THE EFFECTS OF STRESSFUL LIFE EXPERIENCES AND MALADAPTIVE DAYDREAMING ON SELECTIVE ATTENTION AMONG YOUNG ADULTS

By

Claudia Colpo

Tomorrow D. Arnold
Assistant Professor of Psychology
(Chair)

Ruth H. Walker
Assistant Professor of Psychology
(Committee Member)

Ashley N. Howell
Assistant Professor of Psychology
(Committee Member)

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ABSTRACT

Adverse childhood (ACEs) and adult (AAEs) experiences have been connected to negative psychological and physical consequences. ACEs have been associated with maladaptive daydreaming (MD) and impairments in selective attention (SA). Less is known about AAEs on selective attention and MD in adults. This study aimed to address gaps in the literature using a sample of 177 adults aged 18 and 30 who were assessed for ACEs, AAEs, and MD. Participants' SA was assessed through an emotional Stroop test. ACEs and AAEs were both positively associated with MD, as well as with increased reaction times in the Emotional Stroop. There was an indirect effect of ACEs on total reaction time through MD. High levels of MD moderated the relationship between AAEs and SA by decreasing reaction times. Findings suggest a complex mechanism in the relationship between adverse life experiences, MD, and selective attention.

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LIST OF ABBREVIATIONS

PTSD, post-traumatic stress disorder

ACEs, Adverse Childhood Experiences

IPV, Intimate Partner Violence

MD, Maladaptive Daydreaming

SA, Selective Attention

ADHD, attention deficit/hyperactivity disorder

TAPS, Tobacco, Alcohol, Prescription medication, and other Substances use

CES, Childhood Experiences Survey: Adult Version

AES, Adult Experiences Survey

MDS, Maladaptive Daydreaming Scale

EST, Emotional Stroop Task

RT, reaction time

ESE, Emotional Stroop Effect

CHAPTER I

INTRODUCTION

Attention is an important executive function used in multiple facets of our everyday lives, as it is fundamental for completing simple and complex tasks, such as engaging in meaningful conversations or finalizing academic work. The importance of attention is especially emphasized when it becomes challenging to sustain it, which is what individuals with an attention-deficit/hyperactivity disorder experience on a daily basis (Volkow & Swanson, 2013). In this population, disruptions in attention have been linked to lower academic performance and success, decreased job performance and stability, higher prevalences of substance use disorders, and impaired mental and physical health (Kosheleff et al., 2023). Because disrupted attention can have significant consequences on an individual's well-being, it is important to investigate what life experiences can potentially affect this cognitive function. This study aims to analyze how potentially stressful childhood and adult experiences may play a role in the disruption of attention, specifically by considering dissociative coping mechanisms such as maladaptive daydreaming.

Attention

Although *attention* has been defined in multiple ways through literature, it can be simply described as being alert and engaged with the surroundings, as well as the ability to process multiple stimuli simultaneously (Johnston & Dark, 1986; Lindsay, 2020). Attention is a complex

executive task to analyze due to the multiple types of attention and due to the inevitable interconnection with other cognitive functions, such as learning, thinking, and cognition.

One of the main types of attention analyzed by past authors is *selective attention*, which refers to the processing of a specific stimulus while suppressing other irrelevant, distracting information (Johnston & Dark, 1986; Stevens & Bavelier, 2012). This type of attention is important in academic or work environments to ignore distracting stimuli, like irrelevant noises and other peoples' discussions, and in everyday tasks, such as when driving or engaging in meaningful conversations with others (Stevens & Bavelier, 2012). Multiple theories attempted to explain how selective attention works, and generally, they all agree that a sensory stimulus is processed and filtered at some point, so that important and relevant information is brought into consciousness while unimportant events are disregarded. However, these theories disagree on when and to what extent the filtering process occurs, so there is still no clear official explanation of the selective attention process (Broadbent, 2013; Johnston & Heinz, 1978; Treisman, 1960).

The different theories attempted to explain how selective attention works on a theoretical level, but studies using functional magnetic resonance imaging (fMRI) and brain imaging had to be conducted to determine what brain areas are involved in the process of selective attention. Selective visual attention was found to be a complex process involving several brain regions depending on whether the process is voluntary (top-down) or involuntary (bottom-up; Yantis, 2008). Whenever a visual stimulus is perceived, activation of the occipital lobe, specifically of the V1 and V4 areas of the primary visual cortex, was noticed, suggesting that selective visual attention heavily relies on visual stimuli (Yantis, 2008). Activation of the inferior parietal cortex, the cingulate cortex, and the inferior frontal gyrus were also observed, which respectively have a role in the visuospatial interpretation of attention, projection of pathways to the lateral prefrontal

cortex, and detection, elaboration, and inhibition of attention (Hampshire et al., 2010; Jumah & Dossani, 2019; Loose et al., 2003; Numssen et al., 2021).

Because of the complexity of this executive function, different types of phenomena could affect the effectiveness of selective attention. Degree of engagement with a stimulus, inherent processing speed, and physical and emotional states, for example, could each enhance or inhibit selective attention capacity (Gazzaley & Rosen, 2016). However, life experiences that contribute to heightened stress levels have also been found to impair selective attention. For instance, a study conducted by Caparos and Blanchette (2014) found that individuals who experienced sexual abuse performed worse in an emotional Stroop task, and that the severity of the abuse correlated with increased reaction times due to emotional interference. A meta-analytic focusing on general trauma and post-traumatic stress disorder (PTSD) also found that trauma-exposed groups tended to perform worse in an emotional Stroop task when presented with PTSD-relevant words (Cisler et al., 2011). Slower reaction times in an emotional Stroop task have also been found among individuals experiencing mental health concerns, such as clinical depression, anxiety, and PTSD (Williams et al., 1996). Because of these reports, it is important to analyze what other possible adverse life experiences an individual could encounter, and how they could potentially impair selective attention.

Adverse Childhood Experiences

Adverse Childhood Experiences (ACEs) can be defined as life events experienced before the age of 18 that are potentially traumatic and/or that can threaten the sense of stability and safety of an individual (Centers for Disease Control and Prevention, CDC, 2024). ACEs encompass a variety of events, including household dysfunction, such as parental divorce or

cohabitating with an adult who is experiencing a mental illness, or maltreatment and neglect (Felitti et al., 1998). Between 1995 and 1997, the CDC conducted the CDC-Kaiser Permanente Adverse Childhood Experiences study in order to assess the prevalence of different ACEs among different population groups (Felitti et al., 1998). From this study, the CDC categorized ACEs into three groups: abuse, household challenges, and neglect. The abuse category includes any form of violence perpetrated by a parent, caregiver, or adult living in the same household directly on the child, and it is divided into emotional, physical, and sexual abuse. Household challenges encompass any adversity that the child had to witness or experience that is not considered a form of direct abuse, such as witnessing substance abuse or mental illness within the household or experiencing parental separation/divorce. Lastly, neglect is the result of an immediate family member failing to care for or provide for the child, and it can be distinguished between emotional and physical neglect.

Overall, these adverse experiences are highly prevalent in the U.S. population, as about 68% of U.S. adults reported to have experienced at least one type of ACEs before the age of 18 (CDC, 2024). From this study (Felitti et al., 1998), it was also found that the most prevalent forms of childhood adversities were physical abuse (28.3%), substance abuse in the household (26.9%), parental separation or divorce (23.3%), and sexual abuse (20.7%). More recent studies identified emotional abuse to be the most prevalent form of ACE (33.5%), followed by parental separation/divorce (28.2%), and household substance abuse (26.8%; Felitti et al., 1998; Giano et al., 2020).

Past literature attempted to analyze whether different adverse experiences might lead to distinct consequences, such as the differences between abuse and neglect on neurological development, but detecting the unique effects of distinct ACEs on neurodevelopment has been

challenging (Kim-Spoon et al., 2021; McLaughlin & Sheridan, 2016). Generally, ACEs have been connected to significant neurological changes, which might lead to long-term negative effects on physical and mental health.

Exposure to chronic stress during childhood has been linked to prolonged and/or frequent activation of the hypothalamic-pituitary-adrenal (HPA) and the sympatho-adrenomedullary (SAM) axes, which are peripheral regions responsible for the hormonal stress response (Bucci et al., 2016). Hyperactivation of these axes may lead to oversensitivity to stressful stimuli, meaning that environmental factors that might not normally be stressful, such as replying to emails, might be perceived as stressful (Bucci et al., 2016). Hyperactivity of these axes has also been linked to the development of psychological disorders, such as PTSD, depression, and anxiety disorders (Herman et al., 2016). Furthermore, early-life adversities have been linked to reduced size and plasticity of the prefrontal cortex, amygdala, and hippocampus (Bucci et al., 2016; Pechtel & Pizzagalli, 2011). These structural alterations may result in impairing executive functions (such as attention and self-regulation), altering behavioral and emotional responses to threats (like perceiving a neutral stimulus as a threat or reacting to a suspected threat with anger outbursts), and impairing memory and learning (Bucci et al., 2016; Pechtel & Pizzagalli, 2011).

When looking specifically at selective attention, several studies focused on analyzing different types of prevalent adverse childhood experiences and their effects on this executive function. Pollak and Tolley-Schell (2003) found that children who experienced physical abuse had lower flexibility and control over selective attention when faced with a threatening stimulus (an angry face) in a dot-probe task assessing selective attention with emotional cues. However, such impairment in selective attention was not experienced when exposed to a neutral stimulus, suggesting that selective attention is deeply connected to emotional processing. Similar findings

were found by Bendall et al. (2013) in a clinical sample analyzing how biased selective attention was an underlying cognitive process in the experience of posttraumatic intrusions, specifically childhood sexual abuse-related words in an emotional Stroop task. Biased attention to negative stimuli in a dot-probe task was also found in a sample of 359 children who were exposed to community-based violence, suggesting that non-interpersonal traumatic or stressful events can also affect attention and general cognitive performance in children (McCoy et al., 2015). Adverse childhood experiences have been overall linked to significant impairments in neurological development, which might impact other aspects of an individual's mental and physical health.

Individuals who experienced extensive adversities throughout their childhood are more likely to develop mental and physical illnesses. Specifically, Herzog and Schmahl (2018) identified that individuals who were exposed to early life stressors were more likely to develop depression, PTSD, substance abuse, and borderline personality disorder. All these disorders have been somewhat linked to malfunctions in selective attention, with lower reaction time due to increased attention biases to threatening and/or trauma-related words or stimuli (Ceumern-Lindenstjerna et al., 2002; Cusmano, 2016; Field et al., 2009; Kertzman et al., 2010). To summarize, past literature identified that ACEs have been connected to impaired neurological development, with consequential disruption in executive functions and emotional processing during childhood.

Adverse Adult Experiences in Young Adulthood

Although plenty of literature discusses the effects of ACEs on an individual's well-being, less literature is available on cumulative adverse adulthood experiences parallel to ACEs,

specifically during young adulthood. Considering that experiences of ACEs have been linked to poorer health and life outcomes during adulthood (such as poor work and academic performance, substance misuse, and overall poorer physical and mental health; e.g. heart disease, diabetes, suicide, depression, and anxiety.; CDC, 2024; Hughes et al., 2017), it is important to explore what other possible adverse adulthood experiences an individual could face, and that might be predicted by previous exposure to ACEs.

To address the lack of literature on the topic, Mersky et al. (2021) created a scale similar to the assessment measuring ACEs by identifying the most prevalent adverse experiences experienced by adults. This scale identified ten adult adversities, with five of them addressing romantic relationship problems related to intimate partner/domestic violence due to its prevalence in the adult population (physical and/or emotional abuse, sexual abuse, mental health problems, substance-related problems, and incarceration). The other five adversities referred to personal stressful experiences, being unwanted sexual activity by a non-partner perpetrator, homelessness, crime victimization, discrimination, and financial struggles. This scale specifically analyzed young adults because of the prevalence of these problems in this specific age group, and their mean age was 27 (Mersky et al., 2021). Moreover, past literature reinforced the importance of focusing on this age group due to young age being a risk factor for adverse adulthood experiences, potentially due to the higher rates of stressors among young adults and risky behaviors (Basile et al., 2011; Mersky et al., 2021). For example, young age is a risk factor for intimate partner violence according to the CDC, while the National Intimate Partner and Sexual Violence Survey (NIPSVS) stated that 68% of women and 53% of men victims experienced the first case of IPV before the age of 25 (Basile et al., 2011; Brewer et al., 2018; Karakurt & Silver, 2013) .

Primary analysis of the scale development study, with a sample of 1,747 women 19 years old or older, showed that the most prevalent adult adversities were physical or emotional abuse (53%), partner alcohol or drug problems (43%), partner mental health issues (37%), and discrimination (52%). Eighty-six percent of the sample experienced at least one of the 10 adult adversity categories listed on the measure, while 71% experienced two or more adversities (Mersky et al., 2021). Despite the prevalence of these stressors, the effects of comorbid adverse adulthood experiences on cognitive functioning are still not clear and understudied. Previous research has demonstrated how substance use and psychological impairments, such as depression and PTSD, can impact selective attention. However, other prevalent adult adversities (i.e., intimate partner violence) can lead to increased attention bias toward negative stimuli.

Mersky et al. (2021) identified that physical and emotional victimization by a romantic partner, or intimate partner violence (IPV), was very common in their sample. Smith et al. (2017) report on IPV explained that the majority of the victims experienced some form of traumatic event during childhood and that IPV significantly impacted the daily life and/or health of the victims. Specifically, they reported having experienced impairing injuries (such as traumatic brain injuries), PTSD, chronic pain, poorer work performance, and cognitive impairment (such as difficulties in concentration). Similar to adverse childhood experiences, IPV has been shown to have negative effects on cognition due to the presence of chronic stress and due to the high prevalence of traumatic brain injuries (TBIs; Wong et al., 2014). These adverse outcomes respectively lead to reduced ability to consolidate long-term memories, worsened cognitive and emotional processing (such as hyperactivation of the limbic system when exposed to threat-related emotional face stimuli and increased attentional bias towards negative stimuli), impaired ability to successfully complete complex executive tasks (such as maintaining focus and

attention), and less control of fear responses (Wong et al., 2014).

Survivors of IPV also show attentional visual bias towards triggering words in emotionally charged selective attention tasks (DePierro et al., 2013). Another study also showed higher threat-avoidance attention bias and acute cortisol response in survivors of IPV exposed to stress compared to a non-IPV control group in the Trier Social Stress Test, suggesting that victims of IPV experienced higher levels of stress and that they experienced delays in selective attention due to emotional biases (Goldberg et al., 2023).

Both childhood and adult adverse experiences can significantly affect executive functioning, specifically selective attention, and attentional bias. These impairments are caused by a plethora of reasons, varying from brain injuries to long-term exposure to chronic stress. Another factor that could play a role in dysfunctions in selective attention is the use of coping mechanisms like dissociative mechanisms, which are usually adopted by individuals with experience of trauma.

Coping Mechanisms and Maladaptive Daydreaming

Coping mechanisms can be defined as the conscious behaviors or patterns of thinking that are adopted to reduce one's experience of tension following a stressful event (American Psychological Association, 2023). There are several types of coping mechanisms, which have been classified by past literature based on how the individual approaches the problematic situation. The main classes of coping mechanisms identified by the Coping Orientation to Problems Experienced (COPE; Carver et al., 1989) are problem-focused, emotion-focused, avoidant, and social coping. Problem-focused coping mechanisms involve actively addressing the stressor by identifying proactive ways to reduce and/or solve the problem, such as planning,

researching strategies, and minimizing other distractions. Emotion-focused coping strategies, on the other hand, involve the individual reducing the negative emotions that stem from the problematic situation more than actively trying to solve the issue (such as using humor, positively reframing the problem, and using spirituality or religion).

Avoidant coping are strategies adopted by the individual to negate or avoid the problematic situation, such as engaging in distracting activities, denying the existence of the problem, or adopting behavioral disengagement strategies. Lastly, social coping involves individuals seeking support from peers and from the community they are involved in to solve the source of distress.

All types of coping behaviors can help reduce the stress and anxiety experienced by an individual, but some types of coping strategies are more likely to lead to a maladaptive pattern of thinking and behavior. Specifically, active, or problem-focused coping and social coping mechanisms have been shown to be protective factors against the development of PTSD, while maladaptive coping methods (avoidant or passive) are significant predictors of PTSD (Olff et al., 2005)

Dissociative behaviors are also common in clinical who experienced some form of life stressor, specifically prolonged childhood abuse and neglect. Dissociation refers to a form of divided awareness, in which some emotions and thoughts relating to stressful experiences might be reduced or avoided to be brought into consciousness (Spiegel, 2001). Studies on dissociation showed that individuals who experienced different forms of childhood stressors engage in dissociation as a form of coping mechanism. For example, Lipschitz et al. (1996) and Waldinger et al. (1994) found that childhood sexual abuse was a predictor of high levels of dissociation during adulthood compared to control groups, and that cumulative childhood trauma was also

positively related to dissociative behaviors (Gershuny & Thayer, 1999; Hébert et al., 2018).

Maladaptive daydreaming is a specific type of dissociative behavior that may be adopted by victims of trauma. It is defined by the compulsive engagement in thinking about different situations and events, sometimes imaginary and other times coming from real-life events, to disconnect from reality (Somer et al., 2021). Daydreaming is common among individuals, but some people develop a maladaptive pattern of daydreaming that can last for an extended period of time, which leads them to neglect daily, academic, and/or work-related tasks (Somer et al., 2021). Moreover, some individuals who experience maladaptive daydreaming also actively engage in behaviors related to mind wandering and the imaginary situation they are currently in, such as hugging a pillow pretending it is another individual (Somer et al., 2021).

Past research identified individuals who experienced childhood emotional trauma to be more likely to develop maladaptive daydreaming to dissociate from negative feelings (Ferrante et al., 2022; Somer et al., 2021). However, there is significantly less research analyzing maladaptive daydreaming in an adult population. An online-based study conducted by Bigelsen et al. (2016) found that maladaptive daydreaming was experienced by an adult population, and that individuals who did engage in this behavior displayed higher self-report rates of attention-deficit/hyperactivity disorder and other dissociative behaviors. Other research emphasized the correlation between maladaptive daydreaming and attention-deficit/hyperactivity disorder (Theodor-Katz et al., 2022), but no research has been conducted yet on the relationship between maladaptive daydreaming and non-clinical attention problems.

Moreover, although research has explored how childhood trauma predicts maladaptive daydreaming, there is no current research verifying whether other life adverse experiences could trigger this coping mechanism. Survivors of adverse adult experiences could potentially be at

higher risk of engaging in dissociation and maladaptive daydreaming in order to cope with the stressors, especially if they also experienced adverse childhood experiences (Calvete et al., 2007).

Limitations in Past Literature and Current Research Purpose

The purpose of this research is to address the gaps in literature about stressful life experiences, maladaptive daydreaming, and cognitive outcomes. Overall, past literature identified adverse life experiences as potentially being traumatic events that can significantly negatively impact an individual, from negative coping mechanisms such as dissociation, to impaired cognitive abilities, such as impairments in attention and decreased emotional processing. However, past literature did not successfully analyze how adverse childhood experiences and maladaptive daydreaming could relate to non-clinical attention impairments. Moreover, research is lacking on adult adverse experiences analyzed altogether, as authors often focused on analyzing specific adverse experiences.

Lack of research is also present in how repeated adverse experiences, so experiencing both childhood and adult adversities, could impact selective attention, which is problematic considering that childhood victimization is a strong predictor of lifetime victimization (Widom et al., 2008). Lastly, research on maladaptive daydreaming in an adult population is extremely scarce, specifically when analyzing a population that has experienced stressful or traumatic experiences during young adulthood.

Hypotheses

Because of the abovementioned limitations, in my proposed study I aimed to test the following hypotheses: H_1) there would be a significant, positive correlation between adverse childhood experiences and adverse young adulthood experiences; H_2) there would be a significant, positive correlation between life adverse experiences (childhood and young adulthood) and reaction time during on the emotional Stroop task; H_3) there would be a significant, positive correlation between life adverse experiences and maladaptive daydreaming; H_4) there would be a significant, positive correlation between maladaptive daydreaming and reaction time during the emotional Stroop task, such that higher scores on the maladaptive daydreaming scale would relate with higher total reaction times in the emotional Stroop task; H_5) there would be a significant cross-sectional mediation of maladaptive daydreaming between the relationship of ACEs and reaction time during the emotional Stroop task. Reaction times would be higher in individuals with higher ACEs score due to the presence of maladaptive daydreaming; H_6) maladaptive daydreaming would significantly moderate the relationship between adult adverse experiences and reaction time. It was expected that those who engage in more maladaptive daydreaming and have experienced more adult adverse experiences would perform worse (i.e., higher reaction times) on the selective attention task compared to those who have not experienced adverse adult experiences.

CHAPTER II

METHODOLOGY

Participants

A hundred and seventy-seven participants between the ages of 18 and 30 (M = 22.78, SD = 3.43) were recruited from the greater area of Chattanooga, Tennessee. The study was promoted on the University of Tennessee at Chattanooga SONA platform, as well as through social media (Instagram and LinkedIn), word of mouth, and by distributing flyers in popular local shops (e.g., coffee shops in the downtown area of Chattanooga and stores near popular local attractions, such as an ice cream place located near the local aquarium). See Table 1 for detailed demographic information.

Table 1 Demographic Information

Demographic Characteristic	N (%)
Gender Identity	
Man	68 (38.4%)
Woman	105 (59.3%)
Non-Binary	2 (1.1%)
Transgender	2 (1.1%)
Racial Background	
White	120 (67.8%)
Black/African American	43 (24.3%)
Native American, Alaska Native, or Pacific Islander	8 (4.5%)
Asian	4 (2.3%)

Biracial or Other	2 (1.1%)
Ethnic Background	
Not Hispanic or Latinx	166 (93.8%)
Hispanic or Latinx	10 (5.6%)
Relationship Status	
Single	109 (61.6%)
Married	20 (11.3%)
Separated or divorced	3 (1.7%)
Relationship (not cohabitating)	35 (19.8%)
Relationship (cohabitating)	9 (5.1%)
Medical Diagnoses	
No recent diagnosis	166 (93.8%)
Developmental disability/disorder	1 (0.6%)
Anxiety disorder	2 (1.1%)
More than one disorder	8 (4.5%)
Education Level	
Less than a high school diploma	1 (0.6%)
High school diploma or GED	32 (18.1%)
Some college (no degree)	72 (40.7%)
Associate degree	19 (10.7%)
Bachelor's degree	51 (28.8%)
Master's degree	2 (1.1%)
Employment Status	
Unemployed (not looking for a job)	2 (1.1%)
Unemployed (looking for a job)	8 (5.5%)
Employed (part-time)	59 (33.3%)
Employed (full-time)	45 (25.4%)
Student	62 (35.0%)
Self-employed	1 (0.6%)
Enrollment Status	
Not currently enrolled	55 (31.1%)
Part-time	26 (14.7%)
Full-time	96 (54.2%)

Measures

Screening Tool

When participants first opened the survey, they were asked to answer screening questions to assess their eligibility for the present study. First, participants were asked to provide their age in years. Second, participants had to indicate whether they were living in the greater area of Chattanooga, answering “Yes” or “No”. Third, individuals had to indicate whether they have ever been diagnosed with a color vision deficiency (colorblindness) so that they could not differentiate between colors (specifically, red, blue, green, and pink). Lastly, participants had to report whether they had been diagnosed with any of the following disorders in the last six months: developmental disability/disorder (e.g., Autism Spectrum Disorder, Down Syndrome, Attention Deficit/Hyperactivity Disorder), concussion or head trauma, neurological disorder (e.g., Alzheimer Disease, Dementia, Parkinson's Disease, Epilepsy), mood disorder (e.g., any form of depression, bipolar disorder), anxiety disorder (e.g., General Anxiety Disorder, Social Anxiety Disorder, Panic Disorder), acute stress disorder or PTSD, and/or other impairing physical or mental disorder(s), with the option to specify the disorder. Additionally, if they selected any of these disorders, they had to indicate whether their condition affected their ability to pay attention to their environment, memorize information, and/or focus on a complex task. These last two questions were added to the screening tool to reduce the chance of confound variables affecting the results, as well as to focus on a non-clinical sample.

Anyone who did not meet the age criteria (between 18 and 30 years old), who did not live in the greater area of Chattanooga, who received a colorblindness diagnosis, or who reported a medical condition that affected their ability to pay attention was redirected to the end of the survey and deemed ineligible for the study (n = 55).

Demographic Survey

Participants completed a demographic survey providing additional personal information. This survey included questions about the participant's gender (1= man, 2= woman, 3= non-binary, 4= transgender, 5= other, please specify), marital status (1= single, 2= married, 3= widowed, 4= separated/divorced, 5= in a committed relationship, 6= in a committed relationship and cohabitating), race (1= White, 2= Black and/or African American, 3= Native American, Alaska Native, or Pacific Islander, 4= Asian, 5= Other, please specify), ethnicity (0= not Hispanic, Latino, or Spanish origin, 1= Hispanic, Latino, or Spanish origin), education level (0= less than a high school diploma, 1= high school degree or equivalent, 2= some college, no degree, 3= associate degree, 4= bachelor's degree, 5= master's degree, 6= doctorate or professional degree), employment status (1= unemployed and not looking for a job, 2= unemployed and currently looking for a job, 3= employed part-time, 4= employed full-time, 5= student, 6= retired, 7= self-employed), and their student enrollment status (0= not currently a student, 1= part-time, 2= full-time).

Although substance use was not a primary variable in my study, I decided to assess it and use it as a control variable, as mental state alterations due to substances can lead to a decrease in selective attention (Gazzaley & Rosen, 2016). Based on previous literature, it was determined that daily use of tobacco, weekly use of high dosages of alcohol, and monthly use of illicit drugs or misuse of prescription medication could lead to potential impairments in selective attention (CDC, 2022; McNeely et al., 2016; Nadar et al., 2021). To measure substance use, the TAPS I Tool was used, which is a 4-item assessment screening for frequency of use of alcohol, tobacco, and illicit drugs, as well as prescription medication misuse, with higher scores representing a higher frequency of substance use (taken from the Tobacco, Alcohol, Prescription

medication, and other Substances use [TAPS] Tool; McNeely et al., 2016). Because this survey does not assess problematic use but only frequency of use in the last 12 months, a total score ranging from 0 to 4 was created, with higher scores indicating more substances used. To calculate this score, I created dichotomous variables for each substance, with a score of 1 indicating "past-month use" and 0 for "no use" or "infrequent use", with infrequent use being less than monthly.

Childhood Experiences Survey: Adult Version

The Childhood Experiences Survey (CES): Adult Version (Mersky et al., 2017) was used to measure adverse childhood experiences that individuals experienced before the age of 18. This 19-item assessment incorporates questions that were first developed in Wave I (Felitti et al., 1998) and Wave II of the ACEs Study (Dube et al., 2003) and others that were developed by the authors of the present CES scale. Items from the Wave I and Wave II ACEs study assessed psychological, physical, and sexual abuse, as well as household dysfunctions (mental illness, alcohol and/or substance abuse, crime history), domestic violence, parental divorce, and physical and emotional neglect. Seven additional items were added to this scale to assess other stressful childhood experiences, such as household economic instability ("How often did your family experience serious financial problems? "), food insecurity ("How often were you hungry because your family could not afford food?"), homelessness ("How often were you homeless when you were growing up?"), peer victimization ("How often were you bullied or severely teased by other children or adolescents?"), parental absence ("Was either one of your parents absent from your life for a long period of time?"), death of parent or sibling ("Before age 18, did you experience the death of a parent, caregiver, or sibling?") and violent crime victimization ("Before age 18,

were you ever the victim of a violent crime? This refers to any violent act that was perpetrated by someone other than a parent or household family member."). The items were answered using 3- (*Never, Once,* or *More than* Once) or 5-point (*Never, Rarely, Sometimes, Often,* or *Very Often*) Likert scales, assessing the frequency and presence of the adverse events. Points for the 10 items taken from the previous versions of the ACEs were summed to create an index score, and the higher the score, the more adverse childhood experiences an individual was exposed to. To obtain a composite score, high versus low prevalence of each adverse experience was dummy coded based on the instructions provided by the authors (0 =absent/low frequency, 1 = present/high frequency). A total CES score was obtained after adding all the items, and an ACEs score was calculated by adding the specific ACEs items. The higher the score, the more adverse experiences an individual experienced, with an ACE score higher than 3 being considered clinically concerning. This scale showed good test-retest reliability (kappa = .91; Mersky et al., 2017). Reliability of the scale was also tested using the present study sample, and it showed good reliability, Cronbach' alpha = .88.

Adverse Experiences Survey

Adverse adult experiences were assessed using the Adult Experiences Survey (AES; Mersky et al., 2021), which is a scale created based on the ACEs Survey and used to assess adverse experiences specifically during adulthood, from the age of 18. It is a 17-item survey, asking individuals to report whether they experienced some of the most frequent adult adversities, them being intimate partner/domestic violence (e.g., "Since you turned 18, how often has a romantic partner or spouse ever screamed at you or threatened you with harm?"), violent and non-violent crime victimization, incarceration, household dysfunctions (other household

members' mental illnesses, substance use, and incarceration), divorce or separation, loss of pregnancy, death of a close one ("Have you experienced the death of someone very close to you? Select all that apply: partner or spouse, child, parent, other relative, friend, other"), financial and food instability, homelessness, and discrimination ("How often do you feel that you have been discriminated against?"). The items were answered using 3- (*Never, Once,* or *More than* Once) or 5-point (*Never, Rarely, Sometimes, Often,* or *Very Often*) Likert scales, assessing the frequency and presence of the adverse events. To obtain a composite score, high versus low prevalence of each adverse experience was dummy-coded based on the instructions provided by the authors (0 =absent/low frequency, 1 = present/high frequency). A total score was obtained by adding all the dummy coded items, and a 10-point index score was also calculated based on the directions of the authors to compare the results to the ACEs index. Interpretation of this scale is similar to the CES, as a higher score indicates a higher number of adverse experiences that occurred during young adulthood. Since this scale is fairly recent, a diagnostic cut-off score has not been developed yet, and reliability and validity measures are scarce. In the scale development study, the authors suggest that the scale has good internal consistency in both the full study sample (KR-20 = 0.81) and the test-retest sample (KR-20 = 0.77; Mersky et al., 2021). In the present study, the scale showed good reliability, Cronbach's alpha = .87.

Maladaptive Daydreaming Scale and Open-Ended Question

To assess maladaptive daydreaming, participants completed the 16-item Maladaptive Daydreaming Scale (MDS), which measures the frequency and intensity of maladaptive daydreaming behaviors, as well as potential triggers and daily life interference. Example items that reflect these domains are "When you first wake up in the morning, how strong has your urge

been to immediately start daydreaming?", "Some people notice that certain music can trigger their daydreaming. To what extent does music activate your daydreaming?", and "Some people would rather daydream than do most other things. To what extent would you rather daydream than engage with other people or participate in social activities or hobbies?" (Somer et al., 2016). Each item is measured on a 10-point Likert scale, ranging from 0% to 100% (e.g., "When you first wake up in the morning, how strong has your urge been to immediately start daydreaming?", 0% = "No urge at all", 50% = "Some urge", 100% = "Extreme urge"). An average score ranging from 0 to 100 is obtained by adding all the items' answers together and by dividing the total score by 16, which is the number of items. A higher score indicates higher frequency and intensity of daydreaming. Considering maladaptive daydreaming is often assessed through the use of this scale and through interviews, which could not be delivered, there is not a specific cut-off score to certainly differentiate between maladaptive and non-maladaptive daydreaming behaviors, but a score of 40 suggests probable maladaptive daydreaming and a concern for clinicians (Soffer-Dudek, 2021; Somer et al., 2017). A good-to-excellent agreement was evidenced between the MDS-16 self-report measure and the SCIMD (maladaptive daydreaming) interview (kappa = .68 –.81), suggesting good reliability of the scale (Somer et al., 2016). The scale showed good reliability in the present study's sample, Cronbach' alpha = .93.

An open-ended question was included after the survey to ask individuals what they usually daydream about, as well as whether the topic of their daydreams has changed since childhood ("If you do engage in daydreaming behaviors, what do you daydream about? How did your daydreams change since you were a child? Please provide 3-5 sentences about your daydreaming experience").

Emotional Stroop Task

An Emotional Stroop Task (EST) was developed to measure selective attention, and it was delivered online through EPrime-Go (Williams et al., 1996). In these tasks, individuals were asked to identify the color of the word presented on the screen by pressing a specific key, but, instead of displaying color words like in the original Stroop Task, emotionally charged and neutral words were used. By utilizing negative (e.g., abuse, harm, rape) and neutral (e.g., mouse, farm, rare) words, the EST allowed us to measure emotional bias towards negative words, other than regular reaction time.

To create the task, I followed the protocol provided by Ben-Haim et al. (2016). I first created a list of negatively charged words that were found on the childhood and adulthood experiences survey and on papers that related to traumatic/stressful events. The English Lexicon Project Website was used to assess the length, frequency, and emotional valence (the pleasantness) of the negative words (Balota et al., 2007). For the neutral words, I obtained orthographic neighbors of the negative words when possible, and if it was not, I used words that matched the negative word in frequency and length, but that had neutral valence (e.g., rape/rare, abuse/mouse, dead/lead). After creating a 90-word list and conducting an independent samples *t*-test determining that there were no significant differences in frequencies and word length, I designed 5 blocks EST, with Block 1 having 10 neutral practice trials, Blocks 2 and 4 having 20 neutral trials each, and Blocks 3 and 5 displaying 20 negative words each (words can be found in the appendix in Table 6).

At the beginning of each block, participants were instructed to press the keyboard key associated with the color of the word displayed and to press it as accurately and as quickly as possible. I set a time limit of 3 seconds to press a key related to the colors presented, which were

green (1), red (2), pink (3) and blue (4). Under each word presented, a legend of the colors and their matching key was presented, so that the results were not based on the ability of the participant to correctly remember the color-key association.

Between each trial and after the feedback (1500 ms), a +, which served as a fixation element, was shown for 1000 ms at the center of the screen to focus participants attention where the word would appear next. Between each block, participants were instructed to take a 30-second break. Although each participant had the same neutral-negative-neutral-negative fixed block design, the words and the colors within each block were randomized to avoid a potential order effect. Reaction times (in milliseconds) for correct responses were recorded, and three Emotional Stroop Effects (ESEs; i.e., delays in negatively charged blocks due to the emotional bias) were calculated by averaging participants' reaction times for each block, and by subtracting the mean RT of the neutral block from the mean RT of the corresponding negative block ($ESE_1 = RT_{\text{negative block 1}} - RT_{\text{neutral block 1}}$; $ESE_2 = RT_{\text{negative block 1}} - RT_{\text{neutral block 2}}$; $ESE_3 = RT_{\text{negative block 2}} - RT_{\text{neutral block 2}}$). Total reaction times were also obtained by averaging the individual participants reaction times for each block and adding those averages together. Based on an EST protocol, trials that were below or above 2.5 SD from the participant mean were excluded from the calculation, and participants that had more than 5% of missing data (unanswered, incorrect, or abnormal time) were not included in the analyses. Ten participants were excluded based on these conditions, and the total data sample for the EST was made of 167 participants. Visuals of the practice, neutral, and negative trials can be found in the appendix (Figures 1.1-1.3).

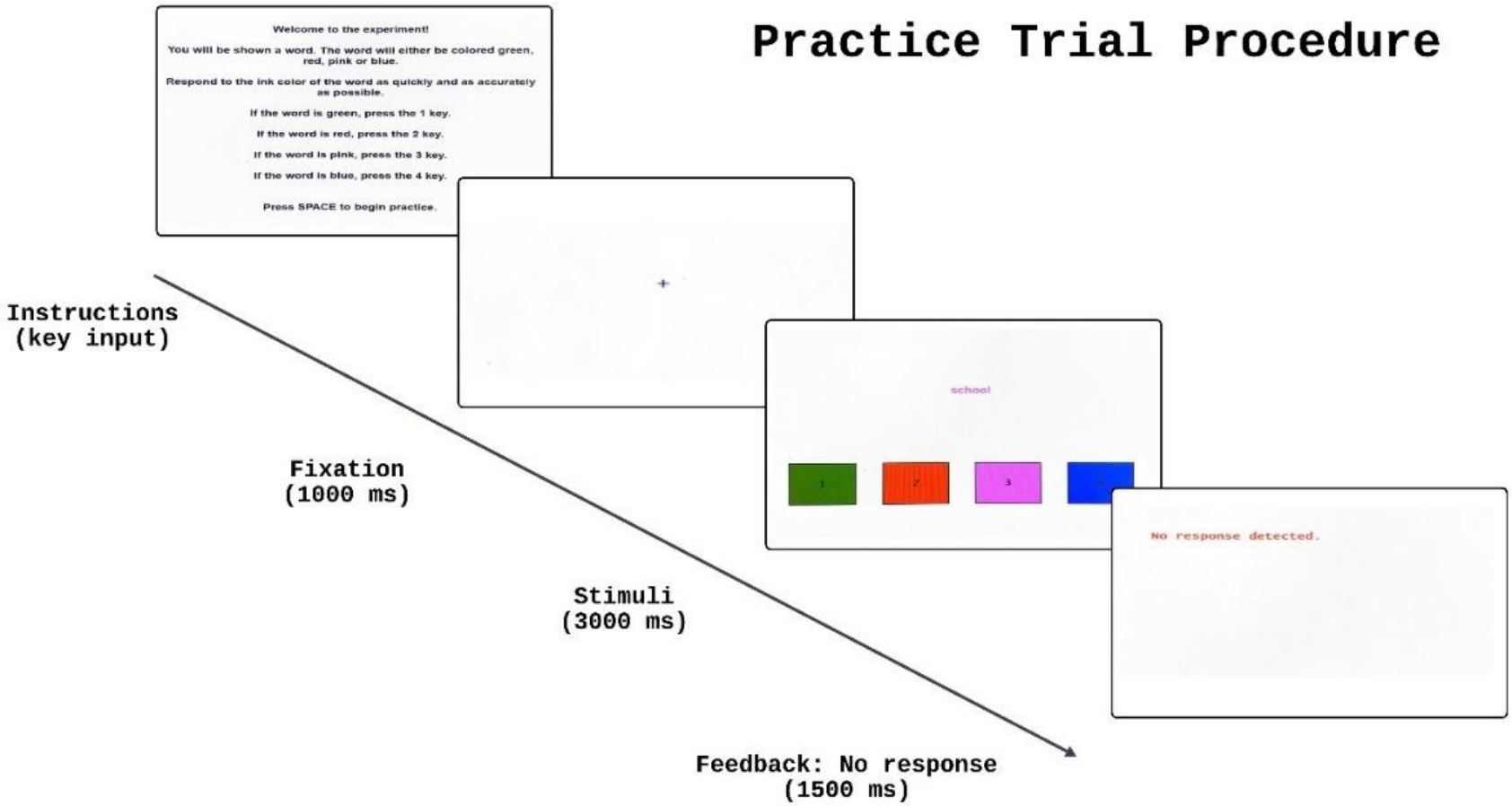


Figure 1.1 EST practice trial procedure (time in milliseconds)

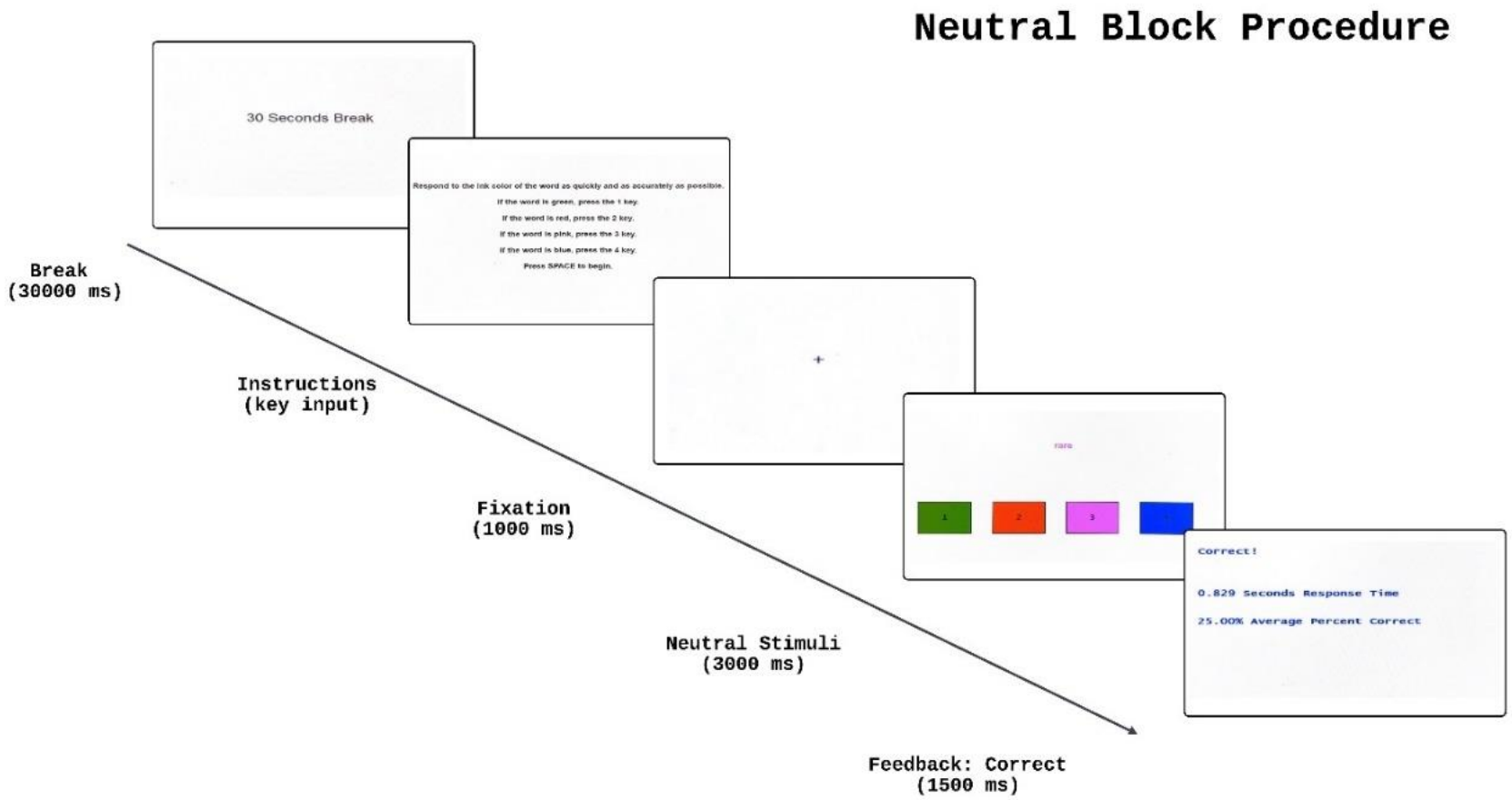


Figure 1.2 EST neutral trial procedure (time in milliseconds)

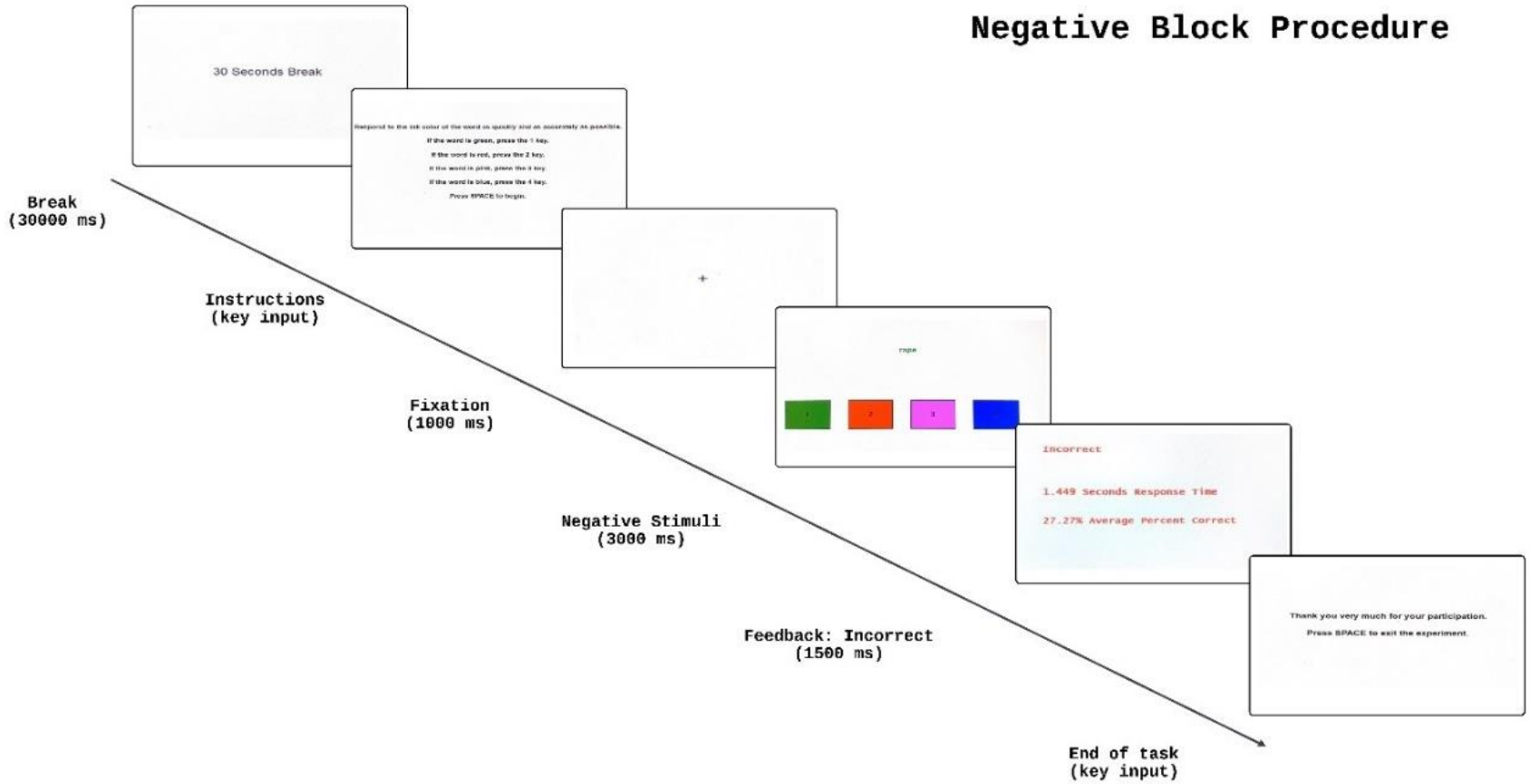


Figure 1.3 EST negative trial procedure (time in milliseconds)

Procedure

Participants were recruited from the area of Chattanooga, Tennessee, both from the University of Tennessee at Chattanooga campus and from the community via flyers, social media posting, and word of mouth. After scanning the QR code or using the survey link, individuals were prompted to ask screening questions on Qualtrics, which included their age (which had to fall between 18 and 30), their physical and mental health (exclusion was based on whether participants reported their health condition/s to affect their ability to pay attention to information), presence of self-reported colorblindness condition (as the EST does not produce reliable results in individuals with this visual impairment) and whether they lived in the area of Chattanooga. Those that met the criteria then were prompted to sign a consent form, informing them about the aim and duration of the study, the compensation requirements and process, the nature of the survey being voluntary (and so their participation), and with local resources in case they were currently experiencing stressful experiences. Participants were also informed that if they deemed their participation in the study stressful and/or dangerous for their safety at any point, they could exit the survey and complete it at a later time, if interested in doing so.

After signing the informed consent form, participants finished the demographic survey, which also included the TAPS-I tool items on substance use. They then completed the Childhood Experience Survey, the Adult Experiences Survey, and the Maladaptive Daydreaming Survey, with the open-ended question. Once they completed the survey portion of the study, which generally took between 10 and 15 minutes, participants obtained a 5-digit random number if they indicated that they wanted to complete the cognitive task. To protect the anonymity of the participants and their responses, individuals were prompted to complete a second survey in which they could provide their email addresses, so that their personal contact would not be

related to their survey answers. They then received an email containing instructions on how to complete the EST, as well as a reminder of their random number in case they decided to complete the task at a later time.

The attention task was uploaded on E-Prime Go, so participants could take the survey online by using a Microsoft-operating device without having to go to a laboratory room. After providing their random ID for the subject number, individuals were provided with instructions and completed the practice trial to get familiarized with the procedure. They then completed the 4 trial blocks, with 30-second breaks between each trial. Once they completed the study (both survey and cognitive task), individuals received an email from the UTC Psychology department, providing them with a $5 Amazon gift card. Those who completed the study through the UTC research platform SONA also qualified to receive 3 course credits.

Statistical Analyses

To determine the sample size, the software GPower was used, in addition to comparing the methodology of the present study to other past literature. For a moderation, a sample size of 87 was considered the minimum requirement to achieve statistical power. Since the present study was awarded a $1000 grant from the University of Tennessee at Chattanooga, I decided to aim to recruit 200 participants to take into consideration potential attrition and to achieve reliable results.

For hypotheses 1 through 4, bivariate correlation and regression analyses were performed with an $\alpha = 0.05$ by using the statistical tool SPSS. For hypothesis 5, a multiple regression was performed to look at the mediating effect of maladaptive daydreaming, which was conducted by using a bootstrapping method through simple/parallel mediation model (model 4) of PROCESS

v4.2 (Hayes, 2017). For, hypothesis 6 (the moderation effect of maladaptive daydreaming between the relationship between adverse adult experiences and selective attention) was conducted through the moderation model (model 1) of PROCESS v4.2 (Hayes, 2017), which also means-centers the variables, to obtain standardized slopes and unique effect sizes. The moderation and mediation analyses were performed by controlling for variables that showed to be highly correlated with my outcomes, which were substance use and age.

The maladaptive daydreaming open-ended question was analyzed through manifest content analysis (Bengtsson, 2016). For the participants that answered this question (n = 121), their answers were inserted in an Excel spreadsheet. I read through the participants testimonials, and first recorded their experience of how daydreaming behaviors changed from childhood to adulthood. For the actual categories of daydreaming, After rereading their answers, I started categorizing them in themes, and I adjusted the categories as I went through more testimonials. Since the majority of the participants reported daydreaming about different topics, I recorded a maximum of three daydreaming theme for each participant. Once I obtained my final categories, I obtained frequencies (recorded as the number of participants) for each daydreaming topic, and created a definition for each individual theme.

CHAPTER III

RESULTS

Descriptives

Adverse Childhood Experiences

ACEs were fairly frequent in this sample, with a mean score of 6.80 (*SD* = 4.12) for the CES total score and an average of 4.64 (*SD* = 2.54) for the ACEs index score, with only one person obtaining zero, two experiencing one ACE, and five individuals obtaining a maximum score of 10 using the ACEs index. The most frequent adverse childhood experiences reported by the participants were household alcohol and/or substance use (54.8%), physical abuse by a parent or a cohabitating adult (50.3%), parental absence (49.2%), household mental illnesses (45.2%), parental separation or divorce (43.5%), and witnessing domestic violence (42.4%). The least frequent ACEs were instead peer victimization (13.0%), verbal abuse by a parent or a cohabitating adult (18.6%), economic instability (19.2%), and emotional (23.2%) and physical (23.7%) neglect.

Adverse Young Adulthood Experiences

In comparison, adverse adult experiences during young adulthood were less frequent, with a mean score of 4.06 (*SD* = 3.30) in the total AES survey and an average score of 2.99 (*SD* = 2.61) in the index score. The most frequent adverse experiences that participants reported were the death of a loved one (66.1%; $n_{relative}$ = 69, n_{friend} = 60, n_{parent} = 41, n_{child} = 9, $n_{partner}$ = 4, n_{other} =

2[1]), violent or non-violent victimization (e.g., theft, fraud, or white-collar crimes; 56.5%), partner alcohol or substance use problems (46.9%), and verbal- and threat-related intimate partner violence (45.2%). On the other hand, the least frequent adverse events experienced during young adulthood were separation or divorce (4.5%), pregnancy loss (5.1%), discrimination (6.8%), economic instability (11.3%), incarceration (15.3%), food insecurity (16.4%), and partner incarceration (16.9%).

When analyzing intimate partner violence altogether, half (50.3%) of the participants experienced either physical, verbal, or sexual abuse by their partner. Verbal abuse was the most frequent form of intimate partner violence, while physical and sexual abuse had the same frequency (29.9%). In addition, partners were the primary perpetrators of sexual abuse (n = 23), followed by relatives (n = 16), acquaintances (n = 14), and strangers (n = 13).

Results also indicated a high frequency of substance use, as 56.3% of the participants reported frequently using one or more substances (a score of 1 or higher in the total substance use score). The most used substance was alcohol, as 79.7% reported consuming it in the last 12 months (with the highest frequency consumption being weekly, n = 50). Tobacco consumption was also frequent, with 72.9% of the participants reporting tobacco use in the last year and the majority of those who smoke reporting a weekly consumption (n = 40). About half of the participants reported consuming an illicit drug in the last 12 months (52.8%; majority reporting less than monthly, n = 33), while prescription medication misuse was the least frequent (35.6%, majority reporting less than monthly, n = 23).

[1] Two individuals reported respectively losing a family friend and their priest

Chi-square analyses were performed to assess whether some ACEs related to parallel AAEs. Experience of childhood physical abuse significantly related with physical IPV, $X^2(1) = 13.88$, $p < .001$, $\phi = .28$, indicating a small-to-medium association. Individuals who reported experiencing physical abuse during childhood were 3.63 times more likely to experience physical IPV during young adulthood than participants who did not experience physical abuse as a child. For emotional abuse, childhood emotional abuse was not significantly associated with emotional IPV, $X^2(1) = 1.43$, $p = .23$, $\phi = .09$. However, the odd ratio calculation revealed that individuals who experienced emotional abuse during childhood were 1.58 times more likely to experience emotional IPV than those who did not experience childhood emotional abuse. Childhood sexual abuse was significantly associated to sexual abuse during young adulthood, $X^2(1) = 22.55$, $p < .001$, $\phi = .36$, indicating a medium-to-large association. Individuals who experienced sexual abuse during childhood were 5.08 times more likely of being victim of sexual assault during young adulthood than those who were not sexually abused during childhood.

Maladaptive Daydreaming

Although daydreaming behaviors were common ($M = 31.20$, $SD = 16.54$), the majority of the sample was not likely to engage in maladaptive levels of daydreaming, as only 52 participants (29.4%) had a score higher than 40 (i.e., cut-off score for maladaptive daydreaming; Soffer-Dudek, 2021). The items with the highest means were the one assessing comfort/enjoyment from daydreams ($M = 53.11$, $SD = 30.53$), one assessing auditory triggers for daydreaming ($M = 47.85$, $SD = 27.96$), and one investigating the urge to go back to a daydream after being interrupted ($M = 40.56$, $SD = 24.28$).

Of the participants who answered the open-ended question asking about the topic of their daydreams and whether their daydreams changed throughout their lives (n = 121), all of them reported that during childhood their daydreams were either fantasy-based or they were more simplistic in nature, in the sense that their daydreams were more revolved around their friends and their daily experiences (e.g., "When I was a child, these daydreams were less probable or less likely to happen. I remember them involving magical elements."; "My daydream has changed since childhood, I now daydream about more realistic and achievable things."). Most participants who answered this question also indicated that when they daydream, they primarily imagine realistic future situations, although other categories of daydreams were drawn from their answers (e.g., unrealistic life situations, fictional daydreams, fantasy daydreams). The categories, their frequencies, and example statements can be found Table 2.

Table 2 Daydreaming categories and example quotes

Categories (*n*)	**Category Definition**	**Example Statements**
Real-life future (50)	Future life goals that are achievable and attainable, such as completing an academic degree or building a family.	• "I currently dream about my future plans which are buying a house and pursuing further education." • "My daydream as an adult has been majorly about my future goals which I believe which I am very much on the right tract to achieving it in full."
Sexual arousal (5)	Fantasies about potential sexual experiences.	• "I have always have the fantasy about having sex in an open space outside the house. I daydream about real-life goals and plans on how to achieve them." • "I dream about this fantasy of me taking part in a threesome sex[…]."

Ideal life and desire for power (unrealistic; 35)	Ideal future situations that are not likely to happen, or as a desire to become a powerful, famous, and/or wealthy individual.	• "[…]which is when I daydream about how I have been pushing my basketball career. I would like to be in the NBA in the nearest future so I daydream about becoming a star player there and e joying every moment of my glory." • "I also dream about landing my dream job and making a big name for myself and my family."
Idealized self (7)	Introspective thoughts about who they are as a person and what they would like to improve about themselves.	• "My daydream encompasses a wider range of emotional themes, including my challenges, my fears, my achievements." • "I daydream about overcoming personal challenges and achieving personal growth."
Humanitarian assistance (20)	Fantasies about helping others by improving their lives. This category includes grandiose humanitarian thoughts as well as improving the lives of smaller groups or loved ones.	• "Well, I daydream more about what my future is going to look like, I have always seen myself as someone that would become a lawyer. I would always see myself helping people that needs justice to be served to those who breaks the law." • "Currently my daydream is about making my family one of the most influential in my community. It is about helping my little girl to become a professional swimmer and taking it to the world and showcasing her talent."
Fantasy or fictional situations (14)	Daydreams about fictional stories and characters that individuals heard about or that they created for themselves.	• "Mainly, I daydream about a fabricated paracosm that involves characters that I feel have a sentimental importance to my life/values. This kind of daydreaming involves me as a younger version of myself in a cartoon-like fashion interacting with creatures/animals that can communicate with me." • "I usually day dream to escape reality so when I read a book that I love, I tend to have this urge to incorporate myself and what I would change into it by day dreaming."
Travel and adventures	Extensive thoughts of traveling to specific areas	• "I day dream about future things I'd like to do like travelling as well as past experiences

(31)	of the world or about living adventures (alone or with loved ones).	where I have travelled." • "I usually daydream about vacations. I mainly imagine myself at the beach."
Past scenarios (14)	Daydreams about real past events, whether they were recent or they happened years ago. This includes what-ifs situations, so how their lives would be different if they made different choices.	• "[..] sometimes I daydream about what could have been if I had chosen my initial career path of becoming a neurosurgeon." • "I do not daydream often. But when I do, I feel like the most common times I can think about is if I hear a certain song and it takes me back to a certain time or place and I will find myself daydreaming about that time in my life."
Negative scenarios (3)	Fantasies about negative events, such as unrealistic cataclysms or realistic traumatic events.	• "As I got older and experienced more trauma they turned more towards real life events/people/trauma." • "Or, I think about scenarios. Scenarios like natural disasters or if something bad were to happen."
Current life and alternative scenarios (19)	Extensive thoughts about their daily tasks, specifically by how they might occur and how other people might have a role in them.	• "Most of my wandering thoughts are best described as planning or contemplating events that I am about to have to go to work on." • "I would say that I mostly just daydream about things that are currently happening in my life and where that I see them going. This could be anything from a relationship with friend or family member, to whatever is going on in school."
Philosophy (2)	Ruminations about philosophical and religious questions and debates.	• "I do spend extended periods of time in attempted silence and stillness, so some of my wandering thoughts are about God or philosophy." • "Throughout the years I have started daydreaming mainly about philosophy and life as a whole."

In this open-ended question, some participants also provided information about their daydreaming experience. For example, a few participants reported that they have specific times in which their daydreaming behaviors intensify, such as before going to sleep or during class time (e.g., “I will say that I oddly enough schedule my daydreams/give myself an allocated time to daydream if my schedule is busy with school and work. Normally I do it at night.”; “Now, I often daydream in class or when trying to go to sleep at night.”). Several people also indicated that they enjoy the time that they spend daydreaming, either by explicitly stating it (e.g., Daydreaming is something I have grown to like because it gives me hope and excitement about things I could achieve.”) or by using terms such as “like” or “love” when they talk about their daydreaming themes. An individual also reported that the reasons why they daydream have changed over time due to improvements in their mental health (“As a child my daydreaming could be linked to depression, anxiety, or obsessive-compulsive disorder. Unlike right now it's totally different. It has been linked to creativity, improved overall well-being, and even increased pain tolerance”), while another reported that their daydreaming behaviors have been extended and detailed since they were a child, as this is what they wrote:

> My daydreams have changed over time but the plots/themes tend to remain the same. And they are almost always VERY extended. Like the daydream I find myself in (usually right before bed/during the evening) has been going on in my mind for at least 3 or 4 years now. The story just kinda evolves with me at this point and currently I have no desire to change it. When I was younger, I would have extended daydreams that would last from anywhere between 6 months to about 2 years (if I had to guess). But I would completely create a whole new daydream when I got bored of the one I was having, and needed a "refresh". The daydreams I've had have ALWAYS revolved around large, fictional, and dysfunctional families. The families are made up of both entirely fictional people, but also some real ones. I don't really know why I gravitated toward large family daydreaming at such a young age, but I did almost immediately, and have had zero desire to change the subject, just the storylines/characters themselves.

This participant quote highlights different aspects of their maladaptive daydreaming experience. First, the participant reported spending a considerable amount of time daydreaming, and daydreaming complexity ("And they are almost always VERY extended"; "Like, the daydream I find myself in […] has been going on in my mind for at least 3 or 4 years now"). This individuals also provided more information on their daydreaming experiences, such as daydreaming patterns during childhood ("When I was younger, I would have extended daydreams that would last from anywhere between 6 months to about 2 years"), scheduling the daydreaming behaviors ("usually right before bed/during the evening"), and a negative scenario theme that has been reoccurring over the years ("The daydreams I've had ALWAYS revolved around large, fictional, and dysfunctional families") and that they have no intention in replacing suggesting some level of comfort in this specific daydreaming theme ("[…] and have had zero desire to change the subject").

Lastly, two participants provided more information on what specific things trigger their daydreams, such as books and music ("They generally occur when I read or listen to music.") and physical activity ("These activities often go hand in hand with pacing I do not need music to dissociate although it helps, but I do need some form of physical activity.").

Selective Attention

When analyzing reaction times from the different blocks of the emotional Stroop task, I found that the negative blocks had a higher mean reaction time ($M_{\text{negative 1}}$ = 854.70, $SD_{\text{negative 1}}$ = 219.15 and $M_{\text{negative 2}}$ = 855.97, $SD_{\text{negative 2}}$ = 233.47; in milliseconds) than the neutral blocks ($M_{\text{neutral 1}}$ = 832.77, $SD_{\text{neutral 1}}$ = 227.04 and $M_{\text{neutral 2}}$ = 834.95, $SD_{\text{neutral 2}}$ = 214.86; in milliseconds; see Figure 2). The reaction times across blocks ranged between 425 ms and 1530 ms, and the

combined negative blocks (M = 881.45, SD = 233.52) had higher reaction times than the combined neutral blocks (M = 859.36, SD = 234.05), on average. For the Stroop effects, the overall means were positive (M_{ESE1} = 21.92, SD_{ESE1}= 138.90; M_{ESE2} = 19.74, SD_{ESE2}= 120.01; M_{ESE3} = 21.02, SD_{ESE3}= 153.62), although the presence of negative values within participants indicated that some of them took longer to complete the neutral blocks compared to the negative blocks. A repeated measures ANOVA was conducted to determine whether there were significant differences between blocks. Because the assumption of sphericity was violated, (Mauchly's Test $p < .001$), the results reported follow the Greenhouse Geisser adjustment. I found that there was not a significant difference in reaction times based on blocks, F (2.69, 447.04) = 2.51, p =.06, although significant differences were found between neutral block 1 and negative block 1 (p =.04) and between negative block 1 and neutral block 2 (p =.03).

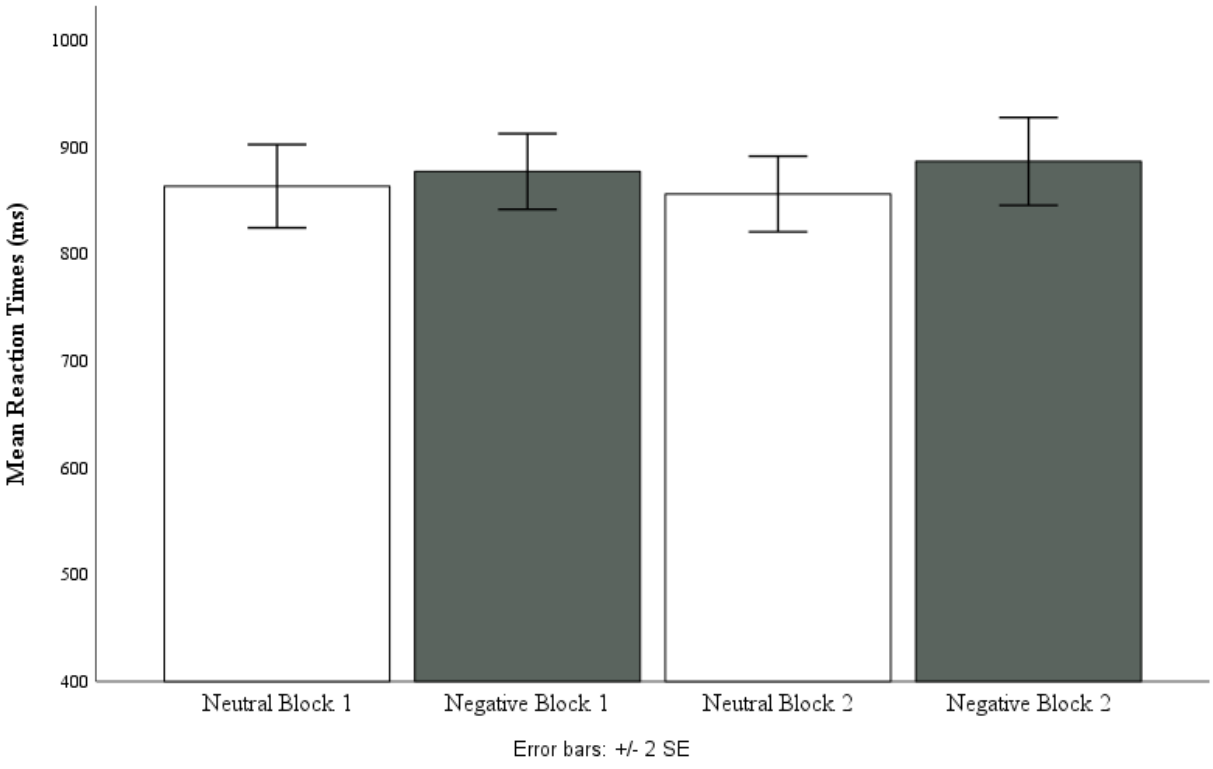


Figure 2 Mean reaction times of the four EST blocks

Hypothesis 1: ACEs and AAEs correlations

Prior to hypothesis testing, assumptions related to outliers, normality, and linearity were checked. Normality for both ACEs and AEEs index scores as well as for their total scores were checked and there were no skewness or kurtosis issues, as these values fell within the ± 2 normal range. In viewing scatterplots, the relationships between childhood and adulthood adverse experiences followed a linear pattern, making these relationships appropriate for examination with a correlation analysis.

In examining Pearson's *r*, I found that ACEs were significantly, and positively related to adult adverse experiences, with an increasing number of ACEs correlating with an increase in AAEs, $r(177) = .63$, $p < .001$, suggesting a strong correlation. By squaring Pearson's *r*, ACEs

explained 40% of the variance in AAEs scores. A linear multiple regression was also conducted by controlling for age and total substance use, to see whether the ACEs score did predict AAEs scores. ACEs were a significant model predictor of AAEs, $b = .46$, $SE = .05$, $t(176) = 10.22$, $p < .001$. For every one-unit increase in adverse childhood experiences, there was a .46 increase in adult adverse experiences, and ACEs, substance use, and age explained 64.4% of the variance in AAEs.

Hypothesis 2: ACEs, AAEs, and emotional Stroop task correlations

To analyze the relationship between adverse life experiences and reaction time in the emotional Stroop task, I utilized the index scores of the ACEs and AAEs survey, as well as the total scores of the full scales. For my outcome, four different variables were obtained from the EST: emotional Stroop effect 1 (ESE1; mean reaction times of negative block 1 – neutral block 1), ESE2 (mean RTs of negative block 1 – neutral block 2), ESE3 (mean RTs of negative block 2 – neutral block 2), and total reaction time (sum of averages RTs across blocks). This was performed to determine whether people performed differently across different emotional blocks, as well as to determine whether ACEs and AAEs predicted an overall increased time to perform the task. After excluding participants that had more than 5% of the data missing ($n = 10$), the total sample included 167 participants. After checking for skewness and kurtosis, there were indications of kurtosis in the three emotional Stroop effects, as they all had a kurtosis value of 3.20-3.50. Because of this, Spearman's rho correlation analyses were used. The results of the correlation analyses can be found in the following tables (Table 3 and Table 4).

Table 3 Bivariate Correlations among Adverse Life Experiences (composite score) and EST

Variable	1	2	3	4	5	6
1.ACEs [a]	—					
2.AAEs [a]	.69**	—				
3.ESE_1 [b]	.17**	.13	—			
4.ESE_2 [b]	-.03	-.16*	.40**	—		
5.ESE_3 [b]	.01	-.07	-.15	.34**	—	
6. Total RT [c]	.25**	.25**	-.09	-.05	.03	—

[a] ACEs: composite total score of adverse childhood experiences using the CES scale; AAEs: composite total score of adverse young adulthood experiences using the AESs scale
[b] ESEs: emotional Stroop effects
[c] Total RT: average reaction times across all four blocks
N = 167. *p < .05. **p < .01.

The Spearman's rho correlations indicate that the total scores of the ACEs scale were positively correlated with the first emotional Stroop effect (weak correlation explaining 3% of the variance) and with the total task reaction times (weak to moderate correlation explaining 6% of the variance), suggesting increased time to complete the first negative block and the overall task.

AAEs total scores were significantly, and positively related to total reaction time (weak to moderate correlation explaining 6% of the variance) indicating increased overall time. However, they were weakly and negatively related to the second emotional Stroop effect (explaining 3% of the variance), suggesting faster reaction times in the first negative block compared to the second neutral block.

Table 4 Bivariate Correlations among Adverse Life Experiences (index score) and EST

Variable	1	2	3	4	5	6
1.ACEs [a]	—					
2.AAEs [a]	.64**	—				
3.ESE_1 [b]	.17**	.14	—			
4.ESE_2 [b]	-.03	-.15	.40**	—		
5.ESE_3 [b]	.01	-.06	-.15	.34**	—	
6. Total RT [c]	.07	.20**	-.09	-.05	.03	—

[a] ACEs: index (10-item) score of adverse childhood experiences using the CES scale;
AAEs: index (10-item) score of adverse young adulthood experiences using the AESs scale
[b] ESEs: emotional Stroop effects
[c] Total RT: average reaction times across all four blocks
N = 167. *p < .05. **p < .01.

In Table 3 the index scores for adverse life experiences were used instead of the composite total scores, and some differences appear when comparing Tables 2 and 3. In Table 3, AAEs is no longer significantly correlated with the first emotional Stroop task by using the index score, and ACEs index score does not significantly correlate with the total RT, although the composite score used in Table 2 did. This suggests that some of the items that are left out in the index score significantly impact the relationship between ACEs and variables obtained form the EST.

Hypothesis 3: ACEs, AAEs, and maladaptive daydreaming correlations

After determining scores for ACEs, AAEs, and MDS met the criteria for normality and linearity, Pearson's correlations were conducted. Based on the prior hypothesis testing, I decided

to use the total scores of the ACEs and AAEs scale and not the index scores. This is because some adverse experiences that are not taken into consideration when obtaining the index scores might have some impact on the maladaptive daydreaming experience.

ACEs were significantly, positively related to maladaptive daydreaming, with increasing ACEs scores correlating with an increase in scores on the maladaptive daydreaming scale, $r(177) = .38$, $p < .001$. This was a moderate correlation, and 14% of the variance in maladaptive daydreaming was explained by ACEs. The relationship between AAEs and maladaptive daydreaming was also significant and positive, $r(177) = .32$, $p < .001$, suggesting that as AAEs increased, so did maladaptive daydreaming. AAEs explained 10% of the variance in maladaptive daydreaming.

An independent samples t-test was also performed to assess whether there were differences in ACEs and AAEs scores between probable MDers and non-MDers. To do this, I created a dichotomous variable made of a MD group, which included participants who had a total score of 40 or higher in the MDS scale, and non-MD group, made of participants who scored a 39 or less in the MDS scale. The probable MDers group was made of 52 participants (29.4% of the total sample), while the probable non-MDers group included 125 participants (70.6% of the total sample). When performing the independent samples t-test with ACEs as an outcome, MDers had significantly higher ACEs scores ($M = 8.19$, $SD = 4.40$) compared to non-MDers ($M = 6.22$, $SD = 3.87$), $t(175) = -2.96$, $p = .003$, $d = -.49$, indicating a medium effect size. The independent t-test performed used AAEs as an outcome showed a non-significant difference between MDers ($M = 4.54$, $SD = 3.55$), and non-MDers ($M = 3.86$, $SD = 3.18$), $t(175) = -1.24$, $p = .22$, $d = -.21$, indicating a small effect size.

Hypothesis 4: Maladaptive daydreaming and emotional Stroop task correlations

A Spearman's rho correlation was performed between maladaptive daydreaming and the four emotional Stroop task measures. Maladaptive daydreaming scores were moderately, positively, and significantly correlated with the total reaction time in the EST, $r(167) = .26$, $p < .001$, indicating that as self-reported tendencies to maladaptively daydream increased, so did total reaction time (explaining 7% of the variance). Maladaptive daydreaming was not significantly associated with the emotional strop effects (Table 5).

Table 5 Spearman's Rho Correlations between Maladaptive Daydreaming and EST

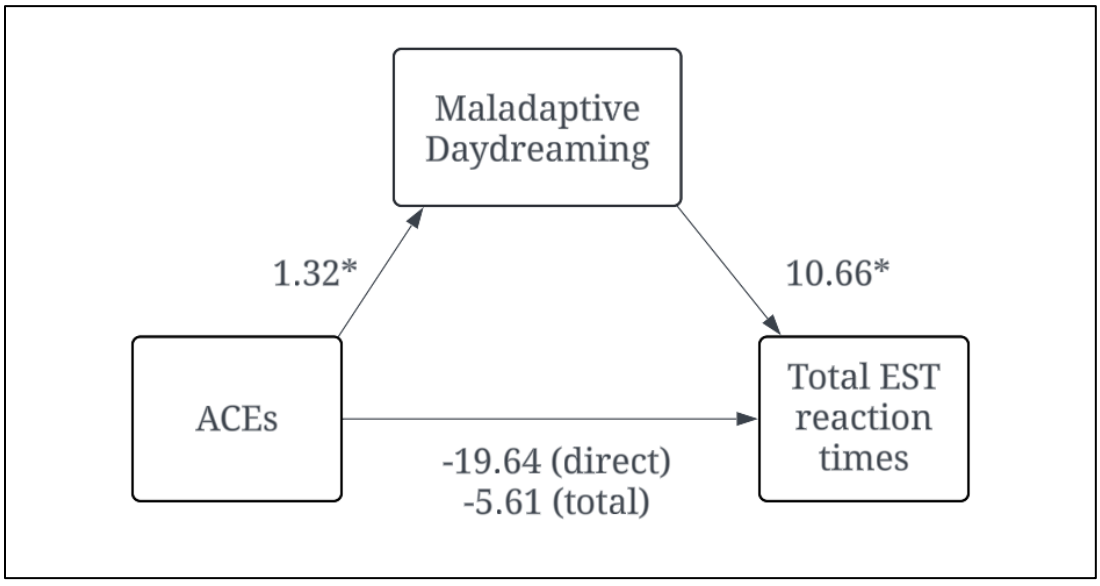
Variable	1	2	3	4	5
1.MDS [a]	—				
2.ESE_1 [b]	.04	—			
3.ESE_2 [b]	.10	.40**	—		
4.ESE_3 [b]	.12	-.15	.34**	—	
5. Total RT [c]	.26**	-.09	-.05	.03	—

[a] MDS: scores on the Maladaptive Daydreaming Scale, 0-100, 40 indicating probable MD
[b] ESEs: emotional Stroop effects
[c] Total RT: average reaction times across all four blocks
$N = 167$. *$p < .05$. **$p < .01$.

Hypothesis 5: Indirect effect of ACEs, MD, and emotional Stroop task

Considering the correlation results in hypotheses 2 and 4, a mediation analysis was conducted through the PROCESS model 4 by using the ACEs total score (predictor), the MDS score (mediator), and the total reaction time for both neutral and negative words (outcome;

Hayes, 2017). In these analyses, age and substance use were included as covariates, because they both positively correlated with the total reaction time (respectively, r =.41, p < .001 and r = .25, p <.001). There was a significant effect of ACEs on maladaptive daydreaming, b= 1.32, p < .001 (R^2 = .24), and maladaptive daydreaming was a significant predictor of total reaction time, b= 10.66, p < .05. When analyzing the total and direct effects of ACEs on total reaction time, both the total effect (b = -5.61, p =.74) and the direct effect (b = -19.64, p =.26) were nonsignificant. However, the indirect effect of ACEs on reaction time through maladaptive daydreaming was significant, *Effect* = 14.03, *95% CI* [3.48, 28.90], suggesting that maladaptive daydreaming significantly mediated the relationship between ACEs and total RT indirectly (Figure 3). EST reaction times could be expected to increase by 0.7 SDs for every 1 SD increase in ACEs indirectly via maladaptive daydreaming.



Notes. * p < .05. Unstandardized slope coefficients are displayed for each path

Figure 3 Indirect effect of ACEs and maladaptive daydreaming on EST total reaction times

Hypothesis 6: AAEs, MD, and emotional Stroop task moderation

The last hypothesis was tested with a moderation analysis by using PROCESS model 1 controlling for age and substance use (Hayes, 2017). All variables were mean-centered by PROCESS. Adverse adult experiences were not a significant predictor of total reaction times, $B = -35.45$, $p = .14$, while maladaptive daydreaming significantly predicted an increase in reaction times, $B = 8.68$, $p < .05$ ($R^2 = .24$). The interaction effect between AAEs and maladaptive daydreaming was also significant, $B = -2.87$, $p = .01$, accounting for an additional 2% of the variance in reaction times. Lastly, when analyzing for simple slopes, there was no significant relationship between adult adverse experiences and reaction times at low and average levels of maladaptive daydreaming, but there were significantly lower reaction times at high levels of maladaptive daydreaming as AAEs score increased ($B = -83.45$, $p < .05$; see Figure 4 for a visual representation of the interaction). This finding suggests that only at higher levels of maladaptive daydreaming, higher AAEs related to faster reaction times (to both negative and neutral words, on average) during the emotional Stroop task.

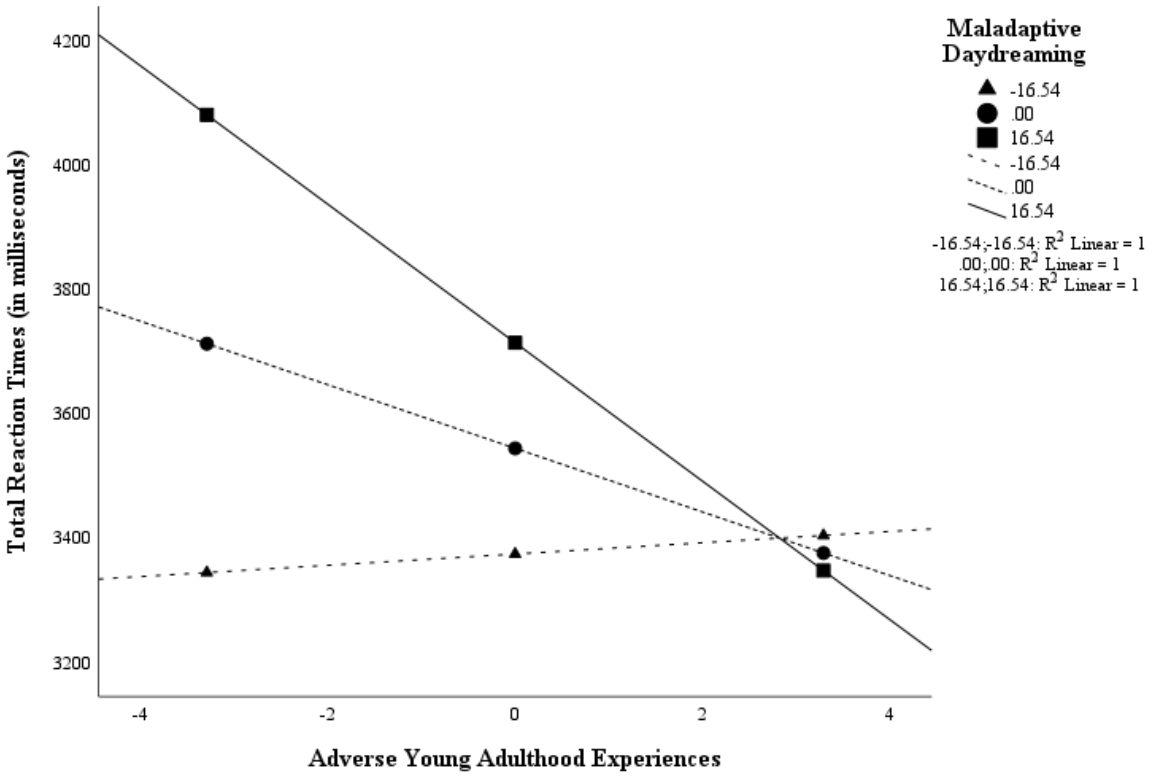


Figure 4 Simple slopes of the moderation effect of MD in the relationship between AAEs and EST

CHAPTER IV

DISCUSSION

Hypothesis 1: ACEs and AAEs correlations

For my first hypothesis, Pearson's correlation analysis showed a strong positive relationship between adverse childhood and adulthood experiences, suggesting that experiencing more stressful events during childhood correlated with the experience of similar occurrences during adulthood. Moreover, a controlled linear multiple regression showed that regardless of age and substance use, ACEs significantly predicted an increase in AAEs. The present findings support past literature on the matter, as past authors and research identified the experience of ACEs as a predictive factor for future negative life outcomes, such as job instability, problematic relationships, and worsened physical and mental health (Felitti et al., 1998). The findings can be further enhanced when taking into consideration past studies on counter-ACEs, which are positive events experienced during childhood, and how they serve as predictors for positive health and relationship outcomes during adulthood (Crandall et al., 2019).

These positive outcomes vary from generally improved physical and mental health to also increased resilience, which is a protective factor against AAEs (Poole et al., 2017; Slopen et al., 2017). As past researchers have also noted, it is important to consider multiple types of ACEs when analyzing the negative life effects that they contribute to. In this study, only three participants reported experiencing no or one ACE, indicating that different ACEs were co-occurring in the present sample. Analyzing how a single ACE might predict specific negative

effects during adulthood might offer more unique nuances, but it also could result in the loss of more significant findings. For example, a study conducted on ACEs and adult psychiatric disorders showed that ACEs have an additive, multiplicative effect when analyzing mental disorders diagnoses, and that not controlling for comorbid ACEs and consequent mental disorders may result in inaccurate results (Kessler et al., 1997). Using a more comprehensive assessment of ACEs such as the CES-Adult Version might contribute to the exploration of other adverse childhood experiences not previously considered by past literature, such as economic instability and peer victimization. Acknowledging how these additional events might impact childhood development and future life outcomes would only result in an increased sensibilization towards these adverse experiences, and further develop preventive measures that aim to minimize these specific negative events.

Hypothesis 2: ACEs, AAEs, and emotional Stroop task correlations

Spearman's rho correlation analyses revealed that individuals who experienced ACEs and/or AAEs tended to take longer to complete the overall emotional Stroop task. These findings are in line with those of past literature, as individuals who experienced traumatic life events tend to perform worse in cognitive tasks targeting selective attention (Caparos & Blanchette, 2014; Cisler et al., 2011; Williams et al., 1996). However, when taking into consideration unique emotional Stroop effects (i.e., contrasting negative and neutral word blocks) total ACEs only significantly positively correlated with the first ESE (negative block 1 – neutral block 1), indicating that total ACEs was related to relatively longer reaction times to negative Stroop words in contrast to neutral Stroop words, but only at first (rather than second) attempts. This latter finding indicates that the more AAEs an individual experienced, the smaller the ESE 2 was

(in other words, total AAEs was related to relatively shorter reaction times to negative Stroop words in contrast to neutral Stroop words, but only at second attempts).

Different factors might have contributed to these current findings. First, the practice effect might have played a role in the decrease in reaction times across blocks, as the more familiarized people are with a task, the better they tend to perform. Because of this, the emotional Stroop effect 1 (negative block 1 – neutral block 1) might have been affected by the fact that the reaction times in the first block (the neutral one) were higher due to the novelty of the task, regardless of the practice trial. After experiencing the first negative block, participants might have expected a second negative block to appear throughout the experiment, making them less susceptible to emotional bias toward the negative words. Moreover, although I attempted to create a list of negative words that would encompass different forms of trauma, some words might have not been related to the participants' personal experiences, resulting in similar reaction times across all trials, if not shortened due to higher practice. Future research on the topic should consider adopting a random design, assigning different participants to different presentation order of the blocks.

Lastly, past literature found that in anxious individuals, emotional interference in a Stroop task might be reduced, if not suppressed, when experiencing other more relevant stressors (Amir et al., 1996; Mathews & Sebastian, 1993). Although in the present study I did not make participants engage in threatening situations like in the studies just cited, it may still be the case that individuals might have been under other types of more salient stressors, such as anxiety-producing academic and work-related tasks. Phaf and Kan (2007) also argued that emotional interference during an emotional Stroop task may not occur during threat trials, but in later, non-threat trials (delayed “slow” effect). This delay in emotional bias might result in less varying

reaction times across negative and neutral blocks, which would result in compromised calculations of the emotional Stroop effects.

Another interesting finding from this study was the differences in correlation values when comparing the EST with total scores and index scores. When using index scores, ACEs did not significantly correlate with total reaction time, and AAEs did not significantly correlate with the second ESE. Such small yet striking differences made me reflect on how using index scores might reduce the interpretability and generalizability of the results. Specifically, the results highlighted how adverse experiences that are usually left out in index scores might still influence cognitive skills. The differences in results personally raised some concerns about the validity of the results from past studies solely based on index scores, especially considering that index scores are often used clinically. When studying adverse life events in relation to cognitive performance, researchers should take into consideration the interaction between different types of stressful events and be mindful when using index scores that might not consider other impactful adverse experiences.

Hypothesis 3: ACEs, AAEs, and maladaptive daydreaming correlations

Descriptive results from the maladaptive daydreaming scale showed that although only a quarter of the sample engaged in probable maladaptive daydreaming, daydreaming behaviors are considerably frequent and substantial. This can be noted from the fact that the mean of the MDS results across participants was notably close to the cut-off of maladaptive daydreaming (40) identified from past literature (Soffer-Dudek, 2021). Pearson's correlations between ACEs, AAEs, and maladaptive daydreaming indicated moderate to strong significant, positive relationships. These findings suggest that individuals who experience stressful events throughout

life are more likely to engage in general daydreaming behaviors, which may become maladaptive in certain cases. Specifically for ACEs, past literature already identified a relationship between childhood trauma and maladaptive daydreaming, explaining how maladaptive daydreaming served as a coping strategy to dissociate from negative feelings (Ferrante et al., 2022; Somer et al., 2021). The present study further supports what previous literature found, although it is important to note that I did not investigate whether daydreaming behaviors served as a way to escape from stressors during childhood.

When focusing on AAEs, past literature did find relationships between some adult stressful events and probable maladaptive daydreaming, but only in specific situations and not general adverse adulthood experiences (e.g., COVID-19 pandemic; Somer et al., 2020). The current study, on the other hand, considered multiple, non-clinical, and more common adverse events experienced during young adulthood, making the results more generalizable. Since the literature on maladaptive daydreaming and adult adverse experiences is scarce, the present study highlights the importance of further studying daydreaming behaviors in an adult population, especially considering the negative effects that maladaptive levels of daydreaming may have on an individual (Somer et al., 2021).

The exploratory open-ended question on maladaptive daydreaming also allowed the discovery of daydreaming themes, as well as the assessment of changes in these categories across the participants' lives. The majority of the participants indicated that the topic of their daydreams was based on real-life aspirations and goals, although a considerable number of participants also fantasized about more grandiose, unrealistic scenarios. Participants also reported a shift in daydreaming behaviors from childhood to adulthood, indicating that their fantasies have become more realistic compared to the ones during childhood. Because this

question was exploratory, I did not analyze whether there was a difference in daydreaming topics based on whether the daydreaming behaviors were or were not maladaptive, which is something that is worth exploring in future research.

Hypothesis 4: Maladaptive daydreaming and emotional Stroop task correlations

Within this sample, I found that maladaptive daydreaming was significantly, positively, and moderately related to total reaction time in the EST, suggesting that individuals who engage more in daydreaming behaviors take a longer time to complete a cognitive task that targets selective attention and response inhibition. As discussed in the introduction, maladaptive daydreaming has so far only been studied in relation to ADHD (Bigelsen et al., 2016; Theodor-Katz et al., 2022), and not to general selective attention, so the findings in this present study are novel. Past research on general dissociative mechanisms and selective attention found that individuals with greater dissociative tendencies perform worse on a regular Stroop task (Freyd et al., 1998). The authors further explained that individuals who tend to dissociate might have a harder time to selectively attend to salient information while ignoring irrelevant stimuli (Freyd et al., 1998). Since maladaptive daydreaming is often considered a form of dissociative mechanism, it may be the case that the same interference is occurring in individuals who engage in extensive daydreaming behaviors. This would also explain why maladaptive daydreaming was not significantly related to any emotional Stroop effect, as interference would be experienced in every block of the cognitive task, regardless of the block valence.

Although I screened out individuals diagnosed with ADHD in the last 6 months who have a hard time focusing on tasks, there is a possibility that individuals might have lied about their ADHD condition and/or level of impairment, they might have received a misdiagnosis, or

that they might have not been aware of the possibility of having this developmental disorder. Future research should further study the relationship between daydreaming behaviors and selective attention, and whether ADHD is a significant component in this relationship.

Hypothesis 5: Indirect effect of ACEs, MD, and emotional Stroop task

In the mediation analysis, I found that maladaptive daydreaming predicted increased reaction times in the emotional Stroop task, and that although the direct effect was nonsignificant, the indirect relationship was positive and significant. This suggests that adverse life experiences may reduce reaction times in a emotionally charged attention task indirectly through maladaptive daydreaming. Individuals with more experience and frequency of ACEs might be more likely to engage in maladaptive daydreaming behaviors, which in turn may result in worse selective attention in emotionally charged situations/tasks.

My findings are in line with what a recent research study found, as an author noted that in their study ACEs themselves did not predict impairments in selective attention (Davis, 2021). Past research cited in my literature review might have found significant impairments in selective attention in a population who experienced childhood trauma because they utilized clinical samples (Bendall et al., 2013) or that focused on children (McCoy et al., 2015; Pollak & Tolley-Schell, 2003). Based on this, it may be that ACEs directly impact attention only during childhood, and that further cognitive development might later compensate for these initial impairments.

Future research should further analyze this change through development, as a decrease in impairments of selective attention can bring some hope to individuals who experienced adverse events during childhood. Research should also focus on analyzing how dissociative behaviors

might affect this relationship, especially if improvements in selective attention are not seen in individuals who engage in maladaptive daydreaming.

Hypothesis 6: AAEs, MD, and emotional Stroop task moderation

On the other hand, the moderation analysis did not produce the results that I expected, as although maladaptive daydreaming did individually predict slower reaction times, the same effect was not present when considering AAEs. The moderation results suggest that at higher levels of AAEs and maladaptive daydreaming, total reaction times in the emotional Stroop task decreased, suggesting that individuals who frequently engage in MD and that experienced several adversities during young adulthood experience took less time to complete the EST.

A possible explanation for these results might be that individuals who engage in maladaptive daydreaming to cope with adult adverse experiences might develop cognitive processing strategies (such as attentional control or cognitive flexibility) to counteract the negative effects of stressful events (Cheng & Cheung, 2005). Another possible reason could be that maladaptive daydreaming might lead to higher attentional focus in emotionally charged situations, or that this dissociative mechanism might serve as a form of arousal control in emotionally demanding situations (Cheng & Cheung, 2005; Sideridis, 2006). This supports findings from the current study such that those at a higher, maladaptive level have poorer attention. Future research should test these possible explanations to further understand the nature of maladaptive daydreaming and its interaction with adult adverse experiences in the realm of cognitive processes.

Limitations and Future Directions

Although the present study found interesting results, there were several limitations that might have affected their validity. First, ACEs, AEEs, and maladaptive daydreaming were assessed through newly made surveys that still require further reliability and validity assessments. Furthermore, self-report bias is frequent in this type of research design, as participants might have under- or over-reported their adverse experiences (social desirability bias), or they might have had recall biases when thinking of their childhood experiences. The scales used are also built on structured items, which may have not fully captured the depth and complexity of participants' experiences of stressful events and maladaptive daydreaming. This is especially the case for maladaptive daydreaming, as clinical interviews are usually performed to determine whether the scores on the MDS scales reflect an actual maladaptive and impairing level of daydreaming.

The qualitative data obtained from the open-ended question was also exploratory in nature, so further analyses (i.e., comparing themes to maladaptive vs non-maladaptive daydreaming levels) could have been performed to better understand the maladaptive daydreaming phenomenon. The question prompt also asked about daydreaming experiences (not maladaptive), and it was not forced entry. I also singularly coded participants answers into different themes, which might have resulted in inaccurate categorization of some participants testimonials.

Because there was an attention task portion that participants might have found too time-consuming, I experienced some attrition, as about 100 additional participants who completed the survey portion did not complete the task. Attrition might have also resulted from the fact that E-PrimeGo required a specific software (Microsoft), and because multiple individuals experienced

difficulties in downloading and/or running the task (e.g., not having enough computer storage, not having the necessary software updates). I also did not have control of extraneous variables during the experimental procedure, so participants might have performed worse because of the location or the time of the day in which they decided to complete the task. Lastly, because this study assessed the relationship between the variables, I am not able to infer causality between the predictors and outcomes. Causality cannot be inferred for life adverse experiences because they were analyzed retrospectively and because maladaptive daydreaming was not manipulated during the cognitive task. In addition, other factors that I did not consider might explain the relationship between ACEs, AAEs, maladaptive daydreaming, and reaction time, such as undiagnosed ADHD, personality traits, stress, and medication side effects. Mediation analysis is also not appropriate when using cross-sectional data, such as the data obtained in this study, as it is a statistical analysis method apt for longitudinal study designs (Maxwell & Cole, 2007; Shrout & Bolger, 2002).

Future research should further delve into the relationship between ACEs, AEEs, and maladaptive daydreaming, especially when taking into consideration other aspects of individual well-being and cognitive skills. A better understanding of the mechanisms of maladaptive daydreaming is also needed, as my moderation results were conflictual and hard to explain based on current literature. Selective attention and emotional interference could also be studied by using other cognitive tasks that might be less sensitive to the delays of emotional biases or to emotional suppression.

Conclusions

Overall, the present study provided further evidence for the relationship between adverse childhood and adulthood experiences, and their relationship with maladaptive daydreaming. Specifically, the experience of ACEs predicts future negative life stressors, as well as the use of dissociative mechanisms such as maladaptive daydreaming. It also provided unique insights on selective attention, with mixed findings in the mediation and moderation analyses that were not assessed by previous research. The mediation analysis showed that ACEs only indirectly affect selective attention, and they do so through maladaptive daydreaming. This might be an important implication for clinical practice, although more research is needed on the topic. The moderation analysis suggested an enhancement of selective attention in higher daydreaming levels and AAEs, although total reaction times were slower with increased maladaptive daydreaming. This calls for more research on whether maladaptive daydreaming can be a helpful coping strategy when experiencing adult adversities. Despite limitations, this study significantly contributes to future research on the underlying mechanisms of maladaptive daydreaming and its potential effects on different aspects of cognition.

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APPENDIX A

IRB APPROVAL LETTER

THE UNIVERSITY OF TENNESSEE
CHATTANOOGA

Institutional Review Board
Dept 4915
615 McCallie Avenue
Chattanooga, TN 37403
Phone: (423) 425-5867
Fax: (423) 425-4052
instrb@utc.edu
http://www.utc.edu/irb

TO: Claudia Colpo **IRB #23-074**
Dr. Tomorrow Arnold

FROM: Dr. Cheryl Murphy, Director of Research Integrity
Dr. Susan Davidson, IRB Committee Chair

DATE: 2/15/24

SUBJECT: IRB #23-074: Effects of Stressful Life Experiences and Maladaptive Daydreaming on Attention among Young Adults

The University of Tennessee at Chattanooga Institutional Review Board has reviewed and approved the following changes for the IRB protocol listed above:

- Participants will receive a $5 Amazon gift card as a reward for participation in the protocol.
- Participants may receive SONA credit for participation in the protocol.
- Protocol has been approved to be posted on social media for recruitment.

Please keep in mind that all research must be conducted according to the proposal submitted to the UTC IRB. If changes to the approved protocol occur, a revised protocol must be reviewed and approved by the IRB before implementation. For any proposed changes in your research protocol, please submit an Application for Changes, Annual Review, or Project Termination/Completion form to the UTC IRB. Please bear in mind that significant changes could result in having to develop a new application for submission **and approval. Your protocol will be automatically closed at the end of the proposed** research period unless a change request application is submitted. No research may take place under a closed or expired protocol.

A goal of the IRB is to prevent negative occurrences during any research study. However, despite our best intent, unforeseen circumstances or events may arise during the research. If an unexpected situation or adverse event happens during your investigation, please notify the UTC IRB as soon as possible. Once notified, we will ask for a complete explanation of the event and your response. Other actions also may be required depending on the nature of the event.

Please refer to the protocol number denoted above in all communication or correspondence related to your application and this approval.

For additional information, please consult our web page http://www.utc.edu/irb or email instrb@utc.edu.

Best wishes for a successful research project.

APPENDIX B

STUDY MEASURES

SCREENING SURVEY

Before you can participate to this study, you will answer a couple of questions to determine whether you are eligible for this study. Because we are trying to see how stressful life events might affect attention in young adults, we want to make sure that there are no other factors that could affect our results.

If you are not eligible for this study, you will be redirected to the end of the survey. We thank you for your consideration and willingness to participate!

Are you living in the greater area of Chattanooga, TN?
o Yes
o No

Have you ever been diagnosed with a color vision deficiency (colorblindness) so that you cannot differentiate between colors (red, blue, green, pink)?
o Yes
o No

Have you been diagnosed with any of the following in the last 6 months? (Select all that apply)
▢ Developmental Disabilities/Disorders (e.g., Autism Spectrum Disorder, Down Syndrome, Attention Deficit/Hyperactivity Disorder)
▢ Concussion or head trauma
▢ Neurological Disorders (e.g., Alzheimer's Disease, Dementia, Parkinson's Disease, Epilepsy)
▢ Mood Disorders (e.g., any form of depression, Bipolar Disorder) (5)
▢ Anxiety Disorders (e.g., General Anxiety Disorder, Social Anxiety Disorder, Panic Disorder)
▢ Acute Stress Disorder or Post-Traumatic Stress Disorder
▢ Other impairing physical or mental disorder(s). Please specify the disorder(s) _
▢ I have not been diagnosed with any of the disorders mentioned above or with any disorder that is impairing

If you have been diagnosed with any of these conditions in the last 6 months, has the condition affected your ability to pay attention to your environment, memorize information, and/or focus on a complex task?
o Yes, my ability to focus, pay attention, or memorize information has been affected
o No, my ability to focus, pay attention, or memorize information has not been affected

DEMOGRAPHIC SURVEY

What is your gender?
- o Man
- o Woman
- o Non-binary
- o Transgender
- o Other, please specify _____

What is your marital status?
- o Single
- o Married
- o Widowed
- o Separated/Divorced
- o In a committed relationship, not living with partner
- o In a committed relationship, living with partner

How would you describe yourself? Please select all that apply.
- ▢ White
- ▢ Black and/or African American
- ▢ Native American, Alaska Native, or Pacific Islander
- ▢ Asian
- ▢ Other _____

Are you of Hispanic, Latino, or Spanish origin?
- o Yes
- o No

What is the highest degree or level of school you have completed?
- o Less than a high school diploma
- o High school degree or equivalent (e.g. GED)
- o Some college, no degree
- o Associate degree (e.g. AA, AS)
- o Bachelor's degree (e.g. BA, BS)
- o Master's degree (e.g. MA, MS, MEd)
- o Doctorate or professional degree (e.g. MD, DDS, PhD)

Employment What is your current employment status?
- o Employed full-time
- o Employed part-time
- o Unemployed and currently looking for work
- o Unemployed not currently looking for work
- o Student
- o Retired
- o Self-employed

If you are currently a student, what is your current enrollment status?
o Full-time
o Part-time
o I am currently not a student

TAPS TOOL I

In the PAST 12 MONTHS, how often have you used any tobacco product (for example, cigarettes, e-cigarettes, cigars, pipes, or smokeless tobacco)?
o Daily or Almost Daily
o Weekly
o Monthly
o Less Than Monthly
o Never

In the PAST 12 MONTHS, how often have you had 4 or more (for females)/ 5 or more (for males) drinks containing alcohol in one day?
One standard drink is about 1 small glass of wine (5 oz), 1 beer (12 oz), or 1 single shot of liquor.
o Daily or Almost Daily
o Weekly
o Monthly
o Less Than Monthly
o Never

In the PAST 12 MONTHS, how often have you used any drugs including marijuana, cocaine or crack, heroin, methamphetamine (crystal meth), hallucinogens, ecstasy/MDMA?
o Daily or Almost Daily
o Weekly
o Monthly
o Less Than Monthly
o Never

In the PAST 12 MONTHS, how often have you used any prescription medications just for the feeling, more than prescribed and/or that were not prescribed for you?
Prescription medications that may be used this way include:
-Opiate pain relievers (e.g., OxyContin, Vicodin, Percocet, Methadone);
- Medications for anxiety or sleeping (e.g., Xanax, Ativan, Klonopin);
- Medications for ADHD (e.g., Adderall or Ritalin).
o Daily or Almost Daily
o Weekly
o Monthly
o Less Than Monthly
o Never

CHILDHOOD EXPERIENCES SURVEY: ADULT VERSION

All of the following questions refer to the time before you were 18 years of age. Now, looking back before you were 18 years of age ...

	Never	Rarely	Sometimes	Often	Very Often
1. As a child, how often did your family experience serious financial problems?	○	○	○	○	○
2. How often were you hungry because your family could not afford food?	○	○	○	○	○
3. How often were you homeless when you were growing up? *(This means having to stay somewhere like a transitional housing program, a shelter, a hotel/motel paid by voucher, someone else's home, a car or other vehicle, an abandoned building, anywhere outside, or anywhere else not meant for people to live.)*	○	○	○	○	○
4. How often did a parent or adult in your home ever swear at you, insult you, or put you down?	○	○	○	○	○
5. How often were you bullied or severely teased by other children or adolescents? *(This refers to bullying or teasing by children or adolescents of any age. It does not include experiences with adults or with siblings.)*	○	○	○	○	○

	Never	Rarely	Sometimes	Most of the Time	Always
6. Before age 18, how often was there an adult in your household who tried hard to make sure your basic needs were met? By "basic needs" we mean food, shelter, clothing, and medical care. *(This could be any adult in the household, not just a parent.)*	○	○	○	○	○
7. How often was there an adult in your household who made you feel safe and protected?	○	○	○	○	○

	Never	Once	More than once
8. Before age 18, how often did a parent or adult in your home ever hit, beat, kick, or physically hurt <u>you</u> in any way? Do not include spanking.	○	○	○
9. How often did your parents or adults in your home ever slap, hit, beat, kick, or physically hurt <u>each other</u>?	○	○	○
10. How often did an adult, or anyone at least 5 years older than you, touch you sexually, try to make you touch them sexually, or force you to have sex?	○	○	○

	Yes	No
11. Did you live with anyone who was depressed, mentally ill, or suicidal?	○	○
12. Did you live with anyone who was a problem drinker or alcoholic?	○	○
13. Did you live with anyone who used illegal street drugs or who abused prescription medications?	○	○
14. Did you live with anyone who served time or was sentenced to serve time in a prison, jail, or other correctional facility?	○	○
15. Were your parents separated or divorced?	○	○
16. Was either one of your parents absent from your life for a long period of time? Do not include absence due to death of parent.	○	○
17. Before age 18, did you experience the death of a parent, caregiver, or sibling?	○	○
18. Before age 18, were you ever the victim of a violent crime? This refers to any violent act that was perpetrated by someone other than a parent or household family member.	○	○

	Not at all	Slightly	Moderately	Very	Extremely
19. Overall, how uncomfortable did you feel answering the questions on this survey?	○	○	○	○	○

Adapted from Centers for Disease Control and Prevention. (2012). *Behavioral Risk Factor Surveillance System Survey Questionnaire: Adverse Childhood Experiences Module*. Atlanta, Georgia: Author.

For further information about this measure, contact: Dr. Joshua Mersky, University of Wisconsin-Milwaukee, mersky@uwm.edu

ADULT EXPERIENCES SURVEY

Since you turned 18, how often has a romantic partner or spouse ever:	Never	Once	More than once
1. Slapped, hit, beat, kicked, or physically hurt you?	○	○	○
2. Screamed at you or threatened you with harm?	○	○	○
3. How often has anyone forced you to have sexual activities?	○	○	○

If once or more than once, who? Please choose all that apply.

☐ Partner or spouse ☐ Someone else you knew

☐ Relative ☐ Stranger

The following questions refer to the time since you turned 18.	Yes	No
4. Have you ever been the victim of a violent crime like a robbery or assault? *(This refers to any violent act by someone other than a spouse, partner, or household family member)* If yes, how many times? _____	○	○
5. Have you ever been the victim of a non-violent crime such as theft? If yes, how many times? _____	○	○
6. Have you been in prison or jail?	○	○
7. Has a spouse, partner, or someone you have lived with been in prison or jail?	○	○
8. Has a spouse, partner, or someone you have lived with been a problem drinker or alcoholic?	○	○
9. Has a spouse, partner, or someone you have lived with used illegal street drugs or abused prescription medications?	○	○
10. Has a spouse, partner, or someone you have lived with been depressed, mentally ill, or suicidal?	○	○

11. Have you ever been divorced or separated?

○ Yes ○ No, I've never been married

○ No, I'm married ○ No, my spouse is deceased

12. Have you experienced the loss of a pregnancy? If yes, how many times? _____	○	○
13. Have you experienced the death of someone very close to you?	○	○

If yes, please choose all that apply.

☐ Partner or spouse ☐ Child ☐ Parent

☐ Other relative ☐ Friend ☐ Other

Since you turned 18 years of age:	Never	Rarely	Sometimes	Often	Very often
14. How often have you experienced serious financial problems?	○	○	○	○	○
15. How often do you feel that you have been discriminated against?	○	○	○	○	○
16. How often have you and your family been hungry because you could not afford food?	○	○	○	○	○
17. How often have you been homeless*?	○	○	○	○	○

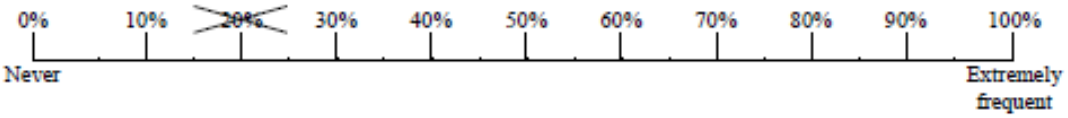
**"Homeless" means having to stay somewhere like a transitional housing program, a shelter, a hotel/motel paid by voucher, someone else's home, a car or other vehicle, an abandoned building, anywhere outside, or anywhere else not meant for people to live.*

	Not at all	Slightly	Moderately	Very	Extremely
18. Overall, how uncomfortable did you feel answering the questions on this survey?	○	○	○	○	○

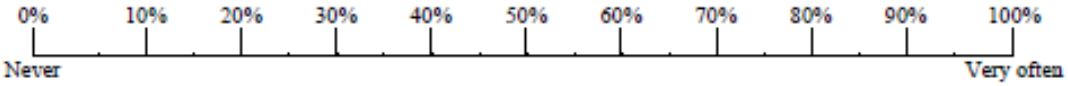
For further information about this measure, contact: Dr. Joshua Mersky, University of Wisconsin-Milwaukee, mersky@uwm.edu

The 16-item Maladaptive Daydreaming Scale (MDS-16)
Eli Somer, Jayne Bigelsen, Jonathan Lehrfeld & Daniela Jopp

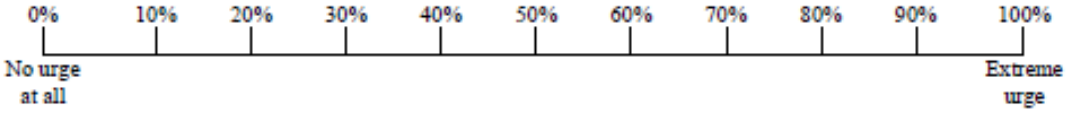
In answering the following questions, please refer to your daydreaming activities in the last month, if not otherwise specified. Choose the option that best fits your experience. For example: Some people get so caught up in their daydreaming that they forget where they are. How often do you forget where you are when you daydream? In this example, 20% is chosen.



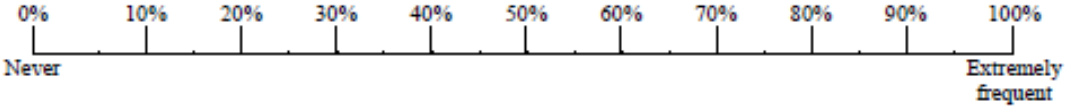
1. Some people notice that certain music can trigger their daydreaming. To what extent does music activate your daydreaming?



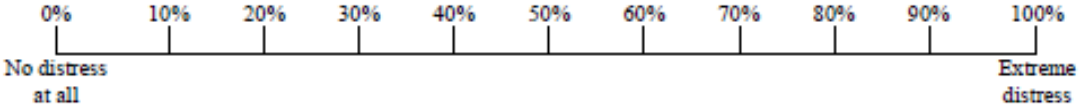
2. Some people feel a need to continue a daydream that was interrupted by a real world event at a later point. When a real world event has interrupted one of your daydreams, how strong was your need or urge to return to that daydream as soon as possible?



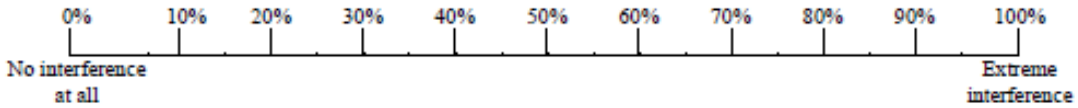
3. How often are your current daydreams accompanied by vocal noises or facial expressions (e.g. laughing, talking or mouthing the words)?



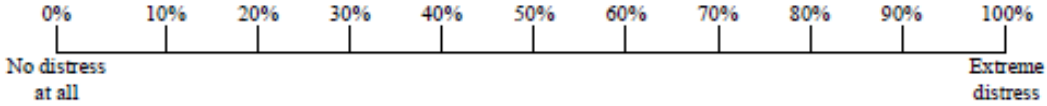
4. If you go through a period of time when you are not able to daydream as much as usual due to real world obligations, how distressed are you by your inability to find time to daydream?



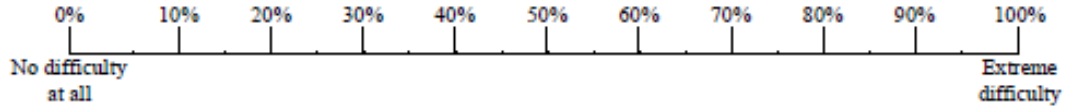
5. Some people have the experience of their daydreaming interfering with their daily chores or tasks. How much does your daydreaming interfere with your ability to get basic chores accomplished?



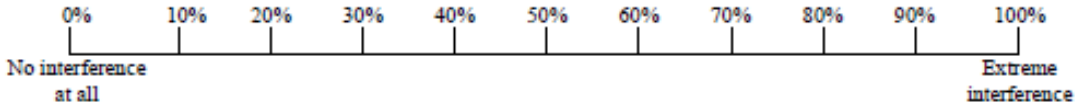
6. Some people feel distressed or concerned about the amount of time they spend daydreaming. How distressed do you currently feel about the amount of time you spend daydreaming?



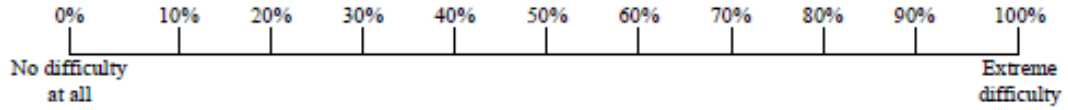
7. When you know you have had something important or challenging to pay attention to or finish, how difficult was it for you to stay on task and complete the goal without daydreaming?



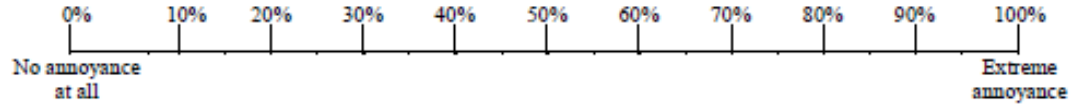
8. Some people have the experience of their daydreaming hindering the things that are most important to them. How much do you feel that your daydreaming activities interfere with achieving your overall life goals?



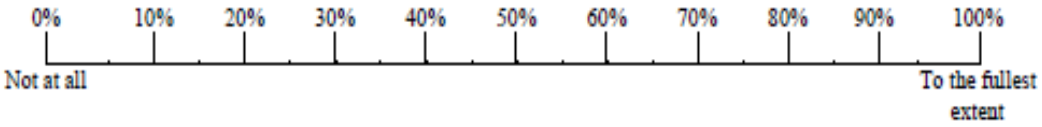
9. Some people experience difficulties in controlling or limiting their daydreaming. How difficult has it been for you to keep your daydreaming under control?



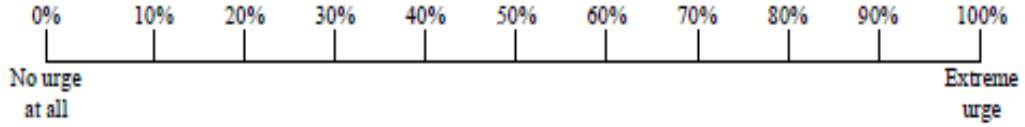
10. Some people feel annoyed when a real world event interrupts one of their daydreams. When the real world interrupts one of your daydreams, on average how annoyed do you feel?



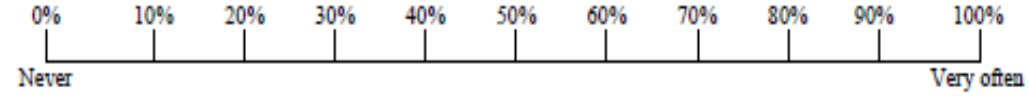
12. Some people would rather daydream than do most other things. To what extent would you rather daydream than engage with other people or participate in social activities or hobbies?



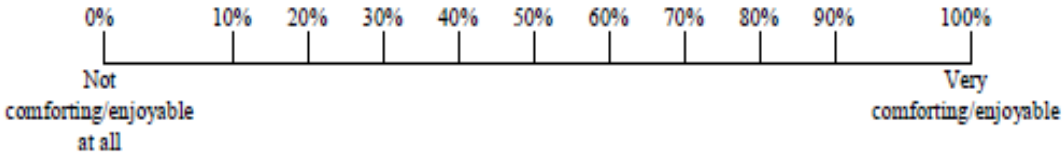
13. When you first wake up in the morning, how strong has your urge been to immediately start daydreaming?



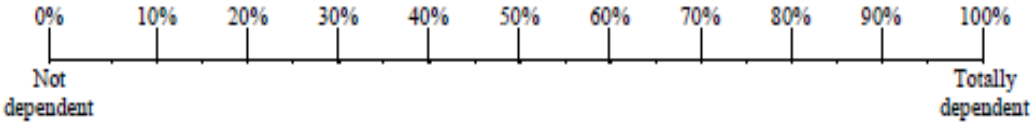
14. How often are your current daydreams accompanied by physical activity such as pacing, swinging or shaking your hands?



15. Some people love to daydream. While you are daydreaming, to what extent do you find it comforting and/or enjoyable?



16. Some people find it hard to maintain their daydreaming when they are not listening to music. To what extent is your daydreaming dependent on continued listening to music?



Open-ended question:

"If you do engage in daydreaming behaviors, what do you daydream about? How did your daydreams change since you were a child? Please provide 3-5 sentences about your daydreaming experience".

APPENDIX C

EST WORDS INFORMATION

EST WORDS INFORMATION

Table 6 Length, frequency, and valence of the words used in the emotional Stroop task

Block 1					
Neutral			**Negative**		
Word (length)	**Frequency**	**Valence**	**Word (length)**	**Frequency**	**Valence**
Car (3)	11.37	6.63	War (3)	11.60	2.23
North (5)	11.25	5.72	Death (5)	11.26	1.89
Profession (10)	8.51	5.52	Depression (10)	8.95	2.44
Cost (4)	11.51	4.11	Lost (4)	11.27	2.53
Map (3)	10.16	5.81	Mad (3)	9.79	2.47
Shop (4)	10.24	5.89	Shot (4)	10.65	2.82
Audience (8)	9.95	5.89	Violence (8)	9.90	2.71
Drag (4)	9.39	4.68	Drug (4)	10.53	4.11
Measure (7)	9.89	5.14	Failure (7)	10.09	2.15
Clarity (7)	8.03	7.26	Anxiety (7)	7.89	2.38
Door (4)	10.89	5.43	Poor (4)	10.89	3.67
Paid (4)	10.821	n/a	Pain (4)	10.51	2.00
Prime (5)	10.00	6.00	Crime (5)	10.42	1.95
Buffer (6)	9.55	5.42	Suffer (6)	9.37	2.05
Elder (5)	9.03	6.11	Anger (5)	9.06	2.50
Thesis (6)	8.75	4.70	Crisis (6)	9.52	2.02
Homework (8)	8.15	4.32	Homeless (8)	8.04	2.21

Mister (6)	7.69	5.56	Misery (6)	7.97	2.2
Prince (6)	9.31	5.44	Prison (6)	9.49	1.94
Facing (6)	9.11	n/a	Racism (6)	9.05	1.48
Averages: (5.55)	9.68	5.54	(5.55)	9.81	2.39

Block 2

Neutral			**Negative**		
Word (length)	**Frequency**	**Valence**	**Word (length)**	**Frequency**	**Valence**
Mouse (5)	10.54	4.80	Abuse (5)	10.16	1.53
Audio (5)	10.44	6.56	Alone (5)	10.84	3.85
Lead (4)	10.80	5.56	Dead (4)	11.20	2.02
Transportation (14)	9.19	6.10	Discrimination (14)	9.17	1.71
Wear (4)	10.35	6.36	Fear (4)	10.45	2.93
Late (4)	10.92	3.32	Hate (4)	10.70	1.96
Rail (4)	8.90	5.10	Jail (4)	9.18	1.91
Border (6)	9.73	4.68	Murder (6)	9.86	1.48
Spread (6)	10.03	5.57	Threat (6)	9.83	2.63
Rod (3)	9.88	4.95	Rob (3)	10.00	2.10
Trader (6)	7.89	5.47	Trauma (6)	7.93	2.89
Had (3)	13.5	n/a	Bad (3)	11.94	3.24
Diverse (7)	8.79	6.00	Divorce (7)	8.67	2.49
Farm (4)	9.29	6.22	Harm (4)	9.42	1.91
Rare (4)	10.50	6.05	Rape (4)	9.45	1.54

Suffice (7)	8.08	5.52	Suicide (7)	9.19	1.58
Pad (3)	8.88	5.14	Sad (3)	9.75	2.10
Deduction (9)	8.12	5.14	Rejection (9)	8.13	2.60
Advisor (7)	8.42	4.74	Abandon (7)	8.23	2.84
Manage (6)	9.80	4.71	Damage (6)	10.66	2.98
Averages: (5.55)	9.70	5.37	(5.55)	9.74	2.32

Frequency: logarithm of the frequency of a word reported by the HAL study
Valence: pleasantness of a word, ranging from 0 (very unpleasant) to 10 (very pleasant)

APPENDIX D

FUNDING ACKNOWLEDGEMENTS

THE UNIVERSITY OF TENNESSEE
CHATTANOOGA

Office for Undergraduate Research and Creative Endeavor (URaCE)

Dept. 5325
615 McCallie Avenue
Chattanooga, TN 37403
Phone:(423) 425-5569

May 12, 2023

Dear Claudia,
Congratulations on being selected to receive funding for a SEARCH Award! This letter includes award details and action items for accepting the award. Please review this information carefully.

To begin the process of accepting the SEARCH award, you (the student) must first respond to this email with your full acknowledgment and acceptance of the terms and conditions of the award as soon as possible, but no later than 11:00 PM on Sunday, May 21, 2023. Once we have received your acknowledgment, we will then reach out to your mentor and department head who must acknowledge and approve of the award no later than 11:00 PM on Sunday, June 4, 2023. *The Office for URaCE must receive complete approvals by the dates listed above or you may risk forfeiting the award.*

What You Need to Do Next

1. Please review the SEARCH Award Terms and Conditions on page 2, have your faculty mentor/advisor review, and save this document for your reference.
2. Reply to this email with your full acknowledgment and acceptance of the terms and conditions of this award so we may then contact your mentor and department head for their acknowledgment and approval.
3. At the beginning of the fall semester, you will prepare a SEARCH project research timeline, which will help you plan your research tasks and goals. The Office for URaCE will provide a timeline template to assist you with this task. You will bring a copy of the timeline with you to the SEARCH fall welcome event, which will be scheduled at the beginning of the fall semester. If you plan on beginning your research in Summer 2023, contact the Office for URaCE to request the template.

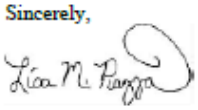
Institutional Approvals to Conduct this Research

You will receive an e-mail from the UTC Office of Research Integrity (ORI) Director, David Deardorff, containing **details about steps you may need to take if your project will involve research with human research participants or** vertebrate animals. Such projects require review by the Institutional Review Board (IRB) or the Institutional Animal Care and Use Committee (IACUC) ***before you begin your research or expend any of the awarded SEARCH funds***. ORI will provide information to help you and your mentor/advisor determine next steps related to your project. Please be sure to consult with your mentor/advisor for guidance regarding this process.

Note that before SEARCH funds are released, the Office for URaCE will contact ORI to confirm that your research has been reviewed and approved, if required. More information about the IRB and IACUC can be found on the ORI website.

Thank you for your contributions to scholarship at our institution, and best of luck with this research project. If you have questions about the information contained in this document, please contact Dr. Lisa Piazza (lisa-piazza@utc.edu).

Sincerely,



Lisa M. Piazza, PhD, Executive Director, Office for Undergraduate Research and Creative Endeavor

VITA

Claudia Colpo was born in Aosta, Italy, and grew up in Courmayeur, Italy. In 2016, she completed an exchange year in Elizabethton, TN, graduating from Elizabethton High School, which prompted her desire to continue her education in Psychology in the United States. In 2018, after graduating from her Italian High School (Regina Maria Adelaide) with a focus on Human Sciences, she attended East Tennessee State University (ETSU) in Johnson City, TN, thanks to the International Merit Scholarship. At ETSU, she pursued a Bachelor of Science in Psychology, with a Health Professions concentration, while being involved in two Psychology Research labs: The Laboratory of Resiliency in Psychological and Physical Health (LRPPH, managed by Dr. Hirsch), and the Associative Pharmacology Laboratory, managed by Dr. Palmatier. Thanks to these research experiences, Claudia developed a broad passion for research in Psychology, which she pursued after graduating in 2022. Upon graduation, she continued her academic career at The University of Tennessee at Chattanooga (UTC), pursuing a Master of Science in the Psychological Sciences program. At UTC, she served as a graduate assistant for Dr. Tomorrow Arnold and Dr. Ruth Walker (one semester). She also actively participated in Dr. Arnold's Substance Use and Mental Health in Aging (SUMHA) Lab, while participating in other Psychology labs to complete her practicum project and help another graduate student (the Understanding Mechanisms of Anxiety and Trauma Laboratory and the Cognitive Aging, Learning, & Memory Lab). During her Master's, Claudia discovered her passion for teaching, as she served as an instructor for two classes in Research and Methods Lab, three classes in

Statistics in Psychology Lab, and one Introduction to Psychology course. Upon graduation, she wishes to apply her learned research and data analysis skills in a research, data analysis, or college education career, hoping to become a positive and active contributor to the field of applied research and education.