults with ADHD and their typically developing peers. Thus, it may be auspicious to implement these theoretical underpinnings on the construction of prevention and intervention programs that minimize the impact of social cognitive deficits and adverse social outcomes such as PR and RS on the mental health of typically developing emerging adults and vulnerable youth (i.e., emerging adults with ADHD). Moreover, this study serves as one of the earliest to advocate for self-compassion training approaches that aim to instill specific strategies necessary for emerging adults to self-regulate and alleviate the detrimental impact of social challenges on mental health through preventative programs (e.g., teaching strategies to reduce self-judgment rather than increase a sense of common humanity). Scientists and clinicians could bolster the development of specific strategies (i.e., reducing and enhancing skills associated with certain subdimensions of self-compassion), contingent on developmental differences, to prevent psychopathology symptoms and reduce stress levels following social difficulties. Alternatively, preventative and therapeutic approaches may aspire to strengthen components of self-compassion in social contexts, targeting youth with ADHD earlier in childhood to be better equipped to self-regulate following unfavourable social

outcomes (i.e., PR and RS), to limit their consequences on nervous system regulation and PFC development. This may subsequently improve the trajectories of their social-cognitive and executive function development.

Self-compassion promotes an open-hearted awareness and understanding of one's shortcomings and hardships and affirms that we are not isolated in our struggles. Thus, we must continue to explore lines of research dedicated to identifying its many applications. While the current study attempted to establish a relatively novel application of self-compassion in emerging adults with ADHD and their typically developing peers, further research is required to examine personal and social applications of self-compassion, its subscales, and related psychological outcomes using mixed-methodology and exhaustive models. Many studies have aimed to replicate the associations among ADHD, PR, and RS, while others have aspired to investigate the relationships among PR, RS, and mental health. However, few studies have investigated this scope of variables in emerging adults while using one integrated model that allows for comparison to a healthy control group (i.e., typically developing emerging adults).

Consequently, future studies should aim to extend our understanding of this effect pattern among these variables with more comprehensive and mixed-method approaches (i.e., psychophysiological methods, observation, self-report, and experimental paradigms). Moreover, integrating multiple measures for each variable can help produce highly valid research. For example, a future study may stimulate PR using the cyber-ball task and use a self-report measure to confirm participants feel rejected and use both self-report and physiological measures to assess subsequent stress levels. These alterations may increase validity by presenting opportunities to verify that participants' perception of events corresponds with their physiological responses.

Additionally, future work should continue to strengthen the understanding of differences in the relationships between PR and RS and psychological distress between emerging adults with ADHD and those who are typically developing. Through expanding our focus to study the specific effects of PR and RS as a function of developmental identities, we may gain insight into developmental differences between emerging adults with and without ADHD, the mechanisms underlying these effects, and which components of self-compassion are most effective in preventing psychopathological symptoms and bolstering EF and social cognitive development in at-risk and healthy youth populations. This understanding would be essential to advising clinical practice and within-school programs and enable clinicians, policymakers, and scientists to bolster specific subdimensions of self-compassion through preventative intervention in a way that tailors such interventions to the specific social-emotional, cognitive, and physiological needs of diverse youth populations.

Resources

Adler, L. A., Spencer, T., Faraone, S. V., Kessler, R. C., Howes, M. J., Biederman, J., & Secnik, K. (2006). Validity of pilot adult ADHD self-report scale (ASRS) to rate adult ADHD symptoms. *Annals of Clinical Psychiatry*, *18*(3), 145–148. DOI: 10.1080/10401230600801077

Alicke, M. D., & Govorun, O. (2005). The better-than-average effect. In M. D. Alicke, D. A. Dunning & J. I. Krueger (Eds.), *The Self in Social Judgment* (pp. 85–106). New York: Psychology Press.

Amanda, J., Roswiyani, R., & Satyadi, H. (2021). The relationships of self-compassion and stress among emerging adults experiencing early adult crisis. *Advances in Health Sciences Research*, *41*, 170-177. DOI: 10.2991/ahsr.k.211130.029

Amemiya, R., & Sakairi, Y. (2020). The role of self-compassion in athlete mindfulness and burnout: Examination of the effects of gender differences. *Personality and Individual Differences*, *166*, 110167-. DOI: 10.1016/j.paid.2020.110167

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). DOI: 10.1176/appi.books.9780890425596

Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *The American Psychologist*, *55*(5), 469–480. DOI: 10.1037/0003-066X.55.5.469

Babinski, D. E., Kujawa, A., Kessel, E. M., Arfer, K. B., & Klein, D. N. (2019). Sensitivity to peer feedback in young adolescents with symptoms of ADHD: Examination of neurophysiological and self-report measures. *Journal of Abnormal Child Psychology*, *47*(4), 605–617. DOI: 10.1007/s10802-018-0470-2

Barkley, R. A. (1997). Behavioral inhibition, sustained attention and executive functions: constructing a unifying theory of ADHD. *Psychological Bulletin*, *121*, 65–94. DOI: 10.1037/0033-2909.121.1.65

Beaton, D. M., Sirois, F., & Milne, E. (2020). Self-compassion and perceived criticism in adults with attention deficit hyperactivity disorder (ADHD). *Mindfulness*, *11*(11), 2506–2518. DOI: 10.1007/s12671-020-01464-w

Beaudoin, C., Leblanc, É., Gagner, C., & Beauchamp, M. H. (2020). Systematic review and inventory of theory of mind measures for young children. *Frontiers in Psychology*, *10*, 2905–. DOI: 10.3389/fpsyg.2019.02905

Bedrossian, L. (2021). Understand and address complexities of rejection sensitive dysphoria in students with ADHD. *Disability Compliance for Higher Education*, *26*(10), 4–4. DOI: 10.1002/dhe.31047

Berenson, K. R., Downey, G., Rafaeli, E., Coifman, K. G., & Paquin, N. L. (2011). The rejection-rage contingency in borderline personality disorder. *Journal of abnormal psychology*, *120*(3), 681–690. https://doi.org/10.1037/a0023335

Berenson, K. R., Gyurak A., Ayduk, O., Downey G., Garner, M. J., Mogg, K. Bradley, B. P., & Pine, D. S. (2009). Rejection sensitivity and disruption of attention by social threat cues. *Journal of Research in Personality*, *43*(6), 1064-1072. DOI: 10.1016/j.jrp.2009.07.007

Berryhill, M. B., Hayes, A., & Lloyd, K. (2018). Chaotic-enmeshment and anxiety: The mediating role of psychological flexibility and self-compassion. *Contemporary Family Therapy: An International Journal*, *40*(4), 326-337. DOI: 10.1007/s10591-018-9461-2

Bluth, K., & Blanton, P. W. (2014). Mindfulness and self-compassion: Exploring pathways to

adolescent emotional well-being. *Journal of Child and Family Studies*, *23*(7), 1298–1309. DOI: 10.1007/s10826-013-9830-2

Bluth, K., & Blanton, P. W. (2015). The influence of self-compassion on emotional well-being among early and older adolescent males and females. *The Journal of Positive Psychology*, *10*(3), 219-230. DOI: 10.1080/17439760.2014.936967

Bluth, K., Campo, R. A., Futch, W. S., & Gaylord, S. A. (2017). Age and gender differences in the associations of self-compassion and emotional well-being in a large adolescent sample. *Journal of Youth and Adolescence*, *46*(4), 840–853. DOI: 10.1007/s10964-016-0567-2

Bluth, K., & Eisenlohr-Moul, T. A. (2017). Response to a mindful self-compassion intervention in teens: A within-person association of mindfulness, self-compassion, and emotional well-being outcomes. *Journal of Adolescence*, *57*(1), 108–118. DOI: 10.1016/j.adolescence.2017.04.001

Bluth, K., Knox, M., Press, A., & Lathren, C. (2023). Feasibility, acceptability and preliminary outcomes of Embracing Your Life: An online self-compassion program for emerging adults. *Emerging Adulthood*, *11*(5), 1281–1291. DOI: 10.1177/21676968231189902

Bluth, K., & Neff, K. D. (2018). New frontiers in understanding the benefits of self compassion. *Self and Identity*, *17*(6), 605-608. DOI: 10.1080/15298868.2018.1508494

Bluth, K., Roberson, P. N., & Gaylord, S. A. (2015). A pilot study of a mindfulness intervention for adolescents and the potential role of self-compassion in reducing stress. *Explore: The Journal of Science and Healing*, *11*(4), 292–295. DOI: 10.1016/j.explore.2015.04.005

Bluth, K., Roberson, P. N., Gaylord, S. A., Faurot, K. R., Grewen, K. M., Arzon, S., & Girdler, S. S. (2016). Does self-compassion protect adolescents from stress? *Journal of Child*

and Family Studies, *25*(4), 1098–1109. DOI: 10.1007/s10826-015-0307-3

Bora, E., & Pantelis, C. (2016). Meta-analysis of social cognition in attention-deficit/hyperactivity disorder (ADHD): Comparison with typically developing controls and autistic spectrum disorder. *Psychological Medicine*, *46*(4), 699-716. DOI: 10.1017/S0033291715002573

Bowker, J. C., Coplan, R. J., & Nelson, L. J. (Eds.). (2021). *The handbook of solitude: Psychological perspectives on social isolation, social withdrawal, and being alone* (2nd ed.). John Wiley & Sons, Ltd.

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Harvard University Press.

Bronfenbrenner, U. (1995). Developmental ecology through space and time: A future perspective. In P. Moen, G. H. Elder, Jr., & K. Lüscher (Eds.), *Examining lives in context: Perspectives on the ecology of human development* (pp. 619–647). American Psychological Association. https://doi.org/10.1037/10176-018

Buitelaar, J. K., Kan, C. C., & Asherson, P. (2011). *ADHD in adults : characterization, diagnosis, and treatment*. Cambridge University Press.

Bushman, B. J., & Baumeister, R. F. (1998). Threatened egotism, narcissism, self-esteem, and direct and displaced aggression: does self-love or self-hate lead to violence? *Journal of Personality and Social Psychology*, *75*(1), 219-229. DOI: 10.1037//0022-3514.75.1.219

CADDRA–Canadian Attention Deficit Hyperactivity Disorder Resource Alliance. (2018). *Canadian ADHD Practice Guidelines* (4th ed.). Toronto, ON: Author. CADDRA–Canadian Attention Deficit Hyperactivity Disorder Resource Alliance. (2019).

Carbonneau, M. L., Demers, M., Bigras, M., & Guay, M.-C. (2021). Meta-analysis of sex differences in ADHD symptoms and associated cognitive deficits. *Journal of Attention Disorders*, *25*(12), 1640–1656. DOI: 10.1177/1087054720923736

Cardillo, R., Vio, C., & Mammarella, I. C. (2020). A comparison of local-global visuospatial processing in autism spectrum disorder, nonverbal learning disability, ADHD and typical development. *Research in Developmental Disabilities*, *103*, 103682–103682. DOI: 10.1016/j.ridd.2020.103682

Castilho, P., Carvalho, S. A., Marques, S., & Pinto-Gouveia, J. (2017). Self-compassion and emotional intelligence in adolescence: a multigroup mediational study of the impact of shame memories on depressive symptoms. *Journal of Child and Family Studies*, *26*(3), 759–768. DOI: 10.1007/s10826-016-0613-4

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, *24*(4), 385–396. DOI: 10.2307/2136404

Crocker, J., & Canevello, A. (2008). Creating and undermining social support in communal relationships: The role of compassionate and self-image goals. *Journal of Personality and Social Psychology*, *95*(3), 555–575. DOI: 10.1037/0022-3514.95.3.555

Crocker, J., & Park, L. E. (2004). The costly pursuit of self-esteem. *Psychological Bulletin*, *130*(3), 392–414. DOI: 10.1037/0033-2909.130.3.392

Daley, D., & Birchwood, J. (2010). ADHD and academic performance: Why does ADHD impact on academic performance and what can be done to support ADHD children in the classroom? *Child: Care, Health and Development*, *36*(4), 455-464. DOI: 10.1111/j.2214.2009.01046.x

de Boer, A., & Pijl, S. J. (2016). The acceptance and rejection of peers with ADHD and ASD in

general secondary education. *The Journal of Educational Research (Washington, D.C.)*, *109*(3), 325–332. DOI: 10.1080/00220671.2014.958812

Delgado-Lobete, L., Pértega-Díaz, S., Santos-del-Riego, S., & Montes-Montes, R. (2020). Sensory processing patterns in developmental coordination disorder, attention deficit hyperactivity disorder and typical development. *Research in Developmental Disabilities*, *100*, 103608–103608. DOI: 10.1016/j.ridd.2020.103608

Demaray, M. K., & Jenkins, L. N. (2011). Relations among academic enablers and academic achievement in children with and without high levels of parent-rated symptoms of inattention, impulsivity, and hyperactivity. *Psychology in the Schools*, *48*(6), 573-586. DOI: 10.1002/pits.20578

Denovan, A., Dagnall, N., Dhingra, K., & Grogan, S. (2019). Evaluating the Perceived Stress Scale among UK university students: Implications for stress measurement and management. *Studies in Higher Education*, *44*(1), 120–133. DOI: 10.1080/03075079.2017.1340445

Diamond, A. (2011). Chapter 18: Biological and social influences on cognitive control processes dependent on prefrontal cortex. *Progress in Brain Research*, *189*(2011), 319-339. DOI: 10.1016/B978-0-444-53884-0.00032-4

Diamond, A. (2013). Executive functions. *Annual Review of Psychology*, *64*(1), 135–168. DOI: 10.1038/jid.2014.371

Downey, G., & Feldman, S. (1996). Implications of rejection sensitivity for intimate relationships. *Journal of Personality and Social Psychology*, *70*(6), 1327– 1343. DOI: 10.1037/0022-3514.70.6.1327

Dweck, C. S. (1998). The development of early self-conceptions: Their relevance for

motivational processes. In J. Heckhausen & C. S. Dweck (Eds.), *Motivation and self-regulation across the life span* (pp. 257–280). Cambridge University Press. DOI: 10.1017/CBO9780511527869.012

Eddy, L. D., Anastopoulos, A. D., Dvorsky, M. R., Silvia, P. J., Labban, J. D., & Langberg, J. M. (2021). An RCT of a CBT intervention for emerging adults with ADHD attending college: Functional outcomes. *Journal of Clinical Child and Adolescent Psychology*, 1–14. DOI: 10.1080/15374416.2020.1867989

Egan, S. J., Rees, C. S., Delalande, J., Greene, D., Fitzallen, G., Brown, S., Webb, M., & Finlay Jones, A. (2022). A review of self-compassion as an active ingredient in the prevention and treatment of anxiety and depression in young people. *Administration and Policy in Mental Health and Mental Health Services Research*, *49*(3), 385–403. DOI: 10.1007/s10488-021-01170-2

Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39,* 175–191. DOI: 10.3758/BF03193146

Frith C. D. (2008). Social cognition. *Philosophical Transactions of the Royal Society of London Biological Sciences*, *363*(1499), 2033–2039. DOI: 10.1098/rstb.2008.0005

Galla, B. M. (2016). Within-person changes in mindfulness and self-compassion predict enhanced emotional well-being in healthy, but stressed adolescents. *Journal of Adolescence*, *49*, 204–217. DOI: 10.1016/j.adolescence.2016.03.016

Gao, S., Assink, M., Cipriani, A., & Lin, K. (2017). Associations between rejection sensitivity and mental health outcomes: A meta-analytic review. *Clinical Psychology Review*, *57*, 59–74. DOI: 10.1016/j.cpr.2017.08.007

Gardner, D. M., & Gerdes, A. C. (2015). A review of peer relationships and friendships in youth with ADHD. *Journal of Attention Disorders*, *19*(10), 844–855. DOI: 10.1177/1087054713501552

Garett, R., Liu, S., & Young, S. D. (2017). A longitudinal analysis of stress among incoming college freshmen. *Journal of American College Health*, *65*(5), 331–338. DOI: 10.1080/07448481.2017.1312413

Geurts, D. E., Schellekens, M. P. J., Janssen, L., & Speckens, A. E. M. (2021). Mechanisms of change in mindfulness-based cognitive therapy in adults with ADHD. *Journal of Attention Disorders*, *25*(9), 1331–1342. DOI: 10.1177/1087054719896865

Gouveia, M. J., Canavarro, M. C., & Moreira, H. (2018). Is mindful parenting associated with adolescents' emotional eating? The mediating role of adolescents' self-compassion and body shame. *Frontiers in Psychology*, *9*. DOI: 10.3389/fpsyg.2018.02004

Grevenstein, D., Bluemke, M., Schweitzer, J., & Aguilar-Raab, C. (2019). Better family relationships—Higher well-being: The connection between relationship quality and health related resources. *Mental Health & Prevention*, *14*, 1–8. DOI: 10.1016/j.mph.2019.200160

Grygiel, P., Humenny, G., Rębisz, S., Bajcar, E., & Świtaj, P. (2018). Peer rejection and perceived quality of relations with schoolmates among children with ADHD. *Journal of Attention Disorders*, *22*(8), 738–751. DOI: 10.1177/1087054714563791

Harpin, V., Mazzone, L., Raynaud, J. P., Kahle, J., & Hodgkins, P. (2016). Long-Term outcomes of ADHD: A systematic review of self-esteem and social function. *Journal of Attention Disorders*, *20*(4), 295–305. DOI: 10.1177/1087054713486516

Hayes, A. F. (2022). Introduction to mediation, moderation, and conditional process analysis: A

regression-based approach (3rd ed.). Paris: Guilford Press.

Hazzard, V. M., Yoon, C., Emery, R. L., Mason, S. M., Crosby, R. D., Wonderlich, S. A., & Neumark-Sztainer, D. (2021). Adverse childhood experiences in relation to mood-, weight-, and eating-related outcomes in emerging adulthood: Does self-compassion play a buffering role? *Child Abuse & Neglect*, *122*, 105307–105307. DOI: 10.1016/j.chiabu.2021.105307

Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences*, *33*(3-2), 61-83. DOI: 10.1017/S0140525X0999152X

Hochberg, Z. E., & Konner, M. (2020). Emerging adulthood, a pre-adult life-history tage. *Frontiers in Endocrinology*, *10*, 918–918. DOI: 10.3389/fendo.2019.00918

Hood, C. O., Thomson Ross, L., & Wills, N. (2020). Family factors and depressive symptoms among college students: Understanding the role of self-compassion. *Journal of American College Health*, *68*(7), 683–687. DOI: 10.1080/07448481.2019.1596920

Huang, A. B., & Berenbaum, H. (2017). Accepting our weaknesses and enjoying better relationships: An initial examination of self-security. *Personality and Individual Differences*, *106*, 64–70. DOI: 10.1016/j.paid.2016.10.031

Ismail, N. A., & Tekke, M. (2015). Rediscovering Rogers' self theory and personality. *Journal of Educational, Health and Community Psychology*, *4*(3), 28-36.

Jacobson, E. H. K., Wilson, K. G., Solomon Kurz, A., & Kellum, K. K. (2018). Examining self-compassion in romantic relationships. *Journal of Contextual Behavioral Science*, *8*, 69–73. DOI: 10.1016/j.jcbs.2018.04.003

Janssen, L., Kan, C., Carpentier, P., Sizoo, B., Hepark, S., Schellekens, M. P., Donders, A. R.,

Buitelaar, J., & Speckens, A. E. (2018). Mindfulness-based cognitive therapy v. treatment as usual in adults with ADHD: A multicentre, single-blind, randomised controlled trial - ERRATUM. *Psychological Medicine*, *48*(11), 1920–1920. DOI: 10.1017/S0033291718000776

Jiang, T., & Chen, Z. (2020). Meaning in life accounts for the association between long-term ostracism and depressive symptoms: The moderating role of self-compassion. *The Journal of Social Psychology*, *160*(5), 535–547. DOI: 10.1080/00224545.2019.1693951

Jordan, J. V. (1991a). Empathy and self-boundaries. In J. V. Jordan, A. G. Kaplan, J. B. Miller, I. P. Stiver, & J. L. Surrey (Eds.), *Women's growth in connection: Writings from the Stone Center* (pp. 67–80). New York: Guilford.

Jordan, J. V. (1991b). Empathy, mutuality and therapeutic change: Clinical implications of a relational model. In J. V. Jordan et al. (Eds.), *Women's growth in connection: Writings from the Stone Center* (pp. 283–290). New York: Guilford.

Joss, D., Khan, A., Lazar, S. W., & Teicher, M. H. (2019). Effects of a mindfulness-based intervention on self-compassion and psychological health among young adults with a history of childhood maltreatment. *Frontiers in Psychology*, *10*, 2373–2373. DOI: 10.3389/fpsyg.2019.02373

Juvonen, J., Lessard, L. M., Rastogi, R., Schacter, H. L., & Smith, D. S. (2019). Promoting social inclusion in educational settings: Challenges and opportunities. *Educational Psychologist*, *54*(4), 250–270. DOI: 10.1080/00461520.2019.1655645

Katzman, M. A., Bilkey, T. S., Chokka, P. R., Fallu, A., & Klassen, L. J. (2017). Adult ADHD and comorbid disorders: Clinical implications of a dimensional approach. *BMC Psychiatry*, *17*(1), 302. DOI: 10.1186/s12888-017-1463-3

Keane, L., & Loades, M. (2016). Review: Low self-esteem and internalizing disorders in young people – a systematic review. *Child and Adolescent Mental Health*, *22*(1), 4-15. DOI: 10.1111/camh.12204

Kemper, K. J., Heyer, G., Pakalnis, A., & Binkley, P. F. (2015). What factors contribute to headache-related disability in teens? *Pediatric Neurology*, *56*, 48–54. DOI: 10.1016/j.pediatrneurol.2015.10.024

Kerekes, N., Sanchéz-Pérez, A. M., & Landry, M. (2021). Neuroinflammation as a possible link between attention-deficit/hyperactivity disorder (ADHD) and pain. *Medical Hypotheses*, *157*, 110717–110717. DOI: 10.1016/j.mehy.2021.110717

Kessler, R. C., Adler, L., Ames, M., Demler, O., Faraone, S., Hiripi, E., Howes, M. J., Jin, R., Secnik, K., Spencer, T., Ustun, T. B., & Walters, E. E. (2005). The World Health Organization adult ADHD self-report scale (ASRS): A short screening scale for use in the general population. *Psychological Medicine*, *35*(2), 245–256. DOI: 10.1017/S0033291704002892

Kofler, M. J., Irwin, L. N., Soto, E. F., Groves, N. B., Harmon, S. L., & Sarver, D. E. (2019). Executive functioning heterogeneity in pediatric ADHD. *Journal of Abnormal Child Psychology*, *47*(2), 273–286. DOI: 10.1007/s10802-018-0438-2

Kolb, B., Mychasiuk, R., Muhammad, A., Li, Y., Frost, D. O., & Gibb, R. (2012). Experience and the developing prefrontal cortex. *Proceedings of the National Academy of Sciences in the United States of America*, *109*(supplement 2), 17186-17193. DOI: 10.1073/pnas.1121251109

Kolk, S. M., & Rakic, P. (2022). Development of prefrontal cortex. *Neuropsychopharmacology*, *47*, 41–57. DOI: 10.1038/s41386-021-01137-9

Lapsley, D., & Woodbury, R. D. (2016). Social cognitive development in emerging adulthood. In J. J. Arnett (Ed.), *The Oxford handbook of emerging adulthood* (pp. 142–159). Oxford University Press. DOI: 10.1093/oxfordhb/9780199795574.013.16

Lathren, C. R., Rao, S. S., Park, J., & Bluth, K. (2021). Self-compassion and current close interpersonal relationships: A scoping literature review. *Mindfulness*, *12*(5), 1078–1093. DOI: 10.1007/s12671-020-01566-5

Leary, M. R., Tate, E. B., Adams, C. E., Allen, A. B., & Hancock, J. (2007). Self-compassion and reactions to unpleasant self-relevant events: The implications of treating oneself kindly. *Journal of Personality and Social Psychology*, *92*(5), 887–904. DOI: 10.1037/00223514.92.5.887

Lee, E. (2009). The relationship of aggression and bullying to social preference: Differences in gender and types of aggression. *International Journal of Behavioral Development*, *33*(4), 323–330. DOI: 10.1177/0165025408098028

Lindholdt, L., Labriola, M., Andersen, J. H., Kjeldsen, M.-M. Z., Obel, C., & Lund, T. (2022). Perceived stress among adolescents as a marker for future mental disorders: A prospective cohort study. *Scandinavian Journal of Public Health*, *50*(3), 412–417. DOI: 10.1177/1403494821993719

London, B., Downey, G., Bonica, C., & Paltin, I. (2007). Social causes and consequences of rejection sensitivity. *Journal of Research on Adolescence*, *17*(3), 481–506. DOI: 10.1111/j.1532-7795.2007.00531.x

Liu, J., Zhang, Y., Qiu, J., & Wei, D. (2023). Linking negative affect, personality and social

conditions to structural brain development during the transition from late adolescent to young adulthood. *Journal of Affective Disorders*, *325*, 14–21. DOI: 10.1016/j.jad.2023.01.015

Marsh, I. C., Chan, S. W. Y., & MacBeth, A. (2018). Self-compassion and psychological distress in adolescents - a meta-analysis. *Mindfulness*, *9*(4), 1011-1027. DOI: 10.1007/s12671-017-0850-7

Maslow, A. H. (1968). *Toward a psychology of being*. New York: Van Nostrand.

Masten, C. L., Eisenberger, N. I., Borofsky, L. A., McNealy, K., Pfeifer, J. H., & Dapretto, M. (2011). Subgenual anterior cingulate responses to peer rejection: A marker of adolescents' risk for depression. *Development and Psychopathology*, *23*(1), 283–292. DOI: 10.1017/S0954579410000799

Masui, K., Fujiwara, H., & Ura, M. (2013). Social exclusion mediates the relationship between psychopathy and aggressive humor style in noninstitutionalized young adults. *Personality and Individual Differences*, *55*(2), 180–184. DOI: 10.1016/j.paid.2013.03.001

Matthys, W., Cuperus, J. M., & van Engeland, H. (1999). Deficient social problem-solving in boys with ODD/CD, with ADHD, and with both disorders. *Journal of the American Academy of Child & Adolescent Psychiatry*, *38*(3), 311-321. DOI: 10.1097/00004583-199903000-00019

Maxwell, N., & Lopus, J. (1994). The Lake Wobegon effect in student self-reported data. *The American Economic Review*, *84*(2), 201–205.

Mazzone, L., Postorino, V., Reale, L., Guarnera, M., Mannino, V., Armando, M., Fatta, L., De

Peppo, L., & Vicari, S. (2013). Self-esteem evaluation in children and adolescents suffering from ADHD. *Clinical Practice and Epidemiology in Mental Health*, *9*(1), 96–102. DOI: 10.2174/1745017901309010096

McLachlan, J., Zimmer-Gembeck, M. J., & McGregor, L. (2010). Rejection Sensitivity in Childhood and Early Adolescence: Peer Rejection and Protective Effects of Parents and Friends. *Journal of Relationships Research*, *1*(1), 31-40. DOI: 10.1375/jrr.1.1.31

Mikami, A. Y., & Hinshaw, S. P. (2003). Buffers of peer rejection among girls with and without ADHD: The role of popularity with adults and goal-directed solitary play. *Journal of Abnormal Child Psychology*, *31*(4), 381–397. DOI: 10.1023/A:1023839517978

Moreira, H., Fonseca, A., & Canavarro, M. C. (2017). Assessing attachment to parents and peers in middle childhood: Psychometric studies of the Portuguese version of the People in My Life questionnaire. *Journal of Child and Family Studies*, *26*(5), 1318–1333. DOI: 10.1007/s10826-017-0654-3

Moreira, H., Gouveia, M. J., & Canavarro, M. C. (2018). Is mindful parenting associated with adolescents' well-being in early and middle/late adolescence? The mediating role of adolescents' attachment representations, self-compassion and mindfulness. *Journal of Youth and Adolescence*, *47*(8), 1771–1788. DOI: 10.1007/s10964-018-0808-7

Morris, S. S. J., Musser, E. D., Tenenbaum, R. B., Ward, A. R., Martinez, J., Raiker, J. S., Coles, E. K., & Riopelle, C. (2020). Emotion regulation via the autonomic nervous system in children with attention-deficit/hyperactivity disorder (ADHD): Replication and extension. *Journal of Abnormal Child Psychology*, *48*(3), 361–373. DOI: 10.1007/s10802-019-00593-8

Mrug, S., Molina, B. S. G., Hoza, B., Gerdes, A. C., Hinshaw, S. P., Hechtman, L., & Arnold, L. E. (2012). Peer Rejection and friendships in children with attention-deficit/hyperactivity disorder: Contributions to long-term outcomes. *Journal of Abnormal Child Psychology*, *40*(6), 1013–1026. DOI: 10.1007/s10802-012-9610-2

Murn, L. T., & Steele, M. R. (2020). What matters most? Age and gender differences in self-compassion and body attitudes among college students. *Counselling Psychology Quarterly*, *33*(4), 541–560. DOI: 10.1080/09515070.2019.1605334

Musser, E. D., Backs, R. W., Schmitt, C. F., Ablow, J. C., Measelle, J. R., & Nigg, J. T. (2011). Emotion regulation via the autonomic nervous system in children with attention-deficit/hyperactivity disorder (ADHD). *Journal of Abnormal Child Psychology*, *39*(6), 841–852. DOI: 10.1007/s10802-011-9499-1

Neff, K. D. (2011). Self-compassion, self-esteem, and well-being. *Social and Personality Psychology Compass*, *5*(1), 1-12. DOI: 10.1111/j.1751-9004.2010.00330.

Neff, K. D. (2003a). The development and validation of a scale to measure self-compassion. *Self and Identity*, *2*(3), 223–250. DOI: 10.1080/15298860309027

Neff, K. D. (2003b). Self-compassion: An alternative conceptualization of a healthy attitude toward oneself. *Self and Identity*, *2*, 85-101. DOI: 10.1080/15298860390129863

Neff, K. D., & McGehee, P. (2010). Self-compassion and psychological resilience among adolescents and young adults. *Self and Identity*, *9*(3), 225–240. DOI: 10.1080/15298860902979307

Neff, K. D., Kirkpatrick, K. L., & Rude, S. S. (2007). Self-compassion and adaptive psychological functioning. *Journal of Research in Personality*, *41*(2007), 139-154. DOI: 10.1016/j.jrp.2006.03.004

Neff, K. D. & Tóth-Király, I (2022). Self-Compassion Scale (SCS), In N. Oleg, O. N. Medvedev, C. U. Krägeloh, R. J. Siegert, & N. N. Singh (Eds.) *Handbook of assessment in mindfulness.* New York: Springer. DOI: 10.1007/978-3-030-77644-2_36-1

Neff, K. D., & Vonk, R. (2009). Self-compassion versus global self-esteem: two different ways of relating to oneself. *Journal of Personality*, *77*(1), 23-50. DOI: 10.1111/j.1467-6494.2008.00537.x

Nelson, L.J. and Millett, M.A. (2021). Social withdrawal during emerging adulthood. In R.J. Coplan, J.C. Bowker and L.J. Nelson (Eds.), *The handbook of solitude*: *Psychological perspectives on social isolation, social withdrawal, and being alone* (pp. 146-162). John Wiley & Sons, Incorporated. DOI: 10.1002/9781119576457.ch11

Nonaka, S., & Sakai, M. (2021). Psychological factors associated with social withdrawal (Hikikomori). *Psychiatry investigation*, *18*(5), 463–471. DOI: 10.30773/pi.2021.0050

O'Connor, M., Sanson, A., Hawkins, M. T., Letcher, P., Toumbourou, J. W., Smart, D., Vassallo, S., & Olsson, C. A. (2010). Predictors of positive development in emerging adulthood. *Journal of Youth and Adolescence*, *40*(7), 860–874. DOI: 10.1007/s10964-010-9593-7

Opstoel, K., Chapelle, L., Prins, F. J., de Meester, A., Haerens, L., van Tartwijk, J., de Martelaer, K. (2020). Personal and social development in physical education and sports: A review study. *European Physical Education Review*, *26*(4), 797–813. DOI: 10.1177/1356336X19882054

Øverup, C. S., McLean, E. A., Brunson, J. A., & Coffman, A. D. (2017). Belonging,

burdensomeness, and self-compassion as mediators of the association between attachment and depression. *Journal of Social and Clinical Psychology*, *36*(8), 675–703. DOI: 10.1521/jscp.2017.36.8.675

Patzak, A., Kollmayer, M., & Schober, B. (2017). Buffering impostor feelings with kindness: The mediating role of self-compassion between gender-role orientation and the impostor phenomenon. *Frontiers in Psychology*, *8*, 1289–1289. DOI: 10.3389/fpsyg.2017.01289

Philippot, A., Meerschaut, A., Danneaux, L., Smal, G., Bleyenheuft, Y., & De Volder, A. G. (2019). Impact of physical exercise on symptoms of depression and anxiety in pre-adolescents: A pilot randomized trial. *Frontiers in Psychology*, *10*, 1820–1820. DOI: 10.3389/fpsyg.2019.01820

Polanczyk, G. V., Willcutt, E. G., Salum, G. A., Kieling, C., & Rohde, L. A. (2014). ADHD prevalence estimates across three decades: an updated systematic review and meta-regression analysis. *International Journal of Epidemiology*, *43*(2), 434-442. DOI: 10.1093/ije/dyt261

Radloff, L. S. (1977). The CES-D Scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, *1*(3), 385–401. DOI: 10.1177/014662167700100306

Raque-Bogdan, T. L., Ericson, S. K., Jackson, J., Martin, H. M., & Bryan, N. A. (2011). Attachment and mental and physical health: Self-compassion and mattering as mediators. *Journal of Counseling Psychology*, *58*(2), 272–278. DOI: 10.1037/a0023041

Rash, J. A., & Aguirre-Camacho, A. (2012). Attention-deficit hyperactivity disorder and cardiac vagal control: a systematic review. *Attention Deficit and Hyperactivity Disorders*, *4*(4), 167–177. DOI: 10.1007/s12402-012-0087-1

Redmond, R. A., & Barrett, A. E. (2015). The link between functional limitations and depressive symptoms: The explanatory role of self-conceptions. *Society and Mental Health*, *5*(1), 33-48. DOI: 10.1177/2156869314568200

Robe, A., Păsărelu, C., & Dobrean, A. (2021). Exploring autonomic regulation in children with ADHD with and without comorbid anxiety disorder through three systematic levels of cardiac vagal control analysis: Rest, reactivity, and recovery. *Psychophysiology*, *58*(9), e13850–. DOI: 10.1111/psyp.13850

Robson, D. A., Allen, M. S., & Howard, S. J. (2020). Self-regulation in childhood as a predictor of future outcomes: A meta-analytic review. *Psychological Bulletin*, *146*(4), 324–354. DOI: 10.1037/bul0000227

Rodgers, R. F., Franko, D. L., Donovan, E., Cousineau, T., Yates, K., McGowan, K., Cook, E., & Lowy, A. S. (2017). Body image in emerging adults: The protective role of self-compassion. *Body Image*, *22*, 148–155. DOI: 10.1016/j.bodyim.2017.07.003

Rogers, C. R. (1961). *On Becoming a person: A psychotherapists view of psychotherapy*. Houghton Mifflin.

Ros, R., & Graziano, P. A. (2018). Social functioning in children with or at risk for Attention Deficit/Hyperactivity Disorder: A meta-analytical review. *Journal of Clinical Child & Adolescent Psychology*, *47*(2), 213-235. DOI: 10.1080/15374416.2016.1266644

Rosenfield, S., & Smith, D. (2010). Gender and mental health: Do men and women have different amounts or types of problems. In T. L. Scheid & T. N. Brown (Eds.), *A handbook for the study of mental health: Social contexts, theories, and systems* (pp. 256-267). Cambridge University Press.

Sajjadi, M., Noferesti, A., & Abbasi, M. (2022). Mindful self-compassion intervention among

young adults with a history of childhood maltreatment: Reducing psychopathological symptoms, shame, and self-criticism. *Current Psychology*, (2022). DOI: 10.1007/s12144-022-03761-0

Sakakibara, B. M., Miller, W. C., Orenczuk, S. G., & Wolfe, D. L. (2009). A systematic review of depression and anxiety measures used with individuals with spinal cord injury. *Spinal Cord, 47*(12), 841-51. DOI: 10.1038/sc.2009.93

Santerre-Baillargeon, M., Rosen, N. O., Steben, M., Myriam, P., Macabena Perez, R., & Bergeron, S. (2017). Does self-compassion benefit couples coping with vulvodynia? Associations with psychological, sexual, and relationship adjustment. *The Clinical Journal of Pain*, *34*(7), 629–637. DOI: 10.1097/AJP.0000000000000579

Saricam, H., Ergun, E., & Sakiz, H. (2012, Aug. 23). *Self-compassion and rejection sensitivity* [Conference session]. Social Psychology Section Annual Conference, University of St Andrews, United Kingdom.

Schaan, V. K., Schulz, A., Bernstein, M., Schächinger, H., & Vögele, C. (2020). Effects of rejection intensity and rejection sensitivity on social approach behavior in women. *PloS One*, *15*(1), e0227799–e0227799. DOI: 10.1371/journal.pone.0227799

Scharf, M., Oshri, A., Eshkol, V., & Pilowsky, T. (2014). Adolescents' ADHD symptoms and adjustment: The role of attachment and rejection sensitivity. *American Journal of Orthopsychiatry, 84*(2), 209–217. DOI: 10.1037/h0099391

Sedikides, C., & Gregg, A. P. (2008). Self-enhancement: Food for thought. *Perspectives on Psychological Science*, *3*(2), 102–116. DOI: 10.1111/j.1745-6916.2008.00068.x

Shi, J., Dewaele, A., Lai, W., Lin, Z., Chen, X., Li, Q., Wang, H., Guo, L., Lu, C., & Zhang, W.

(2022). Gender differences in the association of sexual orientation with depressive symptoms: A national cross-sectional study among Chinese college students. *Journal of Affective Disorders*, *302*(Complete), 1–6. DOI: 10.1016/j.jad.2022.01.072

Soman, S. M., Vijayakumar, N., Ball, G., Hyde, C., & Silk, T. J. (2023). Longitudinal changes of resting-state networks in children with attention-deficit/hyperactivity disorder and typically developing children. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging*, *8*(5), 514–521. DOI: 10.1016/j.bpsc.2022.01.001

Spielberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, P. R., & Jacobs, G. A. (1983). *Manual for the State-Trait Anxiety Inventory*. Consulting Psychologists Press.

Stanton, A. L., Danoff-Burg, S., Cameron, C. L., & Ellis, A. P. (1994). Coping through emotional approach: Problems of conceptualization and confounding. *Journal of Personality and Social Psychology*, *66*(2), 350–362. DOI: 10.1037//0022-3514.66.2.350

Stolow, D., Zuroff, D. C., Young, J. F., Karlin, R. A., & Abela, J. R. (2016). A prospective examination of self-compassion as a predictor of depressive symptoms in children and adolescents. *Journal of Social and Clinical Psychology*, *35*(1), 1–20. DOI: 10.1521/jscp.2016.35.1.1

Swann, W. B., Stein-Seroussi, A., & McNulty, S. E. (1992). Outcasts in a white-lie society: The enigmatic worlds of people with negative self-conceptions. *Journal of Personality and Social Psychology*, *62*(4), 618–624. DOI: 10.1037/0022-3514.62.4.618

Taber-Thomas, B., & Pérez-Edgar, B. (2015). Emerging adulthood brain development. In J. J. Arnett (Ed.), *The Oxford handbook of emerging adulthood* (pp. 126-141). Oxford Library of Psychology. DOI: 10.1093/oxfordhb/9780199795574.013.15

Tanner, J. L. (2016). Mental health in emerging adulthood. In J. J. Arnett (Ed.), *The Oxford*

handbook of emerging adulthood (pp. 142–159). Oxford University Press. DOI: 10.1093/oxfordhb/9780199795574.013.16

Thau, L., Reddy, V., & Singh, P. (2022, October 10). *Anatomy, Central Nervous System*. National Center for Biotechnology Information. https://www.ncbi.nlm.nih.gov/books/NBK542179/

Trollope, M. (2009). *Stressful life-events and adolescent depression: the possible roles of self-criticism and self-compassion* (Unpublished doctoral dissertation, University of East Anglia, United Kingdom).

Trzesniewski, K. H., Donnellan, M. B., Moffitt, T. E., Robins, R. W., Poulton, R., & Caspi, A. (2006). Low self-esteem during adolescence predicts poor health, criminal behavior, and limited economic prospects during adulthood. *Developmental Psychology*, *42*(2), 381–390. DOI: 10.1037/0012-1649.42.2.381

Uekermann, J., Kraemer, M., Abdel-Hamid, M., Schimmelmann, B., Hebebrand, J., Daum, I., Wiltfang, J., & Kis, B. (2010). Social cognition in attention-deficit hyperactivity disorder (ADHD). *Neuroscience & Biobehavioral Reviews*, *34*(5), 734-743. DOI: 10.1016/j.neubiorev.2009.10.009

Ustun, B., Adler, L. A., Rudin, C., Faraone, S. V., Spencer, T. J., Berglund, P., Gruber, M. J., & Kessler, R. C. (2017). The World Health Organization Adult Attention-Deficit/Hyperactivity Disorder Self-Report Screening Scale for DSM-5. *JAMA Psychiatry*, *74*(5), 520–527. DOI: 10.1001/jamapsychiatry.2017.0298

Wei, M., Liao, K. Y., Ku, T., & Shaffer, P. A. (2011). Attachment, self-compassion, empathy, and subjective well-being among college students and community adults. *Journal of Personality*, *79*(1), 191–221. DOI: 10.1111/j.1467-6494.2010.00677.x

Williams, J. L. (2013). *Examining the moderating effects of adolescent self-compassion on the relationship between social rank and depression* (Unpublished doctoral thesis, University of Alberta, Canada).

Xavier, A., Pinto-Gouveia, J., & Cunha, M. (2016). The protective role of self-compassion on risk factors for non-suicidal self-injury in adolescence. *School Mental Health*, *8*(4), 476–485. DOI: 10.1007/s12310-016-9197-9

Yarnell, L. M., & Neff, K. D. (2013). Self-compassion, interpersonal conflict resolutions, and well-being. *Self and Identity*, *12*(2), 146–159. DOI: 10.1080/15298868.2011.649545

Yarnell, L. M., Neff, K. D., Davidson, O. A., & Mullarkey, M. (2018). Gender differences in self-compassion: Examining the role of gender role orientation. *Mindfulness*, *10*(6), 1136–1152. DOI: 10.1007/s12671-018-1066-1

Yarnell, L. M., Stafford, R. E., Neff, K. D., Reilly, E. D., Knox, M. C., & Mullarkey, M. (2015). Meta-analysis of gender differences in self-compassion. *Self and Identity*, *14*(5), 499–520. DOI: 10.1080/15298868.2015.1029966

Yanagisawa, K., Isobe, C., & Ura, M. (2010). *The effect of the experience of social exclusion and trait self-esteem on the social pain and the future interpersonal relations* [Paper presented]. 57th Annual Meeting of the Japanese Group Dynamics Association, Saitama, Japan.

Zeng, X., Wei, J., Oei, T. P., & Liu, X. (2016). The Self-Compassion Scale is not validated in a Buddhist sample. *Journal of Religion and Health*, *55*(6), 1996-2009. DOI: 10.1007/s10943-016-0205-z

Zimmer-Gembeck, M. J., Nesdale, D., McGregor, L., Mastro, S., Goodwin, B., & Downey, G.

(2013). Comparing reports of peer rejection: Associations with rejection sensitivity, victimization, aggression, and friendship. *Journal of Adolescence (London, England.)*, *36*(6), 1237–1246. DOI: 10.1016/j.adolescence.2013.10.002

Appendix A

Informed Self-Consent Form for Student Participants.

WILFRID LAURIER UNIVERSITY INFORMED CONSENT STATEMENT

Social-Emotional Outcomes in Emerging Adults with ADHD: The Influence of Self-Compassion on Peer Rejection, Rejection Sensitivity, and Related Mental Health Concerns

Principal Investigator: Alia Hussain, Master of Arts Graduate Student, Department of Psychology
Supervisor: Danielle Law (PhD), Department of Psychology

You are invited to participate in a research study. *The purpose of this study is to examine the relationship among self-compassion, interpersonal difficulties, and mental health issues commonly experienced by youth with attention-deficit/hyperactivity disorder (ADHD) to help promote healthier social-emotional development in these individuals*. The researcher *is* a Laurier *graduate student in the Master of Arts in Psychology program working under the supervision of Danielle Law*.

Information

Participants will be asked to *complete a questionnaire asking about demographic information such as gender and ethnicity, and assessing your interpersonal experiences and levels of depression, anxiety, stress, daily functioning, and self-compassion*. The study will take about *1 hour* to complete. Data from approximately *400* research participants *from PREP and courses at the Brantford campus between the ages of 17 and 22, including students with ADHD* will be collected for this study.

Risks

There are no foreseeable physical risks associated with this study. You will be asked to reflect on your relationships with others and your mental health, and there is a chance this could make you feel uncomfortable or sad. These feelings are normal and should be temporary. Your responses will be kept completely confidential. If you experience negative emotions after completion of the study, you are encouraged to contact the researcher and/or Laurier's Student Wellness Centre (Waterloo Campus: 2nd floor of the Student Services Building, 519-884-0710 ext. 3146, wellness@wlu.ca. Brantford Campus: 2nd floor of the Student Centre, 519-756-8228 ext. 5803, lbwellness@wlu.ca). *You are free to decline to participate in the study and may withdraw from the study at any time without penalty*.

Benefits

Participation in this study will provide you with the opportunity to learn about psychological research and contribute to the advancement of scientific knowledge. The findings of this study may help inform therapeutic and counselling practices, educational policies, and curricula to better support more diverse youth populations.

Confidentiality

All information you provide will be anonymized and kept confidential. Your name and email will be stored electronically on a password-protected computer, separate from your data, and will only be used to award course credit for participating in this study. This file will be destroyed by May 8, 2023, removing any ability to connect responses to names. Only the researchers, Alia Hussain and Danielle Law, will have access to the data. During the analysis of the study results, the data will be stored on password-protected computers in the home offices on the researchers and on Dr. Law's password and encrypted server. After the study is completed, the anonymized data will be stored for seven years, when it will then be destroyed by the researchers (by April 30, 2030). This project will use Internet-based data collection methods. We will make every effort to ensure the privacy of responses, however, the privacy and confidentiality of data cannot be entirely guaranteed during web-based transmissions. The researchers acknowledge that the online survey software (Qualtrics) may automatically record participant data without their knowledge (i.e., IP addresses). This information may be provided or made accessible; however, the researcher will not use or save the information.

Compensation

For participating in this study, you will receive *0.5 credits towards your PS101 and PS102 mark*. If you withdraw from the study prior to its completion, you will still receive this amount. You also have the option to write a summary of a research article to get credit for this component of the course if you choose not to participate in the study.

Contact

If you have questions at any time about the study or the procedures or you experience adverse effects as a result of participating in this study you may contact the researchers, *Alia Hussain*, at *huss1890@mylaurier.ca, or Danielle Law, at dlaw@wlu.ca or (519) 756-8228 ext. 5552.*

This project has been reviewed and approved by the University Research Ethics Board (REB# 8268), which receives funding from the Research Support Fund. If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Jayne Kalmar, PhD, Chair, University Research Ethics Board, Wilfrid Laurier University, (519) 884-1970, extension 3131 or REBChair@wlu.ca.

Participation

Your participation in this study is voluntary; you may decline to participate without penalty. If you decide to participate, you may withdraw from the study at any time without penalty by clicking the "Exit this Survey" button at the top the screen. You have the right to refuse to answer any question or participate in any activity you choose. If you withdraw from the study, you can request to have your data removed/destroyed *by contacting the researcher, Alia Hussain at huss1890@mylaurier.ca*, until *April 30, 2023*.

Feedback and Publication

The results of this research might be published/presented in a thesis, course project report, book, journal article, conference presentation, and class presentation. The results of this research may be made available through Open Access resources. A summary of the findings from this study will be available by April 15, 2023. Please email huss1890@mylaurier.ca for a copy.

Consent

It is advised that you print or save this consent form and/or record the researcher contact information in the case that you have any questions or concerns.

☐ I have read and understand the above information. I agree to participate in this study. (selecting this option will open the survey).
☐ I have read and understand the above information. I do not want to participate in this study. (selecting this option will return you to your browser)

Please provide your name and a valid e-mail address in order to receive your credit for PS101/PS102. This information will remain confidential and your survey responses will be coded by number and stored without any identifying information.

We would like to be able to use quotations from the study in presentations of the study results. No names or identifying information would be used in these quotes. You may still agree to participate in this study even if you do not wish your quotes to be used.

☐ Yes, I agree to permit the researchers to use quotes from my study materials. Although I will not be given the opportunity to review my quotes before they are used, I understand that the researchers will remove any information that could be used to personally identify me.
☐ No, I do not want the researchers to use quotes from my study materials.

Please click here to begin the survey.

Appendix B

Demographic questionnaire.

1. Please specify your age:
   a. TEXT BOX
2. Please specify the gender you identify with.
   a. TEXT BOX
   b. Prefer not to disclose.
3. Which of the following BEST describes your ethnic background? (Check all that apply)
   a. Indigenous (First Nations, Metis, Inuit)
   b. Black/African/Caribbean
   c. Latin American (e.g., Brazilian, Columbian, Costa Rican, Guatemalan, etc.)
   d. Middle Eastern (e.g., Iraqi, Israeli, Palestinian, Saudi Arabian, etc.)
   e. South Asian (e.g., Pakistani, Indian, Sri Lankan, etc.)
   f. East Asian (e.g., Cambodian, Filipino, Vietnamese, etc.)
   g. Southeast Asian (e.g., Chinese, Japanese, Korean, etc.)
   h. West Asian (Afghani, Iranian, etc.)
   i. White/European
   j. Other (please specify): TEXY BOX
4. Are you/have you been diagnosed with attention-deficit/hyperactivity disorder (ADHD)?
   a. Yes
   b. Self-diagnosed
   c. No
   d. Prefer not to disclose.
5. Are you/have you been formally diagnosed with any developmental delays and/or disorders other than ADHD?
   a. Yes (please specify): TEXT BOX
   b. No
   c. Prefer not to disclose.

Appendix C

Adult ADHD Self-Report Scale (ASRS; Kessler et al., 2005)

Please answer the questions below, rating yourself on each of the criteria shown using the scale on the right side of the page. As you answer each question, place an X in the box that best describes how you have felt and conducted yourself over the past 6 months.

	Never	Rarely	Sometimes	Often	Very Often
Part A					
How often do you have trouble wrapping up the final details of a project, once the challenging parts have been done?	☐	☐	☐	☐	
How often do you have difficulty getting things in order when you have to do a task that requires organization?	☐	☐	☐	☐	
How often do you have problems remembering appointments or obligations?	☐	☐	☐	☐	
When you have a task that requires a lot of thought, how often do you avoid or delay getting started?	☐	☐	☐	☐	
How often do you fidget or squirm with your hands or feet when you have to sit down for a long time?	☐	☐	☐	☐	
How often do you feel overly active and compelled to do things, like you were driven by a motor?	☐	☐	☐	☐	
Part B					

How often do you make careless mistakes when you have to work on a boring or difficult project?	☐	☐	☐	☐
How often do you have difficulty keeping your attention when you are doing boring or repetitive work?	☐	☐	☐	☐
How often do you have difficulty concentrating on what people say to you, even when they are speaking to you directly?	☐	☐	☐	☐
How often do you misplace or have difficulty finding things at home or at work?	☐	☐	☐	☐
How often are you distracted by activity or noise around you?	☐	☐	☐	☐
How often do you leave your seat in meetings or in other situations in which you are expected to stay seated?	☐	☐	☐	☐
How often do you feel restless or fidgety?	☐	☐	☐	☐
How often do you have difficulty unwinding and relaxing when you have time to yourself?	☐	☐	☐	☐
How often do you find yourself talking too much when you are in social situations?	☐	☐	☐	☐

When you're in a conversation, how often do you find yourself finishing the sentences of the people you are talking to, before they can finish it themselves?	☐	☐	☐	☐
How often do you have difficulty waiting your turn in situations when turn taking is required?	☐	☐	☐	☐
How often do you interrupt others when they are busy?	☐	☐	☐	☐

Appendix D

Center for Epidemiological Studies Depression (CES-D) Scale (Radloff, 1977).

Below is a list of the ways you might have felt or behaved. Please tell me how often you have felt this way during the past week.

	Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
I was bothered by things that usually don't bother me.	☐	☐	☐	☐
I did not feel like eating; my appetite was poor.	☐	☐	☐	☐
I felt that I could not shake off the blues even with help from my family or friends.	☐	☐	☐	☐
I felt I was just as good as other people.	☐	☐	☐	☐
I had trouble keeping my mind on what I was doing.	☐	☐	☐	☐
I felt depressed.	☐	☐	☐	☐
I felt that everything I did was an effort.	☐	☐	☐	☐
I felt hopeful about the future.	☐	☐	☐	☐
I thought my life had been a failure.	☐	☐	☐	☐
I felt fearful.	☐	☐	☐	☐
My sleep was restless.	☐	☐	☐	☐
I was happy.	☐	☐	☐	☐
I talked less than usual.	☐	☐	☐	☐
I felt lonely.	☐	☐	☐	☐
People were unfriendly.	☐	☐	☐	☐
I enjoyed life.	☐	☐	☐	☐
I had crying spells.	☐	☐	☐	☐
I felt sad.	☐	☐	☐	☐
I felt that people dislike me.	☐	☐	☐	☐

I could not get “going.”	☐	☐	☐	☐

Appendix E

State-Trait Anxiety Inventory – Trait Anxiety Inventory (STAI-TAI; Spielberger et al., 1983)

A number of statements which people have used to describe themselves are given below. Read each statement and then circle the appropriate number to the right of the statement to indicate how you generally feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

	Almost Never	Sometimes	Often	Almost Always
I feel pleasant.	☐	☐	☐	☐
I feel nervous and restless.	☐	☐	☐	☐
I feel satisfied with myself.	☐	☐	☐	☐
I wish I could be as happy as others seem to be.	☐	☐	☐	☐
I feel like a failure.	☐	☐	☐	☐
I feel rested.	☐	☐	☐	☐
I am "calm, cool, and collected."	☐	☐	☐	☐
I feel that difficulties are piling up so that I cannot overcome them.	☐	☐	☐	☐
I worry too much over something that really doesn't matter.	☐	☐	☐	☐
I am happy.	☐	☐	☐	☐
I have disturbing thoughts.	☐	☐	☐	☐
I lack self-confidence.	☐	☐	☐	☐
I feel secure.	☐	☐	☐	☐
I make decisions easily.	☐	☐	☐	☐
I feel inadequate.	☐	☐	☐	☐
I am content.	☐	☐	☐	☐
Some unimportant thought runs through my mind and bothers me.	☐	☐	☐	☐
I take disappointments so keenly that I can't put them out of my mind.	☐	☐	☐	☐
I am a steady person.	☐	☐	☐	☐

I get in a state of tension or turmoil as I think over my recent concerns.	☐	☐	☐	☐

Appendix F

Perceived Stress Scale (PSS; Cohen et al., 1983)

The questions in this scale ask you about your feelings and thoughts during the last month. In each case, you will be asked to indicate by selecting how often you felt or thought a certain way.

	Never	Almost Never	Sometimes	Fairly Often	Very Often
In the last month, how often have you been upset because of something that happened unexpectedly?	☐	☐	☐	☐	☐
In the last month, how often have you felt that you were unable to control the important things in your life?	☐	☐	☐	☐	☐
In the last month, how often have you felt nervous and "stressed"?	☐	☐	☐	☐	☐
In the last month, how often have you felt confident about your ability to handle your personal problems?	☐	☐	☐	☐	☐
In the last month, how often have you felt that things were going your way?	☐	☐	☐	☐	☐
In the last month, how often have you found that you could not cope with all the things that you had to do?	☐	☐	☐	☐	☐
In the last month, how often have you been able to control irritations in your life?	☐	☐	☐	☐	☐
In the last month, how often have you felt that you were on top of things?	☐	☐	☐	☐	☐
In the last month, how often have you been angered because of things that were outside of your control?	☐	☐	☐	☐	☐

In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	☐	☐	☐	☐	☐

Appendix G

Experience of Social Exclusion (ESE) Scale (Masui et al., 2013; Yanagisawa et al., 2010)

How often have you experienced the following occurrences during the **last three months**?

	Never	Rarely	Sometimes	Often	Very Often
When you asked your friends if you could borrow their things, they said no.	☐	☐	☐	☐	☐
Your friend asked you for advice.	☐	☐	☐	☐	☐
You sent a text to your friend, but you did not get a response.	☐	☐	☐	☐	☐
When you asked your friend for a favour, they willingly helped you.	☐	☐	☐	☐	☐
Though your friends were talking and laughing, you did not understand why they were laughing.	☐	☐	☐	☐	☐
Your friends made sure to include you in group plans.	☐	☐	☐	☐	☐
You heard your friends speaking ill of you behind your back.	☐	☐	☐	☐	☐
You went shopping with your friends.	☐	☐	☐	☐	☐
You said something inappropriate for the occasion in front of your friend.	☐	☐	☐	☐	☐
Though you greeted your friend when you passed them, your friend pretended not to notice.	☐	☐	☐	☐	☐
When you told your friends that you wanted to join their plans, you were refused.	☐	☐	☐	☐	☐
You were invited to go out by your friends.	☐	☐	☐	☐	☐
When you talked to your friend, they seemed interested in the conversation.	☐	☐	☐	☐	☐

You could not follow your friends' conversation in a group setting.	☐	☐	☐	☐	☐
Your friends did not ask just your opinion.	☐	☐	☐	☐	☐
You invited your friend to go to a meal and went together.	☐	☐	☐	☐	☐
Your friend asked for your opinion.	☐	☐	☐	☐	☐

Appendix H

Rejection Sensitivity Adult Questionnaire (A-RSQ; Berenson et al., 2009)

The items below describe situations in which people sometimes ask things of others. For each item, **imagine that you are in the situation, and then answer the questions that follow it**.

You ask your parents or another family member for a loan to help you through a difficult financial time.

How concerned or anxious would you be over whether or not your family would want to help you?	Very Unconcerned ☐	Somewhat Concerned ☐	Slightly Unconcerned ☐	Slightly Concerned ☐	Somewhat Concerned ☐	Very Concerned ☐
I would expect that they would agree to help as much as they can.	Very Unlikely ☐	Somewhat Unlikely ☐	Slightly Unlikely ☐	Slightly Likely ☐	Somewhat Likely ☐	Very Likely ☐

You approach a close friend to talk after doing or saying something that seriously upset him/her.

How concerned or anxious would you be over whether or not your friend would want to talk with you?	Very Unconcerned ☐	Somewhat Concerned ☐	Slightly Unconcerned ☐	Slightly Concerned ☐	Somewhat Concerned ☐	Very Concerned ☐
I would expect that he/she would want to talk with me to try to work things out.	Very Unlikely ☐	Somewhat Unlikely ☐	Slightly Unlikely ☐	Slightly Likely ☐	Somewhat Likely ☐	Very Likely ☐

You bring up the issue of sexual protection with your significant other and tell him/her how important you think it is.

How concerned or anxious would you be over his/her reaction?	Very Unconcerned ☐	Somewhat Concerned ☐	Slightly Unconcerned ☐	Slightly Concerned ☐	Somewhat Concerned ☐	Very Concerned ☐

I would expect that he/she would be willing to discuss our possible options without getting defensive.	Very Unlikely ☐	Somewhat Unlikely ☐	Slightly Unlikely ☐	Slightly Likely ☐	Somewhat Likely ☐	Very Likely ☐
You ask your supervisor for help with a problem you have been having at work.						
How concerned or anxious would you be over whether or not the person would want to help you?	Very Unconcerned ☐	Somewhat Concerned ☐	Slightly Unconcerned ☐	Slightly Concerned ☐	Somewhat Concerned ☐	Very Concerned ☐
I would expect that he/she would want to try to help me out.	Very Unlikely ☐	Somewhat Unlikely ☐	Slightly Unlikely ☐	Slightly Likely ☐	Somewhat Likely ☐	Very Likely ☐
After a bitter argument, you call or approach your significant other because you want to make up.						
How concerned or anxious would you be over whether or not your significant other would want to make up with you?	Very Unconcerned ☐	Somewhat Concerned ☐	Slightly Unconcerned ☐	Slightly Concerned ☐	Somewhat Concerned ☐	Very Concerned ☐
I would expect that he/she would be at least as eager to make up as I would be.	Very Unlikely ☐	Somewhat Unlikely ☐	Slightly Unlikely ☐	Slightly Likely ☐	Somewhat Likely ☐	Very Likely ☐
You ask your parents or other family members to come to an occasion important to you.						
How concerned or anxious would you be over whether or not they would want to come?	Very Unconcerned ☐	Somewhat Concerned ☐	Slightly Unconcerned ☐	Slightly Concerned ☐	Somewhat Concerned ☐	Very Concerned ☐
I would expect that they would want to come.	Very Unlikely ☐	Somewhat Unlikely ☐	Slightly Unlikely ☐	Slightly Likely ☐	Somewhat Likely ☐	Very Likely ☐

At a party, you notice someone on the other side of the room that you'd like to get to know, and you approach him or her to try to start a conversation.

How concerned or anxious would you be over whether or not the person would want to talk with you?	Very Unconcerned ☐	Somewhat Concerned ☐	Slightly Unconcerned ☐	Slightly Concerned ☐	Somewhat Concerned ☐	Very Concerned ☐
I would expect that he/she would want to talk with me.	Very Unlikely ☐	Somewhat Unlikely ☐	Slightly Unlikely ☐	Slightly Likely ☐	Somewhat Likely ☐	Very Likely ☐

Lately you've been noticing some distance between yourself and your significant other, and you ask him/her if there is something wrong.

How concerned or anxious would you be over whether or not he/she still loves you and wants to be with you?	Very Unconcerned ☐	Somewhat Concerned ☐	Slightly Unconcerned ☐	Slightly Concerned ☐	Somewhat Concerned ☐	Very Concerned ☐
I would expect that he/she will show sincere love and commitment to our relationship no matter what else may be going on.	Very Unlikely ☐	Somewhat Unlikely ☐	Slightly Unlikely ☐	Slightly Likely ☐	Somewhat Likely ☐	Very Likely ☐

You call a friend when there is something on your mind that you feel you really need to talk about.

How concerned or anxious would you be over whether or not your friend would want to listen?	Very Unconcerned ☐	Somewhat Concerned ☐	Slightly Unconcerned ☐	Slightly Concerned ☐	Somewhat Concerned ☐	Very Concerned ☐
I would expect that he/she would listen and support me.	Very Unlikely ☐	Somewhat Unlikely ☐	Slightly Unlikely ☐	Slightly Likely ☐	Somewhat Likely ☐	Very Likely ☐

Appendix I

Self-Compassion Scale (SCS; Neff, 2003a)

HOW I TYPICALLY ACT TOWARDS MYSELF IN DIFFICULT TIMES

Please read each statement carefully before answering. For each item, indicate how often you behave in the stated manner, using the following 1-5 scale. Please answer according to what really reflects your experience rather than what you think your experience should be.

	Almost Never	Rarely	Sometimes	Often	Almost Always
I'm disapproving and judgmental about my own flaws and inadequacies.	☐	☐	☐	☐	☐
When I'm feeling down I tend to obsess and fixate on everything that's wrong.	☐	☐	☐	☐	☐
When things are going badly for me, I see the difficulties as part of life that everyone goes through.	☐	☐	☐	☐	☐
When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world.	☐	☐	☐	☐	☐
I try to be loving towards myself when I'm feeling emotional pain.	☐	☐	☐	☐	☐
When I fail at something important to me I become consumed by feelings of inadequacy.	☐	☐	☐	☐	☐
When I'm down, I remind myself that there are lots of other people in the world feeling like I am.	☐	☐	☐	☐	☐
When times are really difficult, I tend to be tough on myself.	☐	☐	☐	☐	☐
When something upsets me I try to keep my emotions in balance.	☐	☐	☐	☐	☐

When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.	☐	☐	☐	☐	☐
I'm intolerant and impatient towards those aspects of my personality I don't like.	☐	☐	☐	☐	☐
When I'm going through a very hard time, I give myself the caring and tenderness I need.	☐	☐	☐	☐	☐
When I'm feeling down, I tend to feel like most other people are probably happier than I am.	☐	☐	☐	☐	☐
When something painful happens I try to take a balanced view of the situation.	☐	☐	☐	☐	☐
I try to see my failings as part of the human condition.	☐	☐	☐	☐	☐
When I see aspects of myself that I don't like, I get down on myself.	☐	☐	☐	☐	☐
When I fail at something important to me I try to keep things in perspective.	☐	☐	☐	☐	☐
When I'm really struggling, I tend to feel like other people must be having an easier time of it.	☐	☐	☐	☐	☐
I'm kind to myself when I'm experiencing suffering.	☐	☐	☐	☐	☐
When something upsets me I get carried away with my feelings.	☐	☐	☐	☐	☐
I can be a bit cold-hearted towards myself when I'm experiencing suffering.	☐	☐	☐	☐	☐
When I'm feeling down I try to approach my feelings with curiosity and openness.	☐	☐	☐	☐	☐

I’m tolerant of my own flaws and inadequacies.	☐	☐	☐	☐	☐
When something painful happens I tend to blow the incident out of proportion.	☐	☐	☐	☐	☐
When I fail at something that's important to me, I tend to feel alone in my failure.	☐	☐	☐	☐	☐
I try to be understanding and patient towards those aspects of my personality I don't like.	☐	☐	☐	☐	☐

Appendix J

Positive Interpersonal Experience Reflection Question

Please share a recent positive experience with a friend, family member, co-worker, community member, or pet.