

2021

An Examination of the Role of Interpersonal Stressors and Attachment Style in Dissociative Experiences

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An Examination of the Role of Interpersonal Stressors and Attachment Style
in Dissociative Experiences

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A dissertation submitted in partial fulfillment of the requirements for the degree of

Doctor of Philosophy

In

Clinical Psychology

Seattle Pacific University

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June 22, 2021

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ABSTRACT

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Dissociation is an involuntary stress response that has been linked to negative cognitive, emotional, and physical symptoms. Interpersonal stressors are associated with negative mental and physical health outcomes above and beyond stressors that are not interpersonal in nature, and therefore may be relevant to dissociation. Additionally, attachment anxiety or avoidance (i.e., insecure attachment) may put individuals at risk for dissociation in response to social stressors and might moderate their responses. However, extant studies have yet to investigate the relationship between daily interpersonal stressors and dissociation in the context of attachment anxiety and avoidance longitudinally, despite evidence that dissociation and attachment anxiety and avoidance can fluctuate across time and contexts. The current study assessed whether the relationship between interpersonal stressors and dissociation varies as a function of both trait attachment and attachment states within a given social interaction. Participants ($N = 128$) completed surveys online, including a one-time baseline measure assessing trait-like attachment dimensions and daily diary responses over seven days ($M = 11$; $n = 2137$) examining perceived interpersonal stressors, state attachment measures, and daily dissociation. As hypothesized, in multi-level modeling (MLM) analyses, interpersonal stressors positively predicted dissociative experiences in daily life, as did baseline trait attachment avoidance and state attachment anxiety. However, state attachment avoidance effects and two- and three-way interactions between attachment dimensions and interpersonal stressors occurred but not in the expected direction, suggesting a complex picture. These findings provide support for individual fluctuations in dissociative

experiences in response to daily stressors and indicate attachment anxiety and avoidance as important factors in this relationship.

Keywords: dissociation, interpersonal stressors, attachment style

CHAPTER I – INTRODUCTION

Daily stress poses a significant risk to mental health and quality of life.

Psychological stress occurs when an individual views their environmental demands as exceeding their abilities to adapt or cope (Cohen et al., 2007). Stress is a well-supported predictor of depression (Vrshek-Schallhorn, et al., 2015), alcohol use (Paulus et al., 2019), sleep problems (Seidel et al., 2018), high negative affect with low positive affect (Koffer et al., 2016), and cognitive interference in the form of intrusive, tangential thoughts that detract from goal-oriented activities (Stawski et al., 2011). *Interpersonal* stressors are a specific kind of stressor that occurs within a social interaction or relationship and have been associated with unique negative outcomes compared to non-interpersonal stressors (Wadman et al., 2018; Powers et al., 2016; Murdock et al., 2015). Active coping responses, such as cognitive reappraisal, may mitigate negative effects of stressors, whereas avoidant coping strategies, such as mentally disengaging from the situation, tend to predict greater distress (Coiro et al., 2017; Kato, 2014) and may perpetuate the occurrence of interpersonal stressors (Boyd et al., 2020; Powers et al., 2006).

Dissociation is considered a defense response to perceived threat (Schauer & Elbert, 2015) by which distressed individuals mentally, emotionally, and physically disengage from stressors (Briere & Eadie, 2016; Parlar et al., 2016; Schweden et al., 2016; Schore, 2009). Dissociation is defined by the DSM-5 as a disruption or discontinuity in the normal integration of consciousness, memory, identity, perception, body representation, motor control, and behavior (American Psychiatric Association, 2013), though there is currently much debate among researchers regarding what

symptoms truly represent pathological dissociative phenomena versus other normative perceptual experiences (van der Hart, 2021). In the current study, dissociation will be discussed as transient psychological disengagement from stressors marked by alterations in perception and suppression of emotion (Lanius et al., 2018; Lanius et al., 2010).

As a response to perceived threat, dissociation may be effective for alleviating short-term distress (Dewall et al., 2012). However, dissociation is also associated with negative cognitive (Bergouignan et al., 2014), emotional (Troop-Gordon et al., 2017), functional (Boyd et al., 2018), and relational outcomes (Evren et al., 2007). In clinical populations, dissociation has been linked greater treatment costs (Langeland et al., 2020), poorer treatment outcomes (Kleindienst et al., 2016), and longer treatment stays (Brand et al., 2009). Though often associated with and researched in the context of posttraumatic stress disorder (PTSD; Amore & Serafini, 2020), dissociative experiences are transdiagnostic (Sperandeo et al., 2018; Schweden et al., 2016; Guardia et al., 2012) and not limited to PTSD or dissociative disorders. Furthermore, previous research provides robust support for adverse experiences as a predictor of dissociation (Khosravi, 2020; Rafiq et al., 2018; Aponte-Soto et al., 2016; Briere & Eadie, 2016), but inconsistent findings regarding the relationship of trauma to dissociation imply that adverse experiences alone do not fully explain the development of dissociation (Chiu et al., 2021; Hoyos et al., 2019). Furthermore, dissociation mediated the impact between childhood maltreatment and deliberate self-harm, indicating that dissociation is an important factor predicting mental health outcomes independently of aversive experiences (Hoyos et al., 2019). Thus, it is important to explore individual factors that may represent risk factors for dissociative symptomology in response to stressors (Chiu et al., 2021).

Attachment style is often included in theoretical models of dissociation (Bailey & Brand, 2017; Liotti, 2006; Ogawa et al., 1997) as an individual's pattern of relating to others and neurobiologically regulating through social approach and self-soothing can predict hypothalamic-pituitary-adrenal (HPA) axis dysregulation (Smyth et al., 2015; Shore, 2001) and therefore dissociation (Bailey & Brand, 2017; Marcusson-Clavertz et al., 2017; Pearce et al., 2016; Calamari & Pini, 2003). Attachment theory, developed by John Bowlby and Mary Ainsworth (1991), describes the process by which individuals develop their primary attachment style and the relationship between of self-concept and view of others. An individual's attachment style tends to form in formative years, and remains relatively stable over time (i.e., trait-like; Göstas et al., 2012), though attachment dimensions can vary as a function of social context or relationship type (i.e., state; Fraley et al., 2011; Mikulincer et al., 2001). Researchers have described attachment styles categorically (i.e., distinct attachment styles; Bowlby & Ainsworth, 1991), or dimensionally across factors of attachment avoidance and attachment anxiety (Brown et al., 2016; Fraley & Spieker, 2003; Ainsworth et al., 1978).

Attachment experiences in early development between an infant and a caregiver serves the purpose of continually regulating an infant's arousal levels and emotional states (Shore, 2001); in adulthood attachment behaviors are thought to serve a similar purpose of maintaining emotional regulation (Bowlby, 1982). An infant with an available and responsive caregiver is more likely to learn adaptive mechanisms for emotional regulation and reward processing through attachment communications and emotional stimuli from caregivers (Schore, 2001), developing what is categorically termed "secure" attachment (Bowlby, 1969), or a pattern of attachment that is low in attachment

avoidance and attachment anxiety (Shorey, 2010). Attachment processes are vital for the development of self-regulation systems and brain structures involved in social behavior and emotional regulation (Schore, 2001; Cavada et al., 2000; Romanski et al., 1999; Schore, 1994) and thus a secure attachment style predicts greater ability to emotionally regulate (Clear & Zimmer-Gembeck, 2017; McKeown et al., 2017) and initiate and maintain fulfilling relationships (Brown et al., 2016). Infants that do not have responsive or available caregivers are more likely to develop an “insecure” attachment style (Bowlby, 1969), or an attachment pattern high in attachment anxiety, attachment avoidance, or both (Shorey, 2010; Stein et al., 2002). In adulthood, these individuals tend to struggle with emotion regulation and coping with stressors (Prosen & Vitulic, 2016) and have greater sensitivity to social threats (De Paoli et al., 2017; Byrow et al., 2016), indicating attachment style as particularly relevant to predicting dissociative experiences (Jones et al., 2018).

Though the relationship between attachment style and dissociation is not perfectly understood, developmental trauma has been correlated with both insecure attachment (Nilsson et al., 2011) and dissociation (Dalenberg et al., 2012), suggesting important commonalities between these two constructs. Perhaps due to a lack of other coping mechanisms and difficulty regulating emotions, individuals with high attachment anxiety and/or avoidance may be more likely to dissociate in response to a stressor (Schimmenti, 2017). Previous studies have linked dissociation to disorganized attachment (i.e., an attachment pattern high in anxiety and avoidance; Marcusson-Clavertz et al., 2017; Pearce et al., 2016), though research inconsistently correlates other attachment styles with

dissociative experiences (Gušić et al., 2016; Calamari & Pini, 2003). Furthermore research is needed to clarify the relationship between attachment style and dissociation.

Although interpersonal stressors have been linked to dissociation (Schweden et al., 2016), and attachment style has been suggested to play a role in the development and severity of dissociation in adults (Kong et al., 2018; Dutra et al., 2009; Liotti, 2006), extant studies have not yet investigated the relationship between daily interpersonal stressors, dissociation, and attachment style in daily life. The purpose of this study is to examine the effects of interpersonal stressors (e.g., perceived rejection, abandonment, or confrontation) on daily dissociative experiences, as well as whether such effects may be moderated by individual attachment style (i.e., trait-like) and attachment states (i.e., attachment anxiety and avoidance associated with stressor interactant). However, prior to describing the present study and specific hypotheses, I first provide further review of literatures on interpersonal stressors, dissociation, and attachment style.

Interpersonal Stressors

Interpersonal stressors have been defined broadly as a stressful interaction between two or more people that involves disagreements, arguments, negative attitudes and behavior, an uncomfortable atmosphere, or concern about hurting another's feelings (Kato, 2013). More specifically, interpersonal stressors have been described as any interaction where one feels rejected by or has a disagreement with another party (Hepp et al., 2018). Therefore, interpersonal stressors can be conceptualized as including but not limited to rejection or criticism (Victor et al., 2018), confrontation or conflict (McQuade et al., 2019), social exclusion (Kumar et al., 2017), or boundary violations (Oore et al., 2010).

Interpersonal stressors commonly occur across social settings and are relevant to mental health outcomes throughout the lifespan. In a longitudinal study examining workplace interpersonal stressors (e.g., rudeness, perceived disrespect, exclusion by colleagues, and oversharing), interpersonal stress predicted poorer mental and physical health outcomes as indicated by self-reported anxiety, negative affect, and physical symptoms (Oore et al., 2010). Another longitudinal study, defining interpersonal stressors as social rejection, criticism, and abandonment, found rejection and criticism predicted higher internalizing (i.e. shame, guilt, sadness) and externalizing negative affect (i.e. hostility, irritability, anger), and indirectly predicted increases in suicidality over 21 days (Victor et al., 2018). Taken together, a variety of interpersonal stressors can predict negative mental health outcomes, though the specific outcome measures may vary by situation, population, or type of interpersonal stressor.

Though some studies choose to focus on interpersonal stressors in the form of boundary violations and incivility (Oore, et al., 2010) or rejection or criticism (Victor et al., 2018), other studies have investigated the effects of interpersonal stressors in the form of social exclusion (Kumar et al., 2017; Helpman et al., 2017). One experimental study used a cyberball passing game, a computer game wherein a ball was passed between a participant and two other players, to investigate the relationship between social exclusion and mental health outcomes in individuals with major depressive disorder (MDD) and healthy controls (Kumar et al., 2017). The cyberball game was programmed such that over time the other “players” (computer programmed characters) would exclude the participant from playing the game by passing the ball only between one another (Kumar et al., 2017). Results indicated that individuals across both groups felt subjective distress,

exclusion, and a perceived lack of belongingness following this task. However, individuals with higher anhedonia and lower self-esteem showed increased neural responses (i.e., increased amygdala, insula activity) in response to increasing social exclusion, suggesting that while interpersonal stressors may be perceived as equally distressing across individuals with and without MDD, healthy controls may utilize compensatory coping mechanisms to regulate their stress response (Kumar et al., 2017). Though each of these studies utilized distinct definitions of interpersonal stressors, findings support the idea that despite differences between experiences of rejection, criticism, social exclusion, and boundary violations, all these experiences can be considered and experienced as interpersonal stressors (Nagurney, 2007).

Interpersonal stressors are associated with unique negative outcomes compared with stressors that are not interpersonal in nature (e.g., performance-based stressors). For example, interpersonal stressors uniquely predicted the onset of major depressive episodes, above and beyond non-interpersonal life stressors (Vshek-Schallhorn et al., 2015) and declines in physical well-being (e.g., harmful cardiovascular effects; Richman et al., 2010, elevated arthritic symptoms; Potter et al., 2002). Similarly, severe interpersonal stress, but not non-interpersonal stress, has been longitudinally linked to depressive symptoms in adolescents (Owens et al., 2018) and daily interpersonal stressors predicted greater negative affect and more depressive cognitions compared to non-interpersonal stressors (Gunthert et al., 2007). Providing further support for the “spillover” effects of interpersonal stressors, negative interpersonal events predicted increased negative affect and impaired emotional insight during psychotherapy a week later in adolescents with depression (Bounoua et al., 2018). Thus, negative outcomes

associated with interpersonal stressors appear to be particularly aversive (Gunthert et al., 2007) and longer lasting (Bounoua et al., 2018) than outcomes associated with non-interpersonal stressors.

Furthermore, interpersonal stress predicted internalizing problems (i.e., anxiety and depression) and cortisol levels indicating anticipatory, rigid stress responses when compared to performance stressors (i.e. public speaking, timed mental math) in adolescents (Laurent et al., 2016). Cortisol has long been used a marker of stress reactivity (Khoury et al., 2015), and the link between interpersonal stressors, but not performance-based stressors, to cortisol response curves suggests a unique relationship between interpersonal stressors and HPA stress responses (Laurent et al., 2016) to perceived threats and, ultimately, coping.

Coping with Interpersonal Stressors

In addition to the suggested physiological impact of interpersonal stressors, early experiences of interpersonal stress may be a factor in the development of stress responses and coping strategies. Interpersonal stressors during adolescence, such as peer victimization, are associated with an altered stress response development trajectory, such that adolescents who have experienced early peer victimization are more likely to cope with stress by effortful and involuntary disengagement and be more sensitized to future stressors (Troop-Gordon et al., 2017). Similarly, in a sample of college students, increased interpersonal stress was associated with greater symptoms of anxiety, depression, and somatization, and greater use of disengagement coping strategies, such as avoidance (Coiro et al., 2017). In this study, the use of engagement coping strategies (i.e., making efforts to change a stressor or one's response to a stressor, cognitive reappraisal,

or acceptance) or disengagement coping (i.e., avoidance or wishful thinking) moderated the relationship between interpersonal stress and mental health outcomes (Coiro et al., 2017). Similarly, in a population of college students, the use of avoidant coping strategies predicted higher depressive symptoms in conditions of interpersonal, but not academic, stress (Perera & Chang, 2015).

Taken together, early exposure to interpersonal stress predicts greater use of avoidant coping strategies (Coiro et al., 2017) as well as greater sensitivity to interpersonal stressors (Troop-Gordon et al., 2017). As avoidant forms of coping are thought to pose risks for mental health and increase negative outcomes associated with stress (Perera & Chang, 2015), the link between interpersonal stressors and avoidant coping feasibly perpetuates distress and potentially increases reliance on avoidant coping over time. Dissociation may be considered as an avoidant coping strategy by which one may cope with interpersonal stressors (Schwerdtfeger et al., 2006).

Dissociation

Dissociation can be understood as an altered state of consciousness, in which an individual mentally and emotionally disengages from a distressing situation to defend against perceived threat or emotional overwhelm (Schauer & Elbert, 2010). Examples of dissociative experiences include dissociative amnesia, flashbacks, feelings of unreality or detachment, and changes in time perception (American Psychiatric Association, 2013). Some have suggested that dissociation is a response to an individual's inability to use other emotion regulation strategies when enduring intense emotions. Dissociating may involve a disconnection between different aspects of emotion processing or a lack of integration of emotional information into an individual's sense of self and present

awareness (Roberts & Reuber, 2014) or a phobia of one's internal experiences and a lack of integration between parts of an individual's personality leading to avoidance of emotions, physiological sensations, thoughts, or memories (van der Hart et al., 2004).

When an individual dissociates, they can experience a flattening emotional effect, change in time perception (e.g., slowing of time), visual and somatosensory dysregulation, and the loss of normal integration of bodily reactions and functions (Schauer & Elbert, 2010). From an evolutionary perspective, dissociation can be viewed as a last line of defense when faced with a life-threatening situation or when feeling helpless (Schauer & Elbert, 2010). Dissociation actually can enable an individual to survive in situations where the individual is in direct or close proximity with a dangerous threat (i.e. skin contact), in the presence of body fluids with danger of contamination (i.e. blood or sperm), and when the body is already injured (i.e. invasion, penetration). In these situations, the fight or flight responses of the sympathetic nervous system are unlikely to help with survival; therefore, dissociation may be an adaptive response in situations where physical avoidance is not possible and physical defenses are overwhelmed (Schauer & Elbert, 2010).

Dissociative experiences can range from mild to severe and from infrequently to chronic. Some consider daydreaming or "spacing out" to be milder or more common forms of dissociation (Butler, 2006), while more severe experiences of dissociation can include lapses in memory, doing things one doesn't remember doing, and feeling completely disconnected from one's emotions and bodily sensations (Nijenhuis et al., 2010). Within the broad spectrum of dissociative symptoms, there are also distinct categories: *derealization* and *depersonalization*. Derealization refers to experiences of

unreality or detachment with respect to an individual's surroundings (American Psychiatric Association, 2013). Some may experience this as though they are walking through a dream when awake. Depersonalization refers to experiences of unreality or detachment regarding one's thoughts, feelings, sensations, body, or behavior (American Psychiatric Association, 2013).

The "Window of Tolerance" model proposes there is an optimal range of arousal states in which emotions can be tolerated and processed, contrasted by extreme states of sympathetic hyperarousal or parasympathetic hypoarousal (Corrigan et al., 2011). Researchers have linked dissociation to dominant parasympathetic activity (Schauer & Elbert, 2010), inhibition of limbic activity (Brand & Lanius, 2014; Lanius et al., 2010), and autonomic blunting (Schäfflein et al., 2018; Zaba et al., 2015), suggesting dissociative processes involve a state of hypoarousal and reduced physiological arousal. Similarly, depersonalization and derealization involve an emotional numbing that is often accompanied by suppressed autonomic arousal to typically salient stimuli (Dewe et al., 2016). In an experimental study in which participants took part in an "implied body-threat illusion" task (involving a pantomimed injection procedure conducted directly onto participants' hands), individuals scoring higher on measures of depersonalization or derealization exhibited suppressed skin conductance responses towards the implied body threat (Dewe et al., 2016). These findings imply that dissociation not only involves mental disengagement or detachment from arousing situations, but physiological disengagement or suppression of arousal responses as well.

However, dissociation has also been associated with hyperarousal symptoms in individuals with PTSD (Kamen et al., 2012) and less successful suppression of arousal

and poorer performance during a cognitive stress task (Lemche et al., 2016). One study linked depersonalization to greater autonomic responses (i.e., electrodermal responses) to emotional sounds compared to controls but *less* emotional distress towards stimuli in self-reports, indicating a disconnect between cognitive and emotional responses to stimuli (Michal et al., 2013). Thus, though research indicates dissociative responses involve HPA dysregulation, the precise nature of this dysregulation remains unclear.

Severe dissociation or dissociative disorders are associated with high levels of impairment, treatment utilization, and treatment costs (Brand et al., 2009), though underdiagnosis of dissociation makes the economic burden of dissociation difficult to accurately estimate (Langeland et al., 2020). One study investigated the efficacy of a 30-month treatment for patients in inpatient hospitalization with severe dissociative disorders and co-occurring PTSD, depression, and general psychiatric distress and found that most patients had been in treatment for years prior to hospitalization without significant improvements to their dissociative symptoms (Brand et al., 2009). The average number of hospitalizations for participants was 8.1 (Brand et al., 2009). Following the 30-month of treatment, researchers found that treatment with a therapist specifically trained in treating dissociation was associated with a decrease in dissociative symptoms and psychological distress, though symptoms of dissociation were not completely ameliorated (Brand et al., 2009). These findings emphasize how difficult, time-consuming, and costly treating dissociative symptoms can be at these extreme levels and highlights how dissociative symptoms may play a role in maintaining co-occurring mental health disorders—suggesting the need to better understand factors that predict or maintain not only severe dissociation but also milder forms of dissociative states.

Dissociation may be more common than once thought (Gentile et al., 2014).

Though prevalence rates of dissociation can be difficult to attain due to the broad spectrum of dissociative experiences, researchers have estimated that prevalence varies between 4.3% and 40.8% in inpatient samples (Sar, 2011), 12% to 38% in outpatient samples (Brand et al., 2009), and 1.7% to 18.3% in community samples (Sar, 2011).

Although chronic or severe dissociation can meet criteria for a dissociative disorder in the DSM-5 (American Psychiatric Association, 2013), symptoms of dissociation are transdiagnostic and have been connected to higher burden of illness and poorer treatment response in individuals diagnosed with mental health disorders such as posttraumatic stress disorder (PTSD), borderline personality disorder (BPD), somatic symptom disorder, feeding and eating disorders, and anxiety disorders (Lyssenko et al., 2018). In a meta-analysis assessing dissociative symptoms across a broad spectrum of mental health disorders, the largest mean dissociation scores were found in dissociative disorders (mean scores > 35 on the Dissociative Experiences Scale [DES]), followed by PTSD, BPD, and conversion disorder, with mean scores > 25 (Lyssenko et al., 2018). Additionally, individuals with somatic symptom disorder, substance-related and addictive disorders, feeding and eating disorders, schizophrenia, anxiety disorders, OCD, and most affective disorders showed low levels of dissociation (Lyssenko et al., 2018). Thus, dissociation is a relevant factor in treatment length and outcome even in non-dissociative disorders.

There is ample support that dissociation is an important symptom to understand.

However, more research needs to be done to further elucidate the nature of dissociation as a transdiagnostic process.

Dissociation as a State and Trait

Dissociation can be considered both a trait and a state. Trait dissociation refers to an individual's tendency to experience dissociative symptoms and is generally stable, whereas state dissociation refers to a temporary dissociative state (Hagenaars & Krans, 2011). Though trait and state dissociation are seen as distinct, there is a strong link between the two in that individuals with high trait dissociation have been found to be more likely to experience state dissociation in response to a stressor (Hagenaars & Krans, 2011). However, where trait dissociation tends to be stable, state dissociation can vary from person to person and can be impacted by environmental factors. Much of the extant research on dissociation examines dissociation cross-sectionally, thus there is a dearth of research investigating individual fluctuations in dissociative experiences over time.

One study tracked experiences of depersonalization and derealization in participants over several days and found that these experiences varied within days as much as they varied between individuals, indicating that depersonalization and derealization can be considered states as well as traits (Soffer-Dudek, 2017). In this study, depersonalization and derealization were linked to self-reported distress as both traits and states and were correlated with overall difficulty in regulating emotion (Soffer-Dudek, 2017). These findings suggest that dissociative experiences should be further examined as daily states, as most research has investigated dissociation as a trait and therefore potentially fails to fully capture the impact of dissociation in everyday life. Similarly, two longitudinal studies found that internal distress predicted increased dissociation when external stress was low but not when it was high, indicating that dissociative symptoms are moderated by internal distress (Soffer-Dudek & Shahar,

2014). These findings suggest that there is an interaction between internal distress, external stress, and coping using dissociative processes, and highlights that both situational and individual factors may contribute to dissociation (Soffer-Dudek & Shahar, 2014). As few studies have investigated daily fluctuations in dissociative experiences, the relationship of individuals differences and contextual experiences to dissociation requires further investigation.

Dissociation and Emotion Regulation

Dissociation has also been linked to difficulty in emotion regulation (Serrano-Sevillano et al., 2017) and has been described as a strategy utilized to regulate emotions in the absence of alternative strategies (Frewen & Lanius, 2006). Dissociation during distress is sometimes described as an involuntary, extreme loss of control characterized by both high emotional activation in response to a situation and subsequent disengagement from emotion (Jones et al., 2018). One theory, consistent with the theory of “Window of Tolerance” (Corrigan et al., 2011), is that the perception of an adverse experience or extreme anxiety can exceed a given threshold for fronto-limbic regulation, triggering an atypical inhibitory process that leads to a dissociation between emotion and cognition, which an individual experiences as a distorted sense of self and/or their environment (Dewe et al., 2016). Therefore, in situations perceived as emotionally activating and as exceeding available coping resources, an individual may be more likely to disengage from the situation and difficult emotions via dissociation. This combination of high emotional activation and low levels of available coping resources suggests that individuals with difficulty regulating their emotions may be more likely to dissociate when experiencing high levels of emotional arousal. In one study, severe dissociation was

linked to high frequency and severity of emotional dysregulation (Gušić et al., 2018), supporting dissociation as a strategy of emotion regulation.

Though dissociation is often depicted as involuntary (Jones et al., 2018), there is evidence to suggest that dissociation is more likely to occur in specific emotional contexts, indicating some level of selectivity or specificity (Dewe et al., 2016). Emotional suppression and dissociation are more frequently seen in response to aversive stimuli (Fani et al., 2018), indicating that while dissociation may be involuntary, there is some choice in emotional responding and not a complete absence of it (Dewe et al., 2016). The role of emotions appears to be critical when predicting dissociation. Mood was found to be the strongest correlate of dissociation in a study examining the relationship between attention, sleep, and dissociative experiences (Weiss & Low, 2017). Furthermore, an fMRI study examining attentional networks and cognitive profiles of highly dissociative individuals found that dissociation was correlated with difficulties with attentional control when faced with emotionally evocative, but not neutral, stimuli, again indicating an avoidance of difficult emotional experiences (Fani et al., 2018). Interestingly, in this study, high-dissociative participants demonstrated better performance than low-dissociative individuals on an executive functioning task, suggesting that dissociation might have short-term beneficial effects on some aspects of cognitive performance, potentially because participants were more absorbed in the task and exhibited intact cognitive performance and better abstract thinking skills in the absence of emotion when compared to low-dissociative participants (Fani et al., 2018). Overall, these findings indicate that highly dissociative individuals experience difficulties with attentional control in the context of emotionally evocative stimuli but exhibit their cognitive profiles

are similar to low-dissociative people. Therefore, dissociation can be viewed as a way an individual responds selectively to aversive situations or emotions.

Furthermore, in line with the idea of dissociation as a phobia of internal experiences and a failure of personality and identity integration (van der Hart et al., 2004), individuals prone to dissociation may experience apparently neutral stimuli as aversive (Schäflein et al., 2018). A study involving individuals with dissociative disorders found higher dissociation predicted significant self-reported stress when exposed to their reflections, such that some individuals with dissociation withdrew from the study before completion due to their distress, whereas healthy controls reported no significant activation (Schäflein et al., 2018). Individuals prone to dissociation may have a uniquely negative relationship with self-referential stimuli. A study examining internal representations of the self in a community sample utilized implicit association tests to explore associations of the self with negative attributes. Results indicated dissociation was correlated with self-rejection even controlling for adverse interpersonal experiences, depression, anxiety, and self-esteem (Chiu et al., 2021). Thus, this self-rejection may negatively bias individuals with dissociation towards themselves and result in aversion towards any self-referential information and contribute to interpersonal difficulties.

The links of dissociation to distressing emotions (Gušić et al., 2018) and dissociation to aversive stimuli (Schäflein et al., 2018), support the idea that dissociation can vary day-by-day as a state. Though dissociation can alleviate distress in the short-term (Parlar et al., 2016), long-term dissociation can be distressing (Jones et al., 2018) and impairing (Boyd et al., 2020), therefore it is important to understand the daily relationship between dissociation and emotions.

Correlates of Dissociation

Dissociation can serve the short-term purpose of regulating emotions through escaping difficult or painful feelings (Parlar et al., 2016; Schimmenti & Caretti, 2016), but is associated with long-term negative mental and physical health outcomes (Jones et al., 2018). Previous research has linked dissociation to memory impairments (Bergouignan et al., 2014), poorer performance on neuropsychological tests of executive functioning, verbal memory, and attention (Parlar et al., 2016; Özdemir et al., 2015), sleep disturbances (Serrano-Sevillano et al., 2017), psychosis (Humpston et al., 2016), difficulty receiving a correct mental health diagnosis (Smiatek-Mazgaj et al., 2016), and poorer treatment outcomes (Kleindienst et al., 2016, Schweden et al., 2016). Moreover, previous studies have linked dissociation to a greater occurrence of distressing intrusive thoughts and images (Mairean & Ceobanu, 2017), supporting the idea that while dissociation allows an individual to detach from distress in the moment, there are long-term consequences of this detachment.

As dissociation represents not only mental but physical detachment (Dewe et al., 2016), the long-term correlates of dissociation are both mental (Serrano-Sevillano et al., 2017) and physical (Scheffers et al., 2017). Another study correlated dissociative symptoms to higher self-reports of physical and somatic symptoms such as muscle soreness, joint stiffness, headaches, and nausea (Scioli-Salter et al., 2016). One study linked frequency of dissociation to body experiences such as poorer body attitude (i.e. body shame, feelings of disgust or hate towards the body), body satisfaction, and body awareness (Scheffers et al., 2017). Body awareness has been suggested as essential to the

process of psychophysiological reactions and self-regulation, and therefore lower body awareness represents increased vulnerability to stressors (Scheffers et al., 2017).

Considering links of dissociation to difficulties with emotion regulation (Scheffers et al., 2017), individuals prone to dissociation may be more likely to engage in behavioral strategies such as alcohol use (Maaranen et al., 2005), gambling (Rogier et al., 2021), excessive internet use (Schimmenti et al., 2021), deliberate self-harm or nonsuicidal self-injury (Hoyos et al., 2019; Zoroglu et al., 2003), bulimia (Cowan & Heselmeyer, 2011), binge-eating (Engelberg et al., 2007), or restrictive eating consistent with anorexia nervosa (Gailledrat et al., 2016) that are associated with emotional dysregulation. The link between dissociation, behavioral disorders, and self-harming behaviors is discussed in several ways. First, as dissociation involves a disruption in self-perception and awareness of one's body, individuals prone to dissociation are thought to be able to engage in behaviors that otherwise would be considered too aversive (Agargun et al., 2016) or escape negative emotional states. Previous studies have identified dissociation as a risk factor for developing an eating disorder (De Berardis et al., 2009), suicidal ideation (Shelef et al., 2014), and suicide attempts (Rabasco & Andover, 2020). One study examining dissociative symptoms using daily assessments over four days found daily fluctuations in dissociative experiences predicted suicide risk in clinical adolescents independently of daily positive and negative affect and symptoms of borderline personality disorder (Vine et al., 2020).

Dissociation is considered an avoidant coping strategy (Schwerdtfeger et al., 2006) and may also predict the use of other avoidant coping strategies (i.e., maladaptive daydreaming, Ferrante et al., 2020; excessive internet use, Evren et al., 2019; online

gaming; Grajewski & Dragan, 2020). Individuals prone to dissociation are thought to have difficulty integrating and processing bodily experiences (Schimmenti et al., 2021) and a lack of available coping strategies (Schimmenti & Caretti, 2016) for regulating negative emotional states (Ferrante et al., 2020). The regular use of avoidant behavioral strategies such as excessive online gaming has been suggested to reinforce dissociation (Grajewski & Dragan, 2020), thus individuals prone to dissociation may utilize such strategies to maintain low arousal dissociative states and perpetuate avoidance of unpleasant emotions or physical sensations.

Through dissociation individuals can disengage from bodily discomfort, which in other contexts may inhibit individuals from participating in certain behaviors. For example, the process of bingeing and purging goes against the body's typical patterns of eating and is correlated with significant discomfort both during and after these behaviors. Individuals diagnosed with binge eating disorder were found to have elevated dissociation prior to binge episodes, suggesting that dissociation is an important factor in patterns of binge eating and in binge-purge cycles (Engelberg et al., 2007). Similarly, dissociation predicted suicide attempts in college students, (Rabasco & Andover, 2020) and trait dissociation mediated the relationship between deliberate self-harm and childhood maltreatment, supporting the idea that dissociation represents a disconnect from bodily experiences that allows individuals to override biologically-drive urges to avoid pain (Agargun et al., 2016).

Alternatively, individuals prone to dissociation may engage in self-harming or aversive behaviors as a strategy for escaping unwanted hypoarousal (Briere & Eadie, 2016). Dissociation predicted self-injurious behavior in a community sample of adults

beyond PTSD or depression, and researchers suggested self-injurious behavior may occur most proximally in response to dissociative experiences (Briere & Eadie, 2016). Taken together, dissociation is associated with detachment from psychological or physical distress (Parlar et al., 2016) but dissociative experiences in themselves can also predict distress (Briere & Eadie, 2016), and the use of these strategies over time may contribute to the development of co-occurring mental health disorders (Rogier et al., 2021; De Berardis et al., 2009). Furthermore, though dissociation is effective at alleviating distress in the moment, as a long-term strategy it likely increases psychological distress (Jones et al., 2018), contributes to greater vulnerability to future stressors (Troop-Gordon et al., 2017), and decreases the likelihood an individual will benefit from treatment interventions (Schweden et al., 2016). However, there are few studies have investigated daily predictors of within-person fluctuations of dissociative experiences in nonclinical populations over time (Soffer-Dudek, 2017; Soffer-Dudek & Shahar, 2014).

Dissociation and Interpersonal Stressors

Dissociation predicts alterations in self-perception (Chiu et al., 2021; Scheffers et al., 2017) and perceptions of relationships (Dorahy et al., 2017). Severe dissociation may impair functioning in relationships, which could contribute to the frequency of interpersonal stressors or negative priming for relationship stressors such as assumed rejection (Chiu et al., 2021). In a study investigating the effects of dissociation, shame, and PTSD symptoms on relationships, researchers found that dissociation directly predicted relationship anxiety and relationship depression (Dorahy et al., 2017). In this study, participants with the most severe dissociation (i.e., Dissociative Identity Disorder [DID]) reported significantly higher dissociation, shame, complex PTSD symptom

severity, relationship anxiety and depression, and fear of relationships than those with less severe or no dissociation (Dorahy et al., 2017). Dissociation has also been linked to social anxiety, which can impair social functioning (Evren et al., 2007) and social avoidance behaviors (Chiu et al., 2021). More extremely, dissociation has been connected to interpersonal violence perpetration in men (LaMotte & Murphy, 2017) and has been supported as a mediator between child maltreatment and intimate partner perpetration (Daisy & Hien, 2014). Thus, interpersonal stressors or relationship difficulties may be correlated with the severity and frequency dissociative experiences.

Dissociation has been shown to predict relationship functioning (Dorahy et al., 2017), but there is also evidence to suggest that relationship stress can predict dissociation. In internet gamers, relationship difficulties due to time spent playing the game was correlated with experiences of derealization, depersonalization, and dissociative amnesia (De Pasquale et al., 2018). More research is needed to further examine the role of dissociation in interpersonal functioning. Interpersonal stressors have been linked to their own specific risks (Nagurney, 2007) and consequences (Vshek-Schallhorn et al., 2015), therefore it is important to further investigate the relationship between interpersonal stress and dissociation.

Risk Factors for Dissociation

While dissociation is transdiagnostic and potentially benign at mild levels (e.g., dissociation present in imaginative involvement or experiences of absorption; Dorahy et al., 2003), some individuals may be more at risk for chronic (i.e., pathological) dissociation than others. Sleep quality and rumination, for example, have been linked to dissociative experiences in a cross-sectional study, possibly due to the disturbed cycle of

wake and sleep states and impaired flexibility in transitioning between them (Vannikov-Lugassi & Soffer-Dudek, 2018). Environmental factors have also been indicated in the development of dissociation. For example, stressful situations, such as political violence, were linked to dissociation in another cross-sectional study (Dorahy et al., 2003).

Traumatic experiences have been strongly linked to the development of dissociation (Bailey & Brand, 2017). Particularly, childhood trauma and adverse childhood experiences have been well-supported as an antecedent factor in the development of dissociation (Amore & Serafini, 2020; Bolduc et al., 2018; Dorahy et al., 2003). In a population of child victims of sexual abuse (CSA), CSA was associated with greater degrees of dissociation (Ensink et al., 2019) and childhood maltreatment was associated with dissociation in a population of children in foster care (Hulette et al., 2011). The strong link between childhood trauma and dissociation could be explained in part due to lack of available coping mechanisms due to developmental age (Prosen & Vitulic, 2016) and the likely perception that the aversive experience of abuse is inescapable (Schauer & Elbert, 2010), particularly if the perpetrator is a caregiver. In a study investigating dissociation across many forms of childhood adversity, emotional abuse (e.g., ridicule, verbal insults, humiliation) most strongly predicted dissociation, beyond physical abuse, sexual abuse, or aggregated neglect in individuals with serious mental illness (Rafiq et al., 2018). Similarly, early experiences of emotional neglect significantly predicted dissociation in individuals with borderline personality disorder (Khosravi, 2020). The specific link between emotional abuse and neglect and dissociative experiences implies dissociation may be a strategy employed to not only survive inescapable experiences, but to preserve attachment bonds, particularly if the perpetrator

is a caregiver (Schimmenti & Caretti, 2016). Thus, dissociation may be particularly relevant to responses to interpersonal stressors.

Personality factors have also been linked to vulnerability to dissociation (Krause-Utz et al., 2018). Individuals who regularly perceive their emotions to be so intense that they feel unmanageable may be more vulnerable to dissociation in general (Jones et al., 2018). For example, dissociative states are more common among individuals who has been diagnosed with borderline personality disorder (BPD), a diagnosis characterized by affective lability and difficulty controlling emotions (American Psychiatric Association, 2013), and have been suggested to impact emotional reactivity and working memory in this population (Krause-Utz et al., 2018). Other personality factors, such as shame-proneness (Talbot et al., 2004), neuroticism (Serrano-Sevillano et al., 2017), and attachment style (Gušić et al., 2016) have been linked to vulnerability to dissociation. In a cross-sectional study evaluating dissociative experiences in adolescents, researchers found that individuals with an anxious attachment style were more likely to dissociate when faced with emotional arousal compared to individuals with a secure attachment style (Gušić et al., 2016). In fact, almost all conceptualizations about the development of dissociation indicate attachment difficulties as a casual factor (Bailey & Brand, 2017). Much of the current research regarding dissociation and attachment style is cross-sectional, and has examined attachment style as a risk factor for dissociation. No research to date has investigated the role of attachment style as a moderator of the relationship between antecedent stressors and dissociation in daily life (Bailey & Brand, 2017). This question may be particularly relevant to explore because attachment style, though often regarded as a trait (Brown et al., 2016), has also been shown to behave as a state

(Mikulincer et al., 2001), and thus may vary situationally in response to specific interpersonal stressors or mood states.

Attachment Style

Attachment style is typically conceptualized as an individual's trait-like pattern of relating to others in relationships via attachment behaviors. Attachment behaviors are broadly defined as any behavior with the outcome of attaining or maintaining proximity to another person who is viewed as more equipped to cope with the world (Bowlby, 1982). An individual's attachment style can provide important information about stress responses and psychoneurobiological mechanisms that underlie mental health. Specifically, attachment processes have been indicated as important to the development of the orbitofrontal cortex and right brain, structures which are vital to an individual's internal sense of security and emotional stability (Schore, 2001), processing interpersonal signals and facial expressions, and regulation autonomic responses to emotions (Schore, 1994; Romanski et al., 1999; Cavada et al., 2000).

Attachment theory describes patterns of human connection categorially, by one of four primary styles: secure, preoccupied, dismissive/avoidant, and disorganized/fearful (Bowlby, 1969). Oftentimes, the three attachment categories of preoccupied, avoidant, and disorganized are described broadly as insecure, as each of these styles lends itself to unstable and unfulfilling relationship patterns (Brown et al., 2016). An individual's attachment style can predict an individual's ability to form attachments and emotionally regulate in adulthood (Bowlby, 1982). For example, a secure attachment style predicts greater emotional regulation (Clear & Zimmer-Gembeck, 2017) and better coping mechanisms (McKeown et al., 2017; Prosen & Vitulic, 2016) compared to an insecure

attachment style. Similarly, individuals with an insecure attachment style may be more attentive to social threats (Byrow et al., 2016), more sensitive to social rejection (De Paoli et al., 2017), and more fearful of abandonment (Vorauer et al., 2003). Therefore, individuals with insecure attachment styles may be more likely to perceive interpersonal stressors and to feel unable to cope with their emotional distress following a stressor.

Attachment styles are formed in early stages of development and are typically shaped by an individual's relationship with their primary caregiver (Bowlby, 1969). Children who receive consistent, warm, and responsive care from their parents typically form a secure attachment style (Shorey, 2010). A secure attachment style is characterized by beliefs that the self is lovable and worthy, others are available and responsive, and the world is a safe, predictable place (Bowlby, 1969). Individuals with a secure attachment style are expected to form stable, lasting relationships (Brown et al., 2016).

Conversely, children who do not receive consistent warmth or support from caregivers tend to form insecure attachments. Those who receive inconsistent treatment from their parents typically form a preoccupied attachment style (Shorey, 2010). A preoccupied attachment style is typified by high relationship anxiety and beliefs that needs for security and acceptance will not be reliably met, but that others are needed to fulfill personal survival and security needs (McKee et. al, 2012). These individuals tend to report excessive worry about relationships and fear of abandonment, fear of being alone, and a negative view of the self and a positive view of others (Brown et al., 2016). In contrast, children with consistently aloof, unavailable, or punishing parents are more likely to form an avoidant attachment style (Shorey, 2010). An avoidant attachment style is characterized by high relationship avoidance, suppression of the expression and

experience of negative emotions, and nonattendance to social cues (Shorey, 2010). These individuals tend to report avoidance of intimacy, discomfort with closeness, and a positive view of the self and a negative view of others (Brown et al., 2016).

Lastly, children with parents who are frightening, appear frightened of the child, or are perceived as both a source of threat and safety, often form a disorganized/fearful attachment style. A disorganized/fearful attachment style is characterized by the disruption of an organized pattern of attachment responses and contradictory responding in relationships indicating both preoccupied and avoidant strategies (Marcusson-Clavertz et al., 2017). Disorganized/fearful attachment behaviors tend to be confused or fearful, such as freezing, trance-like expressions, or approaching someone with their gaze averted (Paetzold et al., 2015). Individuals with a disorganized/fearful attachment style report dysregulation and instability in relationships, activation of contradictory attachment strategies, and an inability to elicit desired responses in relationships (Brown et al., 2016).

Attachment style can also be conceptualized with two underlying dimensions: anxiety and avoidance (Fraley & Spieker, 2003; Ainsworth et al., 1978). Each of the four attachment categories can be found somewhere on these two dimensions. Individuals with a secure attachment style tend to have low levels of attachment anxiety and attachment avoidance. Individuals with an avoidant attachment style tend to have low levels of attachment anxiety and high levels of attachment avoidance, and individuals with a preoccupied or anxious attachment style tend to exhibit the opposite pattern. Individuals with a disorganized/fearful attachment style tend to display high levels of attachment anxiety and attachment avoidance (Stein et al., 2002) simultaneously, or inconsistently

alternating high attachment anxiety and high attachment avoidance as they attempt to regulate contrasting needs for intimacy and self-protection (Brown et al., 2016).

Furthermore, attachment style can be viewed as a trait (Brown et al., 2016) or a state (Mikulincer et al., 2001). In seven studies using affective priming to examine attachment security in neutral and stressful contexts, results indicated that subliminal priming of attachment security led to more positive affective reactions to neutral stimuli (Mikulincer et al., 2001). These findings indicate that attachment style and its associated schemas can become activated or deactivated in different contexts (Mikulincer et al., 2001), suggesting fluctuation of attachment “states.” A study of individuals with personality disorders in romantic relationships found that induced increases in state attachment avoidance and attachment anxiety were associated with unique strategies for coregulation with attachment figures, such that state attachment anxiety tended to predict heart-rate alignment, or dependent coregulation, with attachment figures and state avoidance predicted misalignment, or contrarian regulation (Schreiber et al., 2021). These effects were moderated by dispositional (i.e., trait-like) attachment anxiety and avoidance, implying that moment-to-moment attachment processes and trait-like attachment tendencies interact in important ways to predict emotion regulation strategies.

Moreover, though attachment style has been shown to remain relatively stable throughout the lifespan (Bowlby, 1969), attachment style can vary between attachment figures (Fraley et al., 2011), such that an individual may hold multiple attachment styles within different types of relationships. Thus, attachment style represents a framework of social response patterns, emotion regulation strategies, and beliefs about the self, others, and the world that can impact individual wellbeing and relationship quality broadly as a

general tendency (i.e., as a trait, Brown et al., 2016) as well as situation to situation as a state (Mikulincer et al., 2001), such that individuals may form different attachment styles for different relationships (Fraley et al., 2011).

Attachment style can inform interpersonal schemas, which may guide how individuals interpret stressful interpersonal events, as well as the extent to which stressful interpersonal events impact them. For example, individuals with an insecure attachment style may hold beliefs that they are not worthy of and cannot expect another's stable or lasting care and support, and therefore may be particularly sensitive to interpreting interpersonal stressors as rejection (Hammen et al., 1995). Furthermore, when an insecure attachment style is activated, individuals may be more likely to perceive neutral stimuli as negative (Mikulincer et al., 2001). In a study investigating attachment style and the impact of stressful life events in undergraduates, higher attachment anxiety and avoidance predicted greater difficulties accessing emotion regulation strategies and lower meaning made from stressful experiences (Owens et al., 2018b). Owens and colleagues (2018) suggest high attachment anxiety and high attachment avoidance may predict greater depression in response to stressors (i.e., depressive symptoms) in part because these individuals may be more likely to believe that once distressed, there is little they can do to regulate their emotions or problem-solve. Particularly, attachment anxiety was linked to less goal-directed behavior following stressors, which may also perpetuate distress for these individuals and reinforce negative self-beliefs (Owens et al., 2018b). Therefore, attachment style may be an important individual predictor of interpretations of social interactions (Hammen et al., 1995), perceptions of others (McKee et al., 2012), and ability to cope with interpersonal stressors (McKeown et al., 2017).

Attachment, Relationships, and Perceptions of Interpersonal Stressors

Relationships are an important predictor of life satisfaction and emotional wellbeing (Umberson & Montez, 2010). However, individuals can vary in their attendance to emotional stimuli (Ran & Zhang, 2018) and interpretations of social information (Larose et al., 2005). Specifically, attachment style can impact relationship satisfaction (Molero et al., 2017), quality (Collins & Read, 1990), and perceptions of relationship stressors (Dykas & Cassidy, 2011). For individuals with an insecure attachment style, interpersonal stressors may be particularly relevant. Previous research robustly supports the role of attachment style in social behavior and perception of interpersonal stressors (Brown et al., 2016). For example, in a prisoner's dilemma game, individuals with high attachment anxiety and avoidance cooperated less with partners when they perceived they were losing, but not when they perceived they were winning (Taheri et al., 2018). These findings suggest that attachment behaviors may be particularly relevant in situations perceived as stressors.

Furthermore, higher attachment anxiety predicts heightened neural responses to social rejection (Dewall et al., 2012) and greater negative responses to imagined social rejection and interpersonal conflict (Campbell et al., 2005). Conversely, individuals with an avoidant attachment style have been found to exhibit dampened neural activation in response to social rejection, indicating that individuals with this attachment style may respond to interpersonal stressors by maintaining emotional distance from others (Dewall et al., 2012). A meta-analysis examining neural correlates suggested a strong correlation between attachment avoidance and inhibition of processing emotional stimuli, whereas attachment anxiety was associated with increased vigilance to emotional stimuli (Ran &

Zhang, 2018). Therefore, attachment style may impact attendance to or processing of emotional or socially relevant stimuli.

Attachment style predicts emotional reactivity and stress responses to acute social stressors (Monteleone et al., 2019). In a sample of individual with eating disorders, individuals with high attachment anxiety or avoidance showed heightened cortisol production and feelings of anxiety when faced with a social threat compared to individuals with low attachment anxiety and avoidance (Monteleone et al., 2019). Similarly, in a sample of heterosexual couples, researchers found that individuals with an insecure attachment styles showed patterns of greater physiological stress reactions to interpersonal stressors compared to securely attached individuals (Powers et al., 2006). In this study, individuals with high attachment anxiety were found to have a slower recovery from stressors compared to individuals with secure or avoidant attachment. Furthermore, those with an avoidant attachment were found to have a much faster recovery from stressors when they employed an avoidant coping strategy, which the researchers hypothesized could perpetuate relationship stress long term (Powers et al., 2006). Thus, attachment style predicts stress and coping responses, which may perpetuate long-term distress and relationship difficulties.

Specifically, attachment anxiety has been linked to a greater focus on interpersonal stressors (Nagurney, 2007) and greater negative effects of interpersonal stress (Smyth et al., 2015). One study suggested that individuals with a higher tendency to focus on relationships over their own needs and desires, a characteristic of high attachment anxiety, were more likely to be negatively affected by interpersonal stress both psychologically (i.e. anxiety, depression) and physiologically (i.e. energy levels)

when compared to individuals with a lower focus on relationships (Nagurney, 2007). Furthermore, researchers examining the relationship between HPA-axis dysregulation and attachment style found that, in women, attachment anxiety predicted greater cortisol reactivity to interpersonal stressors independent of age, smoking status, menstrual phase, or body mass index (Smyth et al., 2015). In turn, HPA-axis responses have been suggested to enhance sensitivity to social information, and under conditions of severe interpersonal stress and low positive affect could further increase feelings of social evaluation and rejection (Owens et al., 2018). The relationship between HPA-axis and interpersonal stress may be particularly relevant to individuals with an insecure attachment style, as these individuals are already likely to be sensitive to social evaluation and rejections (Hammen et al., 1995). Therefore, individuals with high attachment anxiety may be particularly vulnerable to stressors, particularly interpersonal stressors.

Attachment style is suggested to moderate perceptions of and responses to threats (Taheri et al., 2018; Dykas & Cassidy, 2011) as well as rewards (MacDonald et al., 2013). Previous research investigating attachment style in romantic relationships found attachment anxiety predicted amplified perceptions of threats and increased ambivalence towards romantic relationships when perceiving more rewards than threats (MacDonald et al., 2013). Interestingly, attachment avoidance was also found to predict increases in relationship ambivalence when and lower perceptions of social rewards overall. Researchers hypothesized this effect was due to a dampening of perceived reward associated in those high in attachment avoidance in attempts to maintain indifference, whereas ambivalence in those high in attachment anxiety is likely related to increasing

perceived threats to the level of perceived rewards (MacDonald et al., 2013).

Furthermore, in a study examining attachment security in college students and their mentors, attachment security moderated perceptions of mentoring and conflict between students and mentors, such that higher attachment avoidance predicted greater conflict with mentors and higher attachment anxiety predicted worse perceptions of the quality of mentoring received by the student (Larose et al., 2005). Attachment style is also indicated as a moderator of treatment outcomes, such that higher levels of attachment avoidance predicted poorer treatment outcomes of cognitive behavioral therapy (CBT) interventions for generalized anxiety disorder (Newman et al., 2015). Another study linked attachment anxiety, but not avoidance, to poorer outcomes from group-CBT treatment (Nielsen et al., 2019). Thus, attachment style may moderate not only the negative outcomes related to stress (Smyth et al., 2015) but the potential positive outcomes associated with offers for social support (Larose et al., 2005) or receiving treatment (Newman et al., 2015).

Attachment Style and Emotion Regulation

Attachment style has been linked to an individual's experience of and response to emotions (Parada-Fernández et al., 2021), the use of maladaptive emotion regulation strategies (Falgares et al., 2019), and responses to stressors (Pascuzzo et al., 2013). Specifically, individuals with higher attachment anxiety are shown to be hyperaware of and strongly reactive to their emotions, while individuals with an avoidant attachment style have been found to be under-aware and under-reactive to their emotions (Stevens, 2014). Though attachment anxiety and attachment avoidance demonstrate opposite outcomes in terms of awareness and expression of emotions (Vrtička et al., 2012), compared to individuals with a secure attachment style, individuals with insecure

attachments styles (i.e., high attachment anxiety, high attachment avoidance, or a mix of the two) showed a greater propensity towards emotional dysregulation and a tendency to judge their own emotional experiences negatively (Parada-Fernández et al., 2021). Thus, though attachment avoidance and attachment anxiety may predict unique attitudes and behaviors towards emotions, both dimensions are associated with greater dysregulation.

Attachment style may play a role in developing emotion regulation strategies through reflective functioning, or an individual's capacity to understand themselves and others as motivated by internal mental states (Esbjörn et al., 2012). As a result of intermittent or absent feedback from parental figures, individuals with an insecure attachment style are likely to be at a greater risk of failure to develop appropriate emotion regulation skills, which may contribute to a vulnerability for dissociation in the absence of more adaptive coping skills (Esbjörn et al., 2012). In line with this idea, individuals with an insecure attachment style were found to be more likely to engage in emotion-oriented coping, which is characterized by denial, reluctance to feel or express emotions, and an increased risk of anxiety and depression (Falgares et al., 2019). Both attachment anxiety and attachment avoidance predicted thought suppression in adults, and in turn the use of thought suppression was correlated with lower levels of self-compassion and greater depressive symptoms (Murray et al., 2020). Furthermore, there is evidence suggesting individuals with an insecure attachment style are more likely to dissociate in response to stressors than those with a secure attachment style (Bailey & Brand, 2017), perhaps due to the absence of other adaptive coping mechanisms (Schore, 2009).

While individuals with an insecure attachment style may be more likely to use emotion-oriented strategies, high attachment anxiety and high attachment avoidance may

predict the use of different emotion-oriented strategies. One study investigating emotional processing and attachment styles found that individuals with an avoidant attachment style (i.e. high attachment avoidance and low attachment anxiety) were more likely to use defensive strategies designed to keep their attachment system deactivated, leading to decreased emotional responsiveness to stimuli (Vrtička et al., 2012). Similarly, attachment avoidance predicted dampened automatic reactions to sad faces (Suslow et al., 2010) and reduced skin conductance responding (i.e. autonomic orienting response) to positive emotion-eliciting images (Yee & Shiota, 2015). A study investigating the impact of positive and negative attachment-related mood inductions on mentalization performance found that regardless of valence, mood induction had no impact on performance in individuals with high attachment avoidance (Fuchs & Taubner, 2019). Taken together, individuals with high attachment anxiety may be particularly strong at blocking affective influences, regardless of positive or negative valence (Fuchs & Taubner, 2019).

In terms of behavioral strategies for emotion regulation, individuals with higher attachment avoidant may be less likely to cope with stressors using problem-solving strategies (Pascuzzo et al., 2013) or through using social support (Gore-Felton et al., 2013). These individuals also tend to self-disclose less, which may result in less access to social support. In a study of suicide-loss survivors, avoidant attachment style predicted lower levels of interpersonal activity, self-disclosure, and posttraumatic growth than other attachment styles (Levi-Belz & Lev-Ari, 2019). Individuals high in attachment avoidance may hold the view that they are not capable of managing their emotions, which may

further motivate the use of emotion-distancing strategies for coping (Sirois & Gick, 2016).

On the other hand, attachment anxiety has been associated with the excessive use of behavioral hyperactivation and to physiological and neuroendocrinological hyperresponsivity (Lupien et al., 2009). The effects of stress and anxiety on HPA axis functioning and the allostatic load associated with stress may suggest a “wear and tear” on the regulatory and anticipatory functions of the HPA axis (Schulkin, 2010) and has been suggested to contribute to myriad health concerns associated with high attachment anxiety, such as pain, dizziness, headaches, and chest pain (Lewczuk et al., 2021). Individuals with high attachment anxiety, contrasting those with high attachment avoidance, tend to have intense emotional reactions to perceptions of threat (Wei et al., 2005), which in the absence of adaptive coping strategies can perpetuate distress (Anderson & Kosloff, 2020). Previous research suggests attachment anxiety may lead to greater use of reassurance seeking as a regulatory strategy, which researchers hypothesize acts as a form of safety behavior that allows individuals to avoid coping with perceived threats and temporarily mitigate uncertainty (Clark et al., 2020). Reassurance seeking is a form of avoidant coping that ultimately perpetuates distress and may eventually erode relationships.

Individuals high in attachment anxiety may also be more prone to intrusive rumination following a stressor than individuals low in attachment anxiety, which can increase emotional distress (Anderson & Kosloff, 2020). Supporting this idea, high attachment anxiety has been linked to higher levels of negative affect (Molero et al., 2017). Thus, individuals high in attachment anxiety may experience high degrees of daily

emotional distress which can be escaped only momentarily through available coping strategies (e.g., reassurance seeking). Emotional dysregulation mediated the relationship between attachment anxiety predicted alcohol, cannabis, and texting behavior use, suggesting the use of these strategies for self-regulation (Liese et al., 2020). Taken together, the strategies employed by individuals high in attachment anxiety to minimize negative affect may ultimately result in increased distress and relationship stress. The combination of hypersensitivity to interpersonal stressors (Hammen et al., 1995), difficulty with emotion regulation (Schulkin, 2010), and increased negative affect (Molero et al., 2017) may contribute to individuals with high attachment anxiety being particularly vulnerable to feeling overwhelmed in the face of stressors.

Both attachment anxiety and avoidance are associated with greater emotion dysregulation (Parada-Fernández et al., 2021), though they may predict different responses to this dysregulation. Furthermore, high levels of either attachment dimension predict greater perceptions of threat, less perceived social support, and feeling less equipped to cope emotionally with day-to-day stressors (Sirois & Gick, 2016). Similarly, individuals with high attachment anxiety and avoidance were found to have fewer social supports available following a traumatic event, which in turn was associated with greater psychological distress (Shallcross et al., 2014). A cross-sectional study examining the relationship between adult attachment style, emotion regulation, and interpersonal problems found that attachment style predicted psychological distress directly as well as through specific mediating psychological processes. Attachment avoidance contributed to negative mood and interpersonal problems through emotional cutoff, or disengaging from others and their emotions when emotional experiences or interactions are too intense.

Conversely, attachment anxiety contributed to negative mood and interpersonal problems through heightened emotional reactivity (Wei et al., 2005). Thus, attachment style plays a role in emotion regulation, stress responses, and interpersonal problems. However, the way an individual responds to and is affected by interpersonal problems may vary by attachment dimensions.

Attachment Style and Dissociation

Extant research suggests insecure attachment style may be a risk factor for dissociation (Bailey & Brand, 2017), and individuals with an insecure attachment are more considered more prone to dissociation than those with a secure attachment (Farber, 2008). For example, a cross-sectional study examining anger and dissociation in adolescent girls found high attachment anxiety and avoidance style predicted greater frequency of dissociation compared to individuals with a secure attachment style (Calamari & Pini, 2003). Similarly, disorganized attachment style, characterized by high attachment anxiety and avoidance, predicted more dissociation in adults with childhood trauma compared to adults with other types of attachment styles (Marcusson-Clavertz et al., 2017). Thus, while individuals with an insecure attachment style may be more vulnerable to dissociative experiences in general, there is some variability in that vulnerability between attachment dimensions.

However, despite the robust links between attachment style and emotion regulation (Monteleone et al., 2019), most studies investigate this relationship in the context of maladaptive coping strategies (Falgares et al., 2019) or physiological responses (Smyth et al., 2015). Though attachment style is recognized as a risk factor for dissociation (Bailey & Brand, 2017), studies have yet to examine attachment dimensions

in the context of daily interpersonal stressors as a moderator of dissociative experiences. Considering attachment anxiety and avoidance are linked to greater emotion dysregulation (Parada-Fernández et al., 2021), maladaptive coping strategies (Anderson & Kosloff, 2020), and HPA activity (Schulkin, 2010), and dissociation is considered a coping response used in the absence of other adaptive strategies (Schore, 2009) as well as a neurobiological response to threat (Schauer & Elbert, 2010), dissociative experiences are particularly relevant to explore in the context of attachment style.

Present study and hypotheses

Current research supports the link between interpersonal stressors and attachment style (Smyth et al., 2015), attachment style and dissociation (Pearce et al., 2016), and stressors and dissociation (Soffer-Dudek & Shahar, 2014). However, no study to my knowledge has investigated the role of trait-like or state attachment dimensions in the relationship between interpersonal stressors and dissociation. Furthermore, the majority of extant studies examining dissociative experiences use a cross-sectional design and fail to investigate dissociative experiences over time. As dissociative symptoms can be state-like and fluctuate due to situational (Soffer-Dudek, 2017) and individual (Farber, 2008) factors, it is important to investigate within-person and between-person differences in dissociative experiences over time. The purpose of the present study is to examine interpersonal stressors and trait-like and state attachment dimensions as predictors of dissociative experiences in daily life.

I have five hypotheses to explore, in a heterogenous community sample that includes a subsample of individuals with a history of eating pathology. I hypothesized that interpersonal stressors would predict more frequent or intense dissociative

experiences in daily life (Hypothesis 1), given established links between experiences of stress and dissociative symptoms (Soffer-Dudek & Shahar, 2014). Additionally, I hypothesized that higher levels of *trait-like attachment anxiety* and *attachment avoidance* would predict greater dissociation (Hypothesis 2a) as these individuals may be more likely to interpret social interactions as stressful or unmanageable (Dewe et al., 2016) and lack other effective strategies for emotion regulation (Esbjörn et al., 2012) which may increase the likelihood of dissociation (Schore, 2009; Frewen & Lanius, 2006). Furthermore, as attachment dimensions can vary between contexts (Mikulincer et al., 2001) and relationships (Fraley et al., 2011), I hypothesized (Hypothesis 2b) that *state attachment anxiety* and *attachment avoidance* would positively predict dissociative experiences in daily life, as greater state attachment anxiety and avoidance in a given social interaction may indicate greater emotional distress following the stressor (Monteleone et al., 2019) and therefore greater vulnerability to dissociation (Schauer & Elbert, 2010).

Regarding interactions, I hypothesized that *trait-like attachment anxiety* and *trait-like attachment avoidance* would interact to predict dissociative symptoms, such that higher levels of each attachment dimension would positively predict dissociative experiences beyond high levels of one attachment construct alone (Hypothesis 3a). Furthermore, I hypothesized *trait-like attachment anxiety* would moderate the relationship between *interpersonal stressors* and dissociative symptoms, such that higher levels of trait-like attachment anxiety would strengthen the positive relationship between interpersonal stressors and dissociative experiences (Hypothesis 3b). Similarly, I hypothesized that *trait-like attachment avoidance* would moderate the relationship

between *interpersonal stressors* and dissociative symptoms, such that higher levels of trait-like attachment avoidance would strengthen the positive relationship between interpersonal stressors and dissociative experiences (Hypothesis 3c).

Furthermore, as individuals with high levels of trait-like attachment anxiety and attachment avoidance can be categorically described as having a disorganized/fearful attachment style (Stein et al., 2002), which has been specifically linked to proneness to dissociation beyond other attachment styles (Marcusson-Clavertz et al., 2017), and dissociation is predicted by emotional dysregulation (Gušić et al., 2018), I expected the three-way interaction of interpersonal stressors and trait-like attachment dimensions to predict increases in dissociative experiences. Thus, I hypothesized that the three-way interaction of *interpersonal stressors*, *trait-like attachment avoidance*, and *trait-like attachment anxiety* would positively predict dissociation, such that higher levels of each factor would predict greater daily dissociation (Hypothesis 4a).

My hypotheses regarding effects of state attachment anxiety and state attachment avoidance are parallel to my hypotheses of trait-like attachment dimensions. I expected situation-specific *state attachment anxiety* and *state attachment avoidance* (i.e. their attachment anxiety and avoidance in reference to the specific person with whom they are interacting) to positively predict dissociative symptoms, such that higher levels of each state attachment dimension would predict greater dissociation beyond main effects of state attachment dimensions (Hypothesis 3d). Furthermore, considering research indicating attachment anxiety and avoidance as predictors of greater threat perception (Byrow et al., 2016) and interpersonal difficulties (Wei et al., 2005), I hypothesized *state attachment anxiety* and *interpersonal stressors* (Hypothesis 3e), as well as *state*

attachment avoidance and *interpersonal stressors* (Hypothesis 3f), such that higher levels of state attachment dimensions would strengthen the positive relationship between interpersonal stressors and dissociative experiences. Lastly, as individuals with higher state attachment anxiety and high attachment avoidance in a given social interaction may be more likely to perceive social threats (Mikulincer et al., 2001) and to consider themselves as unable to cope with stressors (Sirois & Gick, 2016), I hypothesized that the three-way interaction of *interpersonal stressors*, *state attachment avoidance*, and *state attachment anxiety* would positively predict dissociation, such that higher levels of each factor would predict greater daily dissociation (Hypothesis 4b).

CHAPTER II – METHOD

Sample and Participant Selection

Participants were recruited from several eating disorder clinics in Washington and Minnesota and online using a study recruitment platform. Participants included 128 individuals self-identifying as women (81%), men (14%), and nonbinary individuals (4%). Participants ranged in age from 18-65 years old ($M= 27.5$; $SD= 8.2$) and included predominantly individuals self-identifying as White (78.1%), as well as minority individuals (7.1% African American/Black, 6.4% Asian/Asian American, 4.8% Hispanic or Latinx, 1.6% Biracial, 1.9% Other, and 0.1% Native Hawaiian or Other Pacific Islander). The sample included individuals who self-reported a prior eating disorder diagnosis (14% anorexia nervosa, 7% binge eating disorder, 6% bulimia nervosa, 10% other specified feeding or eating disorder), approximately 30 of whom were recruited from eating disorder treatment centers. The subsample of individuals self-reporting an eating disorder diagnosis included individuals identifying as women (87%), men (8%)

and nonbinary (3%); most self-identified as White (91.2% White, 3.6% African American/Black, 2.8% Asian/Asian American, 2.1% Hispanic or Latinx, and .3% Other). Participants were offered \$15 in compensation for completing both the baseline questionnaires and daily surveys ($M = 11$, $n = 2137$).

Procedure

Participants completed all surveys on the Qualtrics online survey research website via cellular mobile devices. First, participants completed a self-report baseline survey that included measures of attachment and dissociation, as well as measures unrelated to the present analyses (mood, stress, and traumatic experiences). Following completion of the baseline survey, participants were sent three self-report experience sampling surveys daily for seven days to capture daily variability in interpersonal stressors and dissociative symptoms. Participants were asked to respond to questions regarding a social interaction that had occurred in the past three hours. Daily surveys were sent throughout the day at 10 am, 3pm, and 8pm to capture a variety of experiences.

Measures

Demographic questionnaire. Demographic information about study participants were obtained at baseline using a questionnaire developed by the principal investigator. The demographic survey included questions pertaining to age, ethnic and/or racial identity, religious and/or spiritual identity, and gender.

Experiences in Close Relationships-Relationship Structure Questionnaire. The Experiences in Close Relationships-Relationship Structure Questionnaire (ECR-RS; Fraley et al., 2011), included in baseline measures, is a 9-item self-report measure completed across multiple relationships, yielding two underlying dimensions of

attachment style for each relationship and in general: avoidance (items 1-6) and anxiety (items 7-9). Although this measure can be used to examine categorical attachment styles, I will be using it in this study to examine attachment dimensions of avoidance and anxiety. The two-factor structure of anxiety and avoidance was supported using exploratory factor analysis, where the two factors accounted for 69% of cumulative variance (Fraley et al., 2011). Across all four domains, the ECR-RS is 45 items in length and includes items such as “I usually discuss my problems and concerns with this person” and “I find it easy to depend on this person.” Items from each subscale are summed to provide a total score, with the first 4 items reverse scored (Donbaek & Elklit, 2014). For each item, respondents are asked to rate on a 7-point Likert scale the extent to which they agreed or disagreed with each item (1= *strongly disagree*, 7= *strongly agree*). For the anxiety subscale, the possible range in scores is 6-42; for the avoidance subscale, the possible range is 3-21 (Donbaek & Elklit, 2014). Higher scores on the two subscales indicate higher levels of anxiety and avoidance.

The ECR-RS has demonstrated internal consistency in a general sample of adults in North America and Great Britain ($N= 21,000$). The anxiety and avoidance subscales showed strong internal consistency in four relational domains: mother ($\alpha= .84; .91$); father ($\alpha= .87; .92$), romantic partner ($\alpha= .83; .81$), and platonic friendship ($\alpha= .83; .85$) and the full scale demonstrated an .80 alpha level for global anxiety and .88 for global avoidance (i.e., averaged across specific relationships; Fraley et al., 2011). In the present study, $\alpha= .85$ for the general attachment anxiety subscale and $\alpha= .81$ for the general attachment avoidance subscale.

Interaction-Specific State Attachment Measure. Participants were asked to complete the entire ECR-RS measure at baseline as a *trait*-like measure of attachment. As a *state* measure of attachment, they were also asked to respond to two ECR-RS items, selected by the principal investigator, for each of the daily surveys. The items selected (“It helps to turn to this person in times of need” [reversed] and “I worry that this person won’t care for me as much as I care about him or her”) were selected due to their high factor loadings on the avoidance and anxiety subscales respectively (Fraley et al., 2011). Factor loadings for each item ranged from .79 to .84 for the avoidance item and from .79 to .83 (Fraley et al., 2011). These items were also selected to avoid unintentional overlap between the items assessing attachment style between day-to-day interactions and the items piloted by the principal investigator to assess the presence and severity of interpersonal stressors.

Daily Interpersonal Stressor Measure. Daily interpersonal stressors were assessed using 6 items developed by the principal investigator. Respondents were asked to indicate, using a 5-point Likert scale (0= not at all; 4= a great deal), the extent to which they interpreted each social interaction as distressing. Participants are asked to think of a social interaction they had within the last 3 hours. The measure was designed to assess for feelings of rejection, exclusion, or boundary violations during a social interaction. Participants are asked to respond to the prompt “During this interaction, to what extent do you feel...” to the following items: “abandoned by others, or worried that you would be abandoned,” “rejected or excluded by others,” “that you were being pushed away when you wanted to get closer to someone,” “that others were trying to compromise your independence,” “that others were trying to get too close,” and “that others were making

your life difficult by asking for too much care and support.” I selected these items with the goal of assessing common interpersonal stressors without substantial overlap or redundancy between the ECR-RS, as attachment measures also can be interpreted as assessing perceptions of interpersonally stressful situations. As the measure was administered repeatedly, reliability was calculated for multi-item constructs using the variance components (VARCOMP) command in SPSS 27 to break down variance by person, item, and time point, as recommended by Shrout and Lane (2012). Values were then input into the following formula to calculate reliability:

$$\frac{(\text{Person variance} + (\text{Person*Item variance} / \# \text{ of items}))}{(\text{Person variance} + (\text{Person*Item variance} / \# \text{ of items}) + (\text{Time variance} / \# \text{ timepoints}) + (\text{Person*Time variance} / \# \text{ timepoints}) + (\text{Error variance} / (\# \text{ items} * \# \text{ timepoints}))}$$

Using this method, reliability was calculated at .85.

Cambridge Depersonalization Scale. The principal investigator selected eight items from the Cambridge Depersonalization Scale (CDS; Sierra & Berrios, 2000) to assess for day-to-day experiences of *state* dissociation as part of experience-sampling surveys. The full CDS is a 29 item self-report measure evaluating symptoms associated with depersonalization, a syndrome in which there is a disconnect between the individual and their experience of their external world (Sierra et al., 2005). Depersonalization could result from a pervasive experience of detachment that equally affects all aspects of experience, which is consistent with the construct of dissociative experiences as a whole (Sierra et al., 2005). Respondents are asked to report their subjective experiences associated with depersonalization on two Likert scales: frequency (range 0-4) and duration (range 1-6), to yield a total score that ranges from 0 to 10 (Simeon et al, 2008).

The total CDS score is a sum of all items (range 0-290) and had a high internal consistency of 0.89 and a strong split-half reliability of 0.92 (Sierra & Berrios, 2000). In discriminating individuals with depersonalization disorder from non-dissociative disorders in a mixed clinical sample of individuals with dissociative disorders, anxiety disorders, and temporal lobe epilepsy, the CDS has demonstrated 75.5% sensitivity and 87.2% specificity when using a cutoff score of 70 (Sierra & Berrios, 2000).

An exploratory analysis by Sierra and colleagues (2005) found support for a four-factor model of the CDS, with the four factors being anomalous body experience, emotional numbing, anomalous subjective recall, and alienation from surroundings. The four-factor model includes all items of the CDS and has factor loadings that range from 0.4 to 0.82, with extracted factors accounting for 73.3% of variance (Sierra et al., 2005). The four factors suggested showed strong correlations with the subscales of the Dissociative Experiences Scale (DES; Bernstein & Putnam, 1986), with anomalous body experiences, emotional numbness, and alienation from surroundings factors correlating with the depersonalization/derealization subscale of the DES ($r = 0.635, p < .0001$; $r = 0.391, p < .0001$; $r = .417, p < .0001$), and the anomalous subjective recall factor correlating with the DES absorption subscale ($r = .533, p < .0001$) (Sierra et al., 2005). The correlations between the four factors were relatively low, between .23 and .33 (Sierra et al., 2005).

The principal investigator selected eight items from the CDS, using *a priori* theory to choose two representative items from each of the four factors. From the subscale anomalous body experience, items 24 and 15 were selected (item loadings = 0.59 and 0.57 respectively); from the emotional numbing factor, items 9 and 18 were

selected (item loadings = 0.56 and 0.42); from the anomalous subjective recall factor, items 16 and 14 were selected (item loadings = 0.61 and 0.53); from the alienation from surroundings factor, items 1 and 13 were selected (item loadings = 0.75 and 0.63) (Sierra et al., 2005). Reliability was calculated at .79 using the method recommended by Shrout and Lane (2012) for calculating reliability for repeated measures.

Data Analysis Plan

Data will be examined for missingness. Of the responses provided, cases with more than 24% missing data will be deleted, as recommended by Olinsky, Chen, and Harlow (2003). The intended analytical strategy, multilevel modeling (MLM) does not require complete or balanced (i.e., equal numbers of diary entries) datasets to produce reliable parameter estimates (Field, 2013). Maximum likelihood (ML) parameter estimates were used because ML is thought to be more accurate in estimating fixed regression coefficients (Field, 2013).

After preliminary data screening for multivariate assumptions (i.e. normality, homoscedasticity, linearity), I will use multilevel modeling in SPSS 27 to investigate interpersonal stressors as a predictor of dissociative states in daily life, with attachment anxiety and avoidance as moderators (see Figure 1). I selected multilevel modeling to address this question to account for the inclusion of both within and between person variables and the two-level hierarchical structure of the data (repeated measures nested within participants). Multilevel modeling is also appropriate because repeated measures data typically violates the assumption of independence due to repeated measures. For the purposes of my analysis (investigating within-person fluctuations in dissociative experiences in response to interpersonal stressors, as moderated by an individual's

specific attachment style within a given social interaction), level 2 variables will include attachment anxiety and avoidance. Interpersonal stressors and dissociative states will be modeled at level 1, as will state measures of attachment anxiety and avoidance.

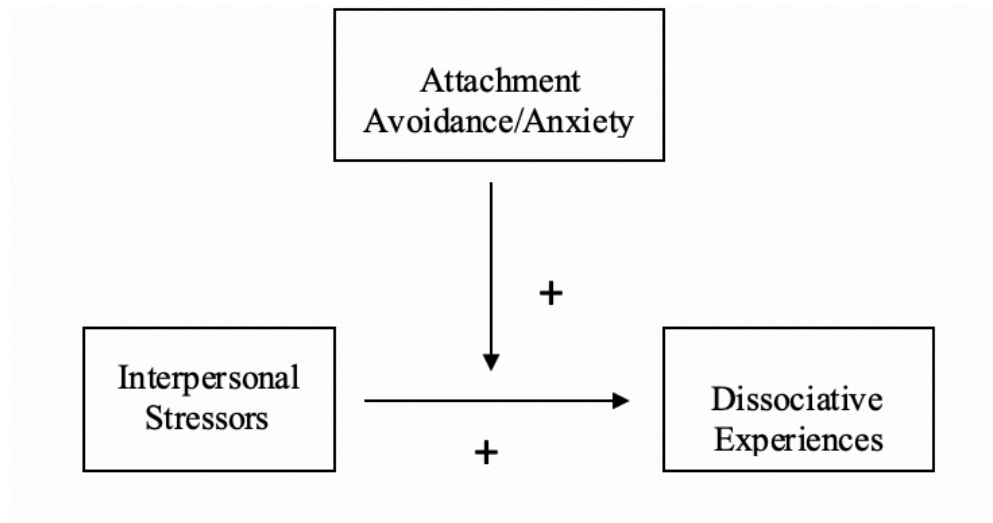


Figure 1. Proposed model diagram of the effect of interpersonal stressors on dissociative experiences, moderated by attachment avoidance and attachment anxiety.

Attachment anxiety and attachment avoidance variables from baseline responses (RSQ measure) will be grand mean centered such that effects will be interpretable as deviations from the sample mean. Attachment anxiety and attachment avoidance variables from daily experience sampling responses (ECR), as well as interpersonal stressors, will be person-mean centered such that effects will reflect deviations above each participant's own average levels of attachment and interpersonal stressors. I will model random intercepts, assuming different average levels of dissociation between individuals. I will also model random slopes for state attachment anxiety and avoidance in predicting dissociation, as well as for perceived interpersonal stressors predicting

dissociation, because theoretically individuals would vary in terms of the degree to which they perceive interpersonal situations to be stressful and subsequently dissociate. For my analyses, I will assume an AR(1) covariance structure to account for stronger autocorrelations between daily responses closer in time.

I will examine the relationship between interpersonal stressors, attachment dimensions, and dissociation in two models. The first model will investigate factors across persons (i.e., at the between-person level). First, I will examine the main effects of interpersonal stressors (Hypothesis 1), trait-like attachment anxiety, and trait-like attachment avoidance (Hypothesis 2a) on dissociative experiences to determine if these factors significantly predict dissociative experiences. I will also examine the two-way interaction effects between trait-like attachment avoidance and trait-like attachment anxiety (Hypothesis 3a); trait-like attachment anxiety and interpersonal stress (Hypothesis 3b); and trait-like attachment avoidance and interpersonal stress (Hypothesis 3c) on dissociative experiences. I will then examine the three-way interaction effects between trait-like attachment anxiety, attachment avoidance, and interpersonal stress on dissociative experiences (Hypothesis 4a).

My second statistical model will examine variables at the within-person level. I will examine main effects of state attachment anxiety and state attachment avoidance (Hypothesis 2b) as well as the two-way interaction effects between state attachment avoidance and state attachment anxiety (Hypothesis 3d); state attachment anxiety and interpersonal stress (Hypothesis 3e); and state attachment avoidance and interpersonal stress (Hypothesis 3f) on dissociative experiences. Lastly, I will examine three-way interaction effects between state attachment anxiety, state attachment avoidance, and

interpersonal stress on dissociative experiences (Hypothesis 4b). I will report 95% confidence intervals. Though I have parallel hypotheses for moderation effects of general attachment dimensions and state attachment dimensions, I am examining the relationship between interpersonal stressors, attachment dimensions, and dissociation at both levels as within- and between-person effects do not always agree (Fisher et al., 2018) and reporting both gives a fuller account of sources of variability (Kreft & de Leeuw, 1998). Model 1 examines between-person effects of trait-like attachment dimensions on interpersonal stressors and dissociation and Model 2 examines within-person effects of state attachment dimensions on the same relationship.

Power Analysis

Power analysis for MLM requires attending to expected effect sizes and samples sizes at Level 1 and Level 2, the amount of variability at each level (intraclass correlation; ICC), and random effects (Mathieu et al., 2012). I expected small-to-medium effect sizes at both levels and covariance parameters of the unconditional model indicated an ICC of 0.8. Based on Level 1 samples of 21 (diaries per person), assuming random effects, and a high ICC per MLM power guidelines (Arend & Schafer, 2019), Monte Carlo simulations suggested at least 100 participants were needed to detect small-to-medium effects (for minimum detectable effect direct effects of .20 [standardized] for Level 1 states and .30 for Level 2 trait effects). The study sample surpassed that sample size.

CHAPTER III — RESULTS

Preliminary Analyses

Preliminary data pre-screening evaluated assumptions of normality (e.g., skew and kurtosis) and reviewed the data for missingness and outliers. Univariate skew was within normal limits, ranging from -0.4 to 0.8 and kurtosis ranged from -0.9 to 2.5 across major variables apart from daily dissociation (i.e., outcome variable). In initial screening, the univariate skew was 1.8 and kurtosis was 2.4. Data were log-transformed to correct for this skew; after log-transformation skew was 0.8 and kurtosis was -0.32 for daily dissociation. Scatterplots indicated no evidence of nonlinear relationships. Variable means and standard deviations can be found in Table 1.

Table 1.
Means and Standard Deviations

Variable	Range		<i>M</i>	<i>SD</i>
	Min	Max		
CDS Total	0.00	0.70	.14	.19
Interpersonal Stress	-1.86	3.02	.00	.42
RSQ General Anxiety	-3.68	2.32	.14	1.62
RSQ General Avoid	-2.30	2.86	.02	1.16
ECR Anxiety	-4.90	5.43	.24	1.61
ECR Avoid	-4.32	5.71	.09	1.86

Note. CDS= Cambridge Depersonalization Scale; RSQ= Relationship Structures Questionnaire; ECR= Experiences in Close Relationships Scale; Anxiety= attachment anxiety; Avoid= attachment avoidance. Interpersonal Stress and ECR scores reflect the aggregate (person mean) across repeated measures.

The data was then analyzed and managed for missingness using imputation tools in SPSS 27 and R Version 1.4.1103. The original dataset included 161 participants. Cases were dropped for participants who completed fewer than three daily surveys and for participants missing more than 24% of their data as recommended by Olinsky, Chen, and Harlow (2003). Consequently, 33 participants were dropped for a total sample of 128

participants. Missingness was then reexamined, indicating that all variables and 27% of cases had some missing data; 92% of the values in the model had complete data. Given low missingness and the ability of MLM to handle unbalanced data, missing data were not imputed. The bivariate correlations for all model variables are presented in Table 2. The following analyses address each hypothesis for both between- and within-person models.

Table 2.
Bivariate Correlations of Major Variables Predicting Dissociation

	1.	2.	3.	4.	5.
1. CDS total					
2. Interpersonal Stress	.105**				
3. RSQ Anxiety	.332**	-.008			
4. RSQ Avoidance	.287**	-.001	.413**		
5. ECR Anxiety	.055*	.223**	-.001	.000	
6. ECR Avoidance	-.028	.058*	-.004	-.008	-.204**

Note. * $p < .05$, ** $p < .001$. CDS= Cambridge Depersonalization Scale; RSQ= Relationship Structures Questionnaire; ECR= Experiences in Close Relationships Scale. Note that Interpersonal Stress and ECR variables reflect aggregated means across daily surveys.

Model I: General Attachment Dimensions at Baseline as Moderators

The first model tested between-person effects of baseline general attachment anxiety and avoidance (e.g., trait-like attachment dimensions) situational interpersonal stressors, and their interactions, on daily dissociation as the outcome. General attachment anxiety and avoidance variables were grand-mean centered, allowing comparisons between persons. The interpersonal stressor variable was person-centered. Thus, Model 1 examines how between-person differences in attachment anxiety and avoidance impact daily dissociation beyond an individual’s own average levels of perceived interpersonal stress.

Hypothesis 1: Interpersonal stressors predict dissociation. First, I examined the main effects of person-centered interpersonal stressors on dissociation in daily life using a composite of all ratings of interpersonal stressors predicting dissociation. As hypothesized (see Table 3 for all parameter estimates for this model), interpersonal stressors positively predicted dissociation, such that when individuals reported interpersonal stress above their own mean levels of interpersonal stress, they endorsed higher dissociation.

Hypothesis 2a: General attachment anxiety and avoidance predict dissociation. Next, I examined the main effects of Level 2 attachment dimensions, anxiety and avoidance, on dissociation. Baseline general attachment anxiety and avoidance variables (RSQ) were grand-mean centered to allow for between-persons comparisons. As expected, general attachment avoidance positively predicted dissociation. Thus, individuals who endorsed greater attachment avoidance in their general attachment style at baseline reported higher dissociation in daily life. However, contrary to hypotheses, baseline trait general attachment anxiety did not significantly predict dissociation.

Hypothesis 3a: The two-way interaction of general attachment dimensions predict dissociation. As hypothesized, the interaction between general attachment avoidance and general attachment anxiety significantly predicted dissociation, such that individuals who reported both higher general attachment anxiety and avoidance at baseline also endorsed higher dissociation following an interpersonal stressor. Simple slopes analysis showed that baseline attachment anxiety predicted dissociation at high levels of baseline attachment avoidance ($b = .116, SE = .016, p < .001, LLCI = .085,$

HLCI= .147), however at low levels of attachment avoidance this relationship was not significant ($b = .008$, $SE = .012$, $p = .472$, $LLCI = -.015$, $HLCI = .032$).

Hypothesis 3b: General attachment anxiety will strengthen the relationship between interpersonal stressors and dissociation. Contrary to hypotheses, results indicated that general attachment anxiety did not moderate the relationship between interpersonal stressors and dissociation.

Hypothesis 3c: General attachment avoidance will strengthen the relationship between interpersonal stressors and dissociation. Similarly, the interaction between general attachment avoidance and interpersonal stressors predicting dissociation was not significant, contrary to the hypothesis.

Hypothesis 4a: The three-way interaction between general attachment avoidance, anxiety, and interpersonal stressors will predict dissociation. Results indicated that the three-way interaction between general attachment dimensions and interpersonal stressors did not significantly predict dissociation in daily life, contrary to hypotheses.

Table 3.

Parameter Estimates for Multilevel Model of Interpersonal Stressors and General (Trait-like) Attachment Dimensions Predicting Daily Dissociation

Variable	<i>b</i> (<i>SE</i>)	<i>LLCI</i>	<i>ULCI</i>
Int. Stress	.055 (.009)***	.036	.072
RSQ General Anxiety	.008 (.004)	.005	.055
RSQ General Avoid	.007 (.003)*	.006	.073
Int. Stress* RSQ General Anxiety	.000 (.002)	-.003	.004
Int. Stress* RSQ General Avoid	.000 (.001)	-.002	.003
RSQ General Anxiety* RSQ General Avoid	.001 (.000)*	.000	.002
Int. Stress* RSQ General Anxiety * RSQ General Avoid	-.000 (.000)	-.000	.000

Note. Int. Stress = Interpersonal Stress; RSQ = Relationship Structures Questionnaire. Unstandardized coefficients reported. *LLCI* = lower limit 95% confidence interval; *ULCI* = upper limit 95% confidence interval *** $p < .001$, ** $p < .01$, * $p < .05$

Model II: State Attachment Dimensions as Moderators

The second model tested within-person effects of state attachment anxiety and avoidance (e.g., attachment dimensions associated with interactants in daily interpersonal stressor diaries) on daily dissociation and on the relationship between interpersonal stressors and daily dissociation. State attachment anxiety and avoidance variables were person-mean centered, allowing comparisons within persons. The interpersonal stressor variable was person-centered. Model two examines how within-person differences in state attachment anxiety and avoidance impact daily dissociation following a stressor beyond an individual's levels of perceived interpersonal stress.

Hypothesis 2b: State attachment anxiety and avoidance predict dissociation. I examined effects Level 1 daily attachment dimensions using person-centered variables to investigate within person effects of attachment anxiety and avoidance on dissociation. As hypothesized, state attachment anxiety positively predicted dissociation (see Table 4 for all Model II estimates). Thus, individuals endorsing higher attachment anxiety relating to an interactant in a given social interaction reported higher dissociation in that situation. Interestingly, state attachment avoidance predicted *less* dissociation in the context of specific social interactions, contrary to hypotheses.

Hypothesis 3d: The two-way interaction of state attachment dimensions predict dissociation. Consistent with hypotheses, state attachment anxiety and avoidance interacted to significantly predict dissociation. However, the direction of the interaction was contrary to hypotheses, such that high state attachment avoidance reduced the positive relationship between attachment anxiety and dissociation in the context of daily social interactions. Simple slopes analysis showed that the link of state attachment

anxiety and dissociation was positive at low levels of state attachment avoidance ($b = .008$, $SE = .002$, $p < .001$, $LLCI = .005$, $HLCI = .012$) and it was less than half as large, though still significant, at high levels of state attachment avoidance ($b = .003$, $SE = .002$, $p < .05$, $LLCI = .000$, $HLCI = .006$).

Hypothesis 3e & 3f: State attachment anxiety and state attachment avoidance will each strengthen the relationship between interpersonal stressors and dissociation. The two-way interactions between state attachment anxiety and interpersonal stressors, and state attachment avoidance and interpersonal stressors were not significant. These results indicate that neither state attachment anxiety or state attachment avoidance moderated the relationship between interpersonal stressors and dissociation in a two-way interaction, against hypotheses.

Hypothesis 4b: The three-way interaction between state attachment avoidance, anxiety, and interpersonal stressors will predict dissociation. Results indicated that state attachment anxiety, state attachment avoidance, and interpersonal stressors significantly interacted to predict dissociation. However, the relationship between these variables was again not in the expected direction. Thus, individuals reporting high state attachment anxiety and avoidance in a social interaction they perceived to be highly stressful endorsed *lower* dissociation following the stressor. Simple slopes analysis showed that interpersonal stressors positively predicted dissociation at high (+1 SD) levels of state attachment avoidance and anxiety ($b = .042$, $SE = .011$, $p < .001$, $LLCI = .019$, $HLCI = .065$), but predicted increasingly higher dissociation for individuals at low (-1 SD) levels of anxiety and avoidance ($b = .049$, $SE = .013$, $p < .001$, $LLCI = .023$, $HLCI = .075$), followed by those with high anxiety and low

avoidance ($b = .057, SE = .011, p < .001, LLCI = .036, HLCI = .078$). Those with high state anxiety and low avoidance had the highest levels of dissociation), ($b = .069, SE = .011, p < .001, LLCI = .047, HLCI = .091$). Thus, in every case interpersonal stress predicted higher dissociation, but situational fluctuations around one’s mean state anxiety and avoidance moderated the size of the effect).

Table 4.
Parameter Estimates for Multilevel Model of Interpersonal Stressors and State Attachment Dimensions Predicting Daily Dissociation

Variable	<i>b (SE)</i>	<i>LLCI</i>	<i>ULCI</i>
Interpersonal Stress	.053 (.009)***	.035	.070
ECR Anxiety	.003 (.001)*	.000	.006
ECR Avoid	-.003 (.001)*	-.005	-.000
Int. Stress*ECR Anxiety	.001 (.003)	-.005	.005
Int. Stress*ECR Avoid	-.003 (.003)	-.009	.003
ECR Anxiety* ECR Avoid	-.001 (.000)*	-.004	.006
Int. Stress* ECR Anxiety *ECR Avoid	-.003 (.001)*	-.000	-.000

Note. Int. Stress = Interpersonal Stress; ECR= Experiences in Close Relationships scale; Unstandardized coefficients reported. LLCI = lower limit 95% confidence interval; ULCI = upper limit 95% confidence interval *** $p < .001, **p < .01, *p < .05$

CHAPTER IV— DISCUSSION

Major Findings

Interpersonal stressors predict dissociation (Hypothesis 1). First, results supported the hypothesized positive within-person relationship between interpersonal stressors and dissociation, such that greater perceived interpersonal stressors predicted greater dissociation in daily life, even when controlling for attachment anxiety and avoidance. The present study is one of few to investigate dissociative symptoms over time in a naturalistic setting, and findings are consistent with previous studies linking elevations in perceived stress with elevations in dissociative symptoms (Soffer-Dudek,

2017; Soffer-Dudek & Shahar, 2014) and aligns with models of dissociation as a coping response to perceived threats (Schauer & Elbert, 2010). Though dissociation is often discussed in the context of responses to trauma, acute and severe stressors that threaten the integrity of one's body or self in general (Amore & Serafini, 2020; Dalenberg et al., 2012), this study provides support for everyday interpersonal stressors as a predictor of dissociative experiences. Furthermore, the within-person nature of this effect suggested that regardless of individuals' average daily level of interpersonal stressor, perceived increases above and beyond those levels were associated with increased risk of dissociation. Thus, this study extends the literature by examining within-person variation in dissociative responses to interpersonal stressors in everyday life, outside of the context of traumatic events.

The link between interpersonal stressors and dissociative experiences adds to the growing body of literature on dissociation and may be explained in several ways. First, this finding aligns with previous studies linking daily fluctuations in depersonalization and derealization to elevations in perceptions of daily stress and anxiety (Soffer-Dudek, 2017) but is somewhat inconsistent with other studies of daily dissociation (Soffer-Dudek & Shahar, 2014). The current study is somewhat novel in assessing dissociative symptoms in the context of current perceptions of social stressors. For example, previous studies assessing daily stress and dissociation utilized constructs measuring the degree to which respondents perceived their life circumstances to be uncontrollable or overwhelming, which arguably may share variance with an individual's perceived ability to cope and did not include self-reports of specific stressful contexts or life events (Soffer-Dudek, 2017).

However, in the context of daily life stressors (e.g., stressful life events related to work, achievement, family relationships, romantic relationships) and general psychopathological distress (e.g., internal stress associated with anxiety, depression, and general interpersonal sensitivity), only internal stress predicted dissociation in daily life (Soffer-Dudek & Shahar, 2014). Researchers posited that simultaneously high external and internal stressors may generate enough overwhelming emotion to interrupt avoidant coping styles and lead to other forms of coping, such as rumination or problem-solving (Soffer-Dudek & Shahar, 2014). Interestingly, another study, using ecological momentary assessment, found daily dissociative experiences fluctuated independently of positive and negative affect, though the presence of external stressors was not assessed (Vine et al., 2020). As the current study limited examination of external stressors to daily social interactions, perhaps these experiences elevated distress to uncomfortable levels, but were not uncomfortable enough to necessitate an alternative coping strategy. Alternatively, given the importance of interpersonal relationships (Umberson & Montez, 2010) and greater distress associated with interpersonal stressors compared to non-interpersonal stressors (Laurent et al., 2016; Vshek-Schallhorn et al., 2015), perhaps interpersonal stressors, compared to other forms of daily stress, are associated with internal distress acute enough to pull for a dissociative response when the stressor is not life-threatening, but are not prolonged enough to overwhelm an individual's ability to disengage from the stressor.

Furthermore, dissociation has been associated with experiences perceived as inescapable (Schauer & Elbert, 2010) and in the absence of social skills necessary for boundary setting or ending a conversation, and sufficient emotion-regulation skills,

uncomfortable social situations may elicit similar feelings of being trapped or unable to respond in a self-protective way. As individuals vary in perceptions of interpersonal stressors (Leifels, 2020), this type of stressor may seem more difficult to problem-solve, linking interpersonal stressors specifically to dissociation as a coping strategy in the absence of other forms of coping (Frewen & Lanius, 2006). For example, in an interaction wherein an individual perceives criticism, there is likely ambiguity as to the intent (Lam et al., 2021) of the comment perceived as critical, thus introducing a dilemma on what would be the socially appropriate response (Van Kleef, 2009). As potential results of applying another coping strategy may be unclear, individuals might reject alternative strategies for responding and dissociate to resolve internal discomfort and ameliorating immediate interpersonal difficulties that might arise, independently of the intensity of distress or negative affect associated with the interpersonal stressor. This idea holds with previous research on emotional suppression, or restricting affective expression of emotions, which is considered both socially maladaptive (i.e., leading others to draw unfavorable conclusions; Henning-Thurau et al., 2006), and socially adaptive (i.e. a means of minimizing interpersonal difficulties, Cole et al., 2008), depending on context (Lam et al., 2021).

Along the same lines, considering theories that dissociation can allow individuals to escape distressing emotions while maintaining some connection to attachment figures (Schimmenti & Caretti, 2016), dissociation might also be a strategy by which individuals avoid uncomfortable emotions or thoughts related to social interactions while continuing to engage socially and maintain these relationships. Previous research on team cooperation and emotion suppression supports the potential benefits of emotional

suppression to cooperation and maintaining favorable relationships (Lam et al., 2021). Furthermore, dissociation may also be a strategy for disengaging from emotional information suggesting the need to problem-solve, set boundaries, or look at a relationship in a new way. Betrayal trauma theory suggests that dissociation can function to reduce awareness of betrayal to protect needed relationships, and perceived betrayal was supported as a better predictor of dissociation in relationships compared to shame (Platt et al., 2017). Though the current study did not investigate betrayal specifically, it is possible that dissociation may operate in similar way to preserve social connections following an interpersonal stressor, such as an interpersonal conflict, particularly if individuals perceive relationships as difficult to initiate and maintain.

Nevertheless, the current study provides novel support for interpersonal stressors as a predictor of dissociative experiences, adding to the sparse literature on daily fluctuations in dissociative experiences (Soffer-Dudek & Shahar, 2014) and is one of few to investigate dissociative symptoms in daily life and longitudinally, as most research on dissociation to date is cross-sectional (Amore & Serafini, 2020) or examined specifically as a symptom of posttraumatic stress (Frewen et al., 2015). Furthermore, this finding supports the growing understanding that dissociation is not rare (Gentile et al., 2014) or limited to individuals with a formal dissociative disorder diagnosis or PTSD (Sperandeo et al., 2018; Schweden et al., 2016; Guardia et al., 2012) but can be experienced in everyday life as a response to stressors among a community sample. Thus, dissociation may be better understood as a transdiagnostic phenomenon (Lyssenko et al., 2018) associated with stressors, which can vary within and between individuals.

Trait-like and state attachment avoidance and state attachment anxiety predict dissociation (Hypothesis 2a and 2b). Previous cross-sectional research has linked dissociative symptoms to functional impairment in understanding and communicating with others (Chui et al., 2021; Boyd et al., 2020), domains also associated with insecure attachment style (Brown et al., 2016). Most theoretical models of dissociation include attachment style as a predictor of dissociative experiences (Bailey & Brand, 2017), however the current study is the first to my knowledge to examine daily fluctuations in dissociative experiences in the context of attachment anxiety and avoidance. Thus, the present study sought to examine the relationship between attachment anxiety and avoidance and dissociation at both between- and within-person levels using trait-like and state attachment constructs. As hypothesized and in line with past findings (Farber, 2008), general attachment avoidance at baseline (e.g., trait-like attachment avoidance) prospectively, positively predicted dissociation in subsequent daily life. This finding may align with the link between avoidant coping and dissociation (Madan et al., 2015; Pacella et al., 2011) and suggests that individuals high in trait general attachment avoidance may be more likely than individuals low in attachment avoidance to dissociate in response to stressors. As attachment avoidance has been linked to social anxiety (Read et al., 2018) and interpersonal problems (Haggerty et al., 2008), individuals high in this dimension may perceive themselves as lacking adequate coping skills for managing interpersonal stressors and thus utilize dissociation as a strategy for self-regulation (Mahoney & Benight, 2017). Thus, the trait findings fit a conceptualization of dissociation as an avoidant phenomenon.

Interestingly, and inconsistent with hypotheses, state attachment avoidance *negatively* predicted dissociation following interpersonal stressors, in a separate model controlling for all other variables. Thus, when individuals were in attachment avoidance states, they experienced *less* dissociation in stressful social interactions. As the state attachment variable was person-centered, results indicate interpersonal stressors involving interaction partners with whom respondents reported greater attachment avoidance *beyond their own mean levels* predicted less daily dissociation. Though this finding is counter to hypotheses, the negative relationship between attachment avoidance and dissociation aligns with previous research indicating attachment avoidance may have some short-term buffering effects in experiences of heightened stress (Dewall et al., 2012). Avoidant coping strategies (e.g., mentally or emotionally disengaging from a situation) have been noted as effective in alleviating short-term distress (Powers et al., 2006), though they may predict greater long-term distress (Troop-Gordon et al., 2017), and individuals reporting greater state attachment avoidance may be more likely to utilize and benefit from short-term avoidant coping strategies such as distancing oneself from the situation (Dewall et al., 2012). For example, interacting with someone with whom they have greater (than their own mean) attachment avoidance may pull for the individual to disengage emotionally from the situation, dampening distress in the interaction and therefore decreasing the need for coping via dissociation following the interaction. Alternatively, given that state attachment avoidance was measured utilizing one reverse-scored item (“It helps to turn to this person in times of need”; Fraley et al., 2011), it’s possible that relationships involving particularly high state attachment avoidance (i.e.,

respondents responded *strongly disagree* to the item) may represent relationships that are less intimate, newer, or perceived as unhelpful or unimportant.

One possibility is individuals socializing with such an interactant they already perceive to be unhelpful may enter the interaction with lower expectations or already employing other strategies for emotional detachment, which may result in a less distress associated with these stressors and subsequently less need for dissociation. On the other hand, individuals might be more likely to be overwhelmed by interpersonal stressors involving interactants normally perceived as helpful (i.e., interactants with whom attachment avoidance would be rated low), resulting in social interactions involving *lower* attachment avoidance counterintuitively predicting higher dissociation. Along these same lines, the novelty of an interpersonal stressor (i.e., if the interpersonal stressor is new, like an unpleasant interaction with a new acquaintance, versus routine, like a conflict with a historically difficult coworker) may be a factor in whether an individual dissociates following the stressor. Interpersonal stressors experienced as novel or unexpected may be less likely to pull for dissociation, as they may require more active threat assessment or problem-solving.

Taken together, the positive relationship of trait-like attachment avoidance to dissociation and the negative relationship of state attachment avoidance to dissociation is consistent with literature on the short- and long-term effects of coping responses to stressors. In other words, individuals high in trait-like attachment avoidance may be more likely overall to experience dissociation in response to stressors, which ultimately increases distress and further reinforces dissociation through negative reinforcement. However, in short-term social situations wherein attachment avoidance greater is than an

individual's mean, the emotional distance from the interactant and possible detachment from the relationship or social situation overall may buffer against emotional distress and dissociative responses to cope with this distress.

Contrary to hypotheses, general attachment anxiety did not significantly predict dissociation, although effects trended in the hypothesized direction. This finding aligns with previous research linking attachment avoidance, but not anxiety, to dissociation (Calamari & Pini, 2003), and conflicts with other findings indicating attachment anxiety as a predictor of dissociative experiences (Gušić et al., 2016). Considering research linking attachment anxiety to hyperarousal in response to perceived social stimuli with negative and positive valences (Vrtička et al., 2012), the nonsignificant relationship between trait-like attachment anxiety and daily dissociation may be related to chronic activation of the HPA-axis (Schulkin, 2010), hypervigilance and hyperreactivity to interpersonal stimuli (Nolte et al., 2011), and the high, flat cortisol profiles associated with attachment anxiety (Kidd et al., 2011). Previous research found that effects of hyperarousal (as indicated by cortisol levels) related to attachment anxiety were present at baseline and in the recovery phases of a non-attachment stressor task, not during the task itself, which suggests the use behavioral of strategies for affect regulation and maintaining closeness to attachment figures (Kidd et al., 2011). Individuals with high attachment anxiety tend to rely on others for affect regulation (e.g., reassurance seeking, Evraire et al., 2014) and these strategies involve social approach behaviors versus avoidant coping (i.e., dissociation; Fani et al., 2018).

The two-way interaction of trait-like attachment dimensions and of state attachment dimensions predicts dissociation (Hypothesis 3a and 3d). Consistent with

hypotheses, the two-way interaction between general (e.g., *trait*-like) attachment anxiety and attachment avoidance positively predicted daily dissociation such that the combination of high self-reported attachment anxiety and high avoidance predicted greater dissociation in daily life, even accounting for main effects of perceived interpersonal stressors (alternatively, avoidance amplified the positive effect of anxiety on dissociation). This finding aligns with previous literature indicating that individuals with insecure attachment styles (i.e., high attachment anxiety and/or attachment avoidance) tend to have more difficulty regulating emotions (Falgares et al., 2019; Monteleone et al., 2019) and recovering from stressors (Shallcross et al., 2014) compared to individuals with a secure attachment style (i.e., low in dimensions of attachment anxiety and avoidance). Thus, in the absence of other available coping strategies (Frewen & Lanius, 2006), individuals with the combination of high trait attachment anxiety and attachment avoidance may rely on dissociation as a coping strategy more often than individuals low in these dimensions.

Interestingly, the two-way interaction between *state* attachment anxiety and avoidance *negatively* predicted dissociation, indicating that high state attachment avoidance slightly reduced the positive relationship between state attachment anxiety and dissociation in their stressful daily social interactions. Though contrary to hypotheses and inconsistent with research linking disorganized/fearful attachment style (e.g., high attachment anxiety and high attachment avoidance) to dissociation (Pearce et al., 2016), this finding might alternatively suggest that preoccupied states of mind (with regard to attachment) were most important for understanding situational dissociation, given that the joint combination of low avoidance and high anxiety were most predictive in this study.

Also, the finding that high avoidance blunted effects of anxiety is consistent with the negative main effect of state attachment avoidance on dissociation, as discussed in relation to Hypothesis 2b.

The fact that avoidance apparently counteracted the association between state attachment anxiety and avoidance and dissociation might be due to the use of alternative (e.g., reassurance seeking; Evraire et al., 2014) or contradictory coping strategies (e.g., approaching and avoiding simultaneously through asking for support and pulling away; Marcusson-Clavertz et al., 2017). Furthermore, as the attachment schema can be activated or deactivated in different contexts (Mikulincer et al., 2001), perhaps in social situations involving interactants for whom there is a known highly anxious and avoidant attachment, individuals may be more likely to utilize avoidant coping strategies prior to the interaction (e.g., maintaining emotion distance), decreasing short-term distress (Powers et al., 2006) and subsequently the immediate need for dissociation to emotionally regulate.

The three-way interaction between state attachment avoidance, anxiety, and interpersonal stressors will predict dissociation (Hypothesis 4b). Results supported the three-way interaction between state attachment avoidance, anxiety, and interpersonal stressors in predicting daily dissociation. However, the pattern of the interaction was complex and not precisely as hypothesized. Somewhat consistent with the hypothesis that both anxiety and avoidance would jointly amplify positive effects of interpersonal stress on dissociation, those with *either* high state avoidance (and low anxiety) or particularly high state anxiety (and low avoidance) had higher dissociation than individuals with both

low anxiety and low avoidance. The latter is consistent with the two-way interaction already described (with avoidance apparently blunting the effect of anxiety).

However, the combination of high anxiety and high avoidance (in tandem with high interpersonal stress) was surprisingly associated with relatively lower dissociation. As I did not control for trait attachment dimensions in these analyses, it is possible that these individuals (e.g., high in attachment avoidance and anxiety) may dissociate generally as a form of emotion regulation but in the context of significant interpersonal stressors utilize other coping strategies such as reassurance seeking or seeking feedback to confirm negative self-perceptions (Evaire et al., 2014). Nonetheless, for each combination of state anxiety and avoidance, interpersonal stress still positively predicted dissociation.

Furthermore, as this study examined interpersonal stressors generally, there could be specificity in the relationship of attachment and interpersonal stressors as predictors of dissociation that if explored may clarify interaction effects of attachment avoidance, attachment anxiety, and interpersonal stressors. For example, perhaps interpersonal stressors rated high on items intended to assess boundary violations (i.e., “During this interaction to what extent did you feel... that others were trying to compromise your independence; ...that others were trying to get too close; ...that others were making your life difficult by asking for too much care and support”) may elicit less dissociation and greater hostility or assertion to protect ones’ boundaries. Conversely, interpersonal stressors rated high on items intended to assess perceived rejection or exclusion (i.e., “During this interaction to what extent did you feel... abandoned by others, or worried that you would be abandoned;rejected or excluded by others; ...that you were being

pushed away when you wanted to get closer to someone”) may elicit more dissociation in order to regulate emotional distress in the absence of a reliable attachment figure (Esbjörn et al., 2012). Future analyses should examine these questions directly.

Additionally, internal distress has been shown to moderate dissociative symptoms, such that internal distress predicted increased dissociation when external stress was low but not when it was high (Soffer-Dudek & Shahar, 2014). Thus, the external stress related to the interpersonal stressor may have been too high to allow for the state of hypoarousal required for a dissociative state, particularly for individuals high in attachment anxiety and avoidance. Counterintuitively, this elevated external stress may have predicted decreased dissociation as the body shifted into hyperarousal, or fight-or-flight, to respond to the perceived threat. Further research is warranted to disentangle differences between state and trait attachment in terms of impact on dissociation.

Clinical Implications

Research indicates that dissociative symptoms predict poorer treatment outcomes (Kleindienst et al., 2016, Schweden et al., 2016), longer treatment duration (Brand et al., 2009), and greater difficulty receiving a correct mental health diagnosis (Smiatek-Mazgaj et al., 2016) compared to individuals who do not present with dissociation. Though an important predictor of treatment outcomes, dissociation is difficult to detect due to the broad range of dissociative experiences (Sar, 2011), and few studies have examined dissociation longitudinally (Vine et al., 2020; Soffer-Dudek, 2017; Ogawa et al., 1997) in daily life (Soffer-Dudek & Shahar, 2014). Given the strong relationship between traumatic experiences and dissociation (Bailey & Brand, 2017), much of the extant literature investigates dissociation cross-sectionally in the context of trauma. However,

research suggests dissociation is transdiagnostic (Parlar et al., 2016; Schweden et al., 2016), not unique to posttraumatic stress disorder, and predicts long-term consequences for relationships (Dorahy et al., 2017), psychological wellbeing (Jones et al., 2018), and physical health (Scheffers et al., 2017). As dissociative symptoms exist along a spectrum of severity (Dorahy et al., 2003), and the effects of dissociation have been linked to the severity (Serrano-Sevillano et al., 2017) and the frequency (Scheffers et al., 2017) of symptoms, the present study sought to address current gaps in the literature by examining dissociation in the context of everyday interpersonal stressors over time.

Though dissociative symptoms can impact treatment progression and duration, treatment outcomes can be improved utilizing therapeutic interventions specific to dissociation (Brand et al., 2009). The present study demonstrates that experiences of interpersonal stress and both trait-like and state attachment dimensions predict within- and between-person fluctuations in dissociative experiences in daily life. This may suggest new approaches to assessment and treatment interventions for individuals presenting with distress and impairment in coping with relational or social stressors, setting boundaries, or being alone. For example, during clinical intakes, practitioners may inquire about specific risk-factors for attachment insecurity or dissociative experiences in addition to discussing any history of trauma (e.g., developmental trauma, Dalenberg et al., 2012; shame-proneness, Talbot et al., 2004; fear of relationships, Dorahy et al., 2017; and emotional lability, Jones et al., 2018). For individuals presenting with one or more risk-factors for dissociative experiences (e.g., attachment style, Bailey & Brand, 2017), practitioners may assess for dissociation directly, inquiring about

dissociative experiences considered “mild” or benign (e.g., daydreaming, Dorahy et al., 2003) and those considered more severe or impairing (e.g., dissociative amnesia).

Clinicians might also explore an individual’s perceived interpersonal stressors, access to social support, and ability to cope. As results of the present study indicate, even mundane, day-to-day interpersonal stressors may predict dissociative experiences.

Dissociative experiences are clinically relevant not only in that they can be distressing to the individual (Jones et al., 2018), but because over time they may contribute to increases in emotional distress (Scheffers et al., 2017), intrusive thoughts (Mairean & Ceobanu, 2017), sleep disturbances (Serrano-Sevillano et al., 2017), and relationship difficulties (Dorahy et al., 2017).

Considering theories of dissociation as a “last resort” coping strategy used when other methods of regulation are unavailable or inaccessible (Frewen & Lanius, 2006), mental health practitioners may emphasize skill-building in emotion regulation and distress tolerance (i.e., DBT skills; Linehan, 2015) and provide psychoeducation on ways avoidant coping perpetuates long-term distress to mitigate long-term negative effects of dissociation. Clinicians may also incorporate regular mindfulness interventions and between-session assignments centered on cultivating mindfulness, as dissociation can interfere with an individual’s ability to fully engage in treatment (Lanius et al., 2010) or benefit from exposure therapy, which requires connecting to the present moment. Previous studies have supported mindful breathing as a useful intervention for reducing dissociative symptoms (Michal et al., 2013). Furthermore, results underscore the role of interpersonal stressors as a predictor of dissociation. As interpersonal difficulties may predict greater intensity or frequency of interpersonal stressors, mental health

practitioners might also consider utilizing social skills interventions to support distress reduction (e.g., DEARMAN; Linehan, 2015) and increase supportive social engagement (e.g., practicing being vulnerable in trustworthy relationships).

The present study also examined the effects of attachment anxiety and avoidance on the relationship between interpersonal stressors and dissociation. Previous studies suggest attachment style as a risk factor for developing dissociative symptoms (Dykas & Cassidy, 2011), and attachment dimensions are also indicated as predictors of perceptions of social threats (Byrow et al., 2016), distress in response to stressors (Nolte et al., 2011), and coping with stressors (Pascuzzo et al., 2013). Research indicates that attachment style, particularly attachment avoidance, can negatively impact treatment outcomes as these individuals may struggle to build rapport or practice vulnerability in psychotherapy (Newman et al., 2015). Results from the present study support the established link between attachment dimensions and responses to stress (Monteleone et al., 2019), indicating attachment anxiety and avoidance as important factors to assess when considering treatment planning. Knowledge of a client's attachment anxiety, avoidance, and perceptions of interpersonal stress may help facilitate accurate empathy and rapport building with new clients, as clients may respond differently to communication strategies as a function of attachment style.

Limitations and Future Research

There are several limitations to this study. First, in the absence of a validated brief measure of daily perceived interpersonal stressors in the literature, I self-developed a measure of interpersonal stressors incorporating research indicating common social interactions eliciting distress (e.g., perceived social exclusion; Kumar et al., 2017,

criticism; Victor et al., 2018, boundary violations; Oore et al., 2010) and attachment research (Dykas & Cassidy, 2011) to create self-report items that would broadly capture a variety of interpersonal stressors relevant to individuals across both attachment dimensions. Although the internal consistency estimates provided preliminary evidence of reliability, further research is warranted to determine psychometric properties of these items. Similarly, although there are reliable measures of attachment anxiety and avoidance (Fraley et al., 2011), to decrease respondent burden in completing daily diaries (3 per day), I selected one item measuring attachment anxiety and one item measuring attachment avoidance from the ECR-RS based on which items most strongly correlated with their respective attachment constructs. Though reducing the number of survey items is useful for preventing attrition, limiting the state attachment dimension measures to one item per construct likely did not fully capture either state attachment anxiety or avoidance. Future research should examine the effects of state attachment dimensions utilizing the complete ECR-RS general scale or another well-validated measure of attachment.

Furthermore, though results suggested important relationships relationship between interpersonal stressors, attachment dimensions, and dissociation, further analysis is needed to examine possible variance attributable to type of interpersonal stressor (e.g., criticism versus someone asking for too much). Previous research has indicated interpersonal stressors predict anxiety, depression, and relationship outcomes beyond other types of stressors (Vshek-Schallhorn et al., 2015), and results from this study indicate there are individual differences in responses to interpersonal stressors. Thus, specific types of interpersonal stressors may have differential impact on dissociation.

However, investigating effects of specific types of perceived interpersonal stressors is beyond the scope of the current study. It is recommended that future studies explore unique effects of specific interpersonal stressors occurring in daily life.

Similarly, though results indicated state attachment dimensions are an important factor to consider in the context of interpersonal stressors, another study limitation is that I did not control for the relationship role of the interactant in self-reports of daily stressors. Further analysis, beyond the scope of the current study, is needed to explore whether relationship role changes the relationship between attachment anxiety and avoidance and dissociation given studies supporting the importance of context to state attachment dimensions (Mikulincer et al., 2001).

An additional limitation of this study is I did not assess for other coping responses or strategies beyond dissociation and therefore did not control for effects related to alternative coping responses in examining the relationship between interpersonal stressors and dissociation. Previous research indicates approach-oriented coping strategies such as cognitive reappraisal or acceptance can reduce the impact of interpersonal stressors (Coiro et al., 2017), thus individuals who utilize these strategies may experience less dissociation following stressors. Future research should include measures assessing the use of other coping responses to control for possible effects of these strategies on dissociation.

Another limitation of this study is its reliance on self-report data and participant recall. I did not control for time between the occurrence of a stressor and a participant's response. Instructions on the daily survey directed participants to "Think of a social interaction they had within the last 3 hours," and daily surveys were sent to participants

several hours apart to additionally reinforce diary responses relevant to a recent interpersonal experience. However, as analyses did not control for participant response time and there is no feasible way to ascertain when an interaction truly occurred without physically observing it, responses may be impacted by memory bias or decay.

Lastly, an important limitation of the present study concerns the generalizability of these findings. Most participants identified as White (78.1%), were relatively young ($M=27.5$), and identified as women (81%). The mixed nature of the study sample (approximately 37% of participants self-reported a prior eating disorder diagnosis) also limits generalizability, and future research should investigate dissociation in a purely nonclinical sample. Contextual factors also limit the generalizability of these findings. Data collection occurred in part during the year 2020, and the increased stress levels associated with a global pandemic, particularly during quarantine or lockdown, may have impacted the severity or quality of interpersonal stressor diary entries, or the severity of daily dissociative symptoms outside the context of interpersonal stressors. Nonetheless, the present study indicates that daily interpersonal stressors and both trait-like and state attachment anxiety and avoidance are associated with dissociative experiences, contributing to existing literature on dissociative experiences and attachment dimensions and supporting interpersonal stressors as a predictor of dissociation.

Conclusion

The current study extends the literature by examining the relationship between daily interpersonal stressors, attachment avoidance and anxiety, and dissociative experiences over seven days. Specifically, using daily diary responses (i.e., repeated measures), this study examined these constructs at between- and within-person levels.

Results indicated interpersonal stressors, trait-like attachment anxiety and avoidance, and state attachment anxiety positively predicted dissociation. Interestingly, the interaction between interpersonal stressors, state attachment anxiety, and state attachment avoidance predicted *less* dissociation following a stressor. Overall, the current study suggests that daily dissociative experiences vary within and between persons and are linked to perceived interpersonal stressors and attachment style. Of note, this study illustrates that dissociative symptoms can vary day to day and adds support to literature linking attachment style to emotion regulation strategies and coping (Pascuzzo et al., 2013). Further research is warranted to better elucidate the specificity of interpersonal stressors as a predictor of dissociation, and the role of social context, attachment anxiety, and attachment avoidance in this relationship.

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