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## Latent profiles of psychopathic traits among emerging adult college students: Functional and dysfunctional psychopathy and related outcomes

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Latent profiles of psychopathic traits among emerging adult college students: Functional and  
dysfunctional psychopathy and related outcomes

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in Psychology  
in the Department of Psychology

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Psychopathy research continues to study the adaptability of psychopathic characteristics and differentiate between functional and dysfunctional features. The current study identified latent profiles in emerging adults and compared them across behavioral/cognitive correlates, functional outcomes, aggression types, and also examined gender differences. Results demonstrated that men scored higher across cold-heartedness and fearless dominance profiles, but not self-centered impulsivity. The low psychopathy group had lower proactive aggression than the high psychopathy group; no other differences were observed. Additionally, men and women in the high psychopathy group did not significantly differ regarding experienced outcomes. Lastly, higher psychopathy was not associated with higher proactive aggression when functioning was high, whereas it was associated when functioning was low; no other interactions were observed. Continuing to research how functional and dysfunctional characteristics differ between men and women and detecting these characteristics early to provide intervention could help ameliorate maladaptive traits, which could lead to better outcomes.

## DEDICATION

This thesis is dedicated to the individuals who have continuously supported me through this process, as well as throughout my life. My parents are the most notable, as they have always been my biggest supporters, along with my brother and the rest of my family. I am also very grateful for my mentor, Dr. Cliff McKinney, who has allowed me to pursue the avenues of research I desire to, which involves him dedicating his time to learning what he can along the way to assist me with my projects. Last but not least, I am very grateful for my friends who have encouraged me throughout this process, as well as my cohort (aka, The COVID Cohort) whose friendships I will value for the rest of my life.

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CHAPTER I  
INTRODUCTION

**Background**

Psychopathy, which appears in the emerging measures and models section of the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (DSM-5, American Psychiatric Association, 2013) as a specifier under Antisocial Personality Disorder, is broadly marked by deficits in emotional responses and an amplified risk for antisocial behavior (Hare, 2003). The conceptualization of psychopathy has evolved from Cleckley's (1941) speculations and descriptions of the construct in his book *The Mask of Sanity* to measures that are used today to assess such characteristics in individuals. One measure that is currently utilized in research is Hare's Psychopathy Checklist-Revised (PCL-R; Hare, 2003), which was based on Cleckley's original framework for assessing psychopathy. Out of the 20 total items on the PCL-R, 18 of the items loaded onto four dimensions that aided in creating the conceptualization of psychopathy primarily used today; the dimensions include interpersonal (e.g., pathological lying, conning/manipulative), affective (e.g., lack of remorse or guilt, callous lack of empathy), lifestyle (e.g., impulsivity, irresponsible, lack of realistic goals), and antisocial (e.g., poor behavior controls, criminal versatility). The remaining two items (i.e., promiscuous sexual behavior and many short-term relationships) do not load onto a factor, but they do contribute to the total score of the PCL-R (Hare & Neumann, 2008).

Hare & Neumann (2005) were among the researchers who first posited that the characteristics associated with psychopathy are best described as being on a continuum. The characteristics are perhaps just variants of normal personality traits that fall on the extreme ends of the continuum, which makes the factors dimensional in nature. The hypotheses that postulate that psychopathy factors are dimensional are consistent with personality disorder research (Clark, 2007). Some researchers view these psychopathic personality characteristics as the maladaptive variations of what are deemed as common personality traits; a majority of the maladaptive variations of the common personality traits are perceived as antisocial in nature (Lynam, 2002; Widiger & Lynam, 1998). Antisocial behavior is often associated with criminal behavior; however, it is important to note that criminal behavior may not always be a component of psychopathy (Skeem & Cooke, 2010).

Though psychopathic characteristics are often viewed as negative and maladaptive traits, previous research has shown that the characteristics can function as adaptive as well (Durand, 2019). The Durand Adaptive Psychopathic Traits Questionnaire (Durand, 2019) was created to aid in assessing traits linked with psychopathy that can be viewed as adaptive; among the adaptive traits found were leadership attributes, logical thinking, composure, creativity, fearlessness, efficient money management, focus, extroversion, and the ability to manage groups of individuals or tasks. The adaptive and maladaptive aspects of traits can be further linked to what is known as functional and dysfunctional psychopathy.

Just as older research identified positive (i.e., adaptive) traits related to psychopathy (e.g., Cleckley, 1941), more recent research continues to distinguish between functional (i.e., scoring high on psychopathic scales but not experiencing significantly impairing outcomes) and dysfunctional psychopathy (i.e., also scoring high on psychopathic scales but experiencing

significantly impairing outcomes). Widom's (1977) goal was to study noninstitutionalized individuals with psychopathy to see how they differed from those who were institutionalized. According to the results, the sample subjects met the criteria for psychopathy, but there were some differences between the sample studied and institutionalized samples from previous research. For example, this sample had obtained a higher level of education and differed in the number of convictions received when compared with institutionalized samples (i.e., it appears that they were successfully able to avoid extensive convictions) (Widom, 1977). Studies like this aided in the expansion of research in noninstitutionalized populations where successful individuals with psychopathy may be able to be identified.

A study conducted by Ishikawa et al. (2001) demonstrated that individuals with dysfunctional psychopathy had a higher total score on the Psychopathy Checklist – Revised (PCL-R, Hare, 2003); however, there was not a significant difference between individuals with functional and dysfunctional psychopathy on traits that are typically considered to be central to the concept of psychopathy. Mullins-Sweatt et al. (2010) postulated that one key distinction between functional and dysfunctional psychopathy is the difference in conscientiousness levels (i.e., individuals with dysfunctional psychopathy are low in conscientiousness and those with functional psychopathy are high in conscientiousness). This particular finding is consistent with previous research that links higher conscientiousness with positive life outcomes (Ozer & Benet-Martinez, 2006) and lower conscientiousness with more arrests (Clower & Bothwell, 2002). The distinction between functional and dysfunctional psychopathy is still being defined in research today and may share overlap with other taxonomies regarding psychopathy, including primary (i.e., associated with callousness, shallow affect, manipulation, and superficial charm) and secondary psychopathy (i.e., associated with impulsivity, lack of perseverance, and overtly

hostile behavior; Karpman, 1948). These concepts will be further examined in a subsequent section.

According to previous research studies, callous and unemotional traits have been shown to be highly heritable between generations, with a heritability coefficient of 0.81 in studies conducted on twins (Viding et al., 2005). Traits often found in individuals with psychopathy can reliably be assessed in children ages 3 and up, and these traits often remain stable from childhood into adult life (Kimonis, et al., 2016; Waller et al., 2017). According to Eley's (1997) observations, behavioral genetic evidence suggests that genetic factors may possibly be acting as general influences in the embodiment of co-varying psychopathic traits, and environmental factors could play a role in influencing the specific psychopathic traits that form.

Emerging adult college students have been shown to display high rates of antisocial behaviors (Chabrol et al., 2017; Bronchain et al., 2019; Barlett & Barlett, 2015; Krishnakumar et al., 2018), which have been associated with the maladaptive variants of common personality traits, as previously mentioned (Lynam, 2002; Widiger & Lynam, 1998). There is research to suggest that psychopathy represents a similar construct in college student samples as found in forensic and correctional samples and that there is considerable variance that exists in psychopathic traits found in community samples (Falkenbach et al., 2007; Salekin et al., 2001). Additionally, even though Salekin et al.'s (2001) university sample reported lower rates of psychopathy than what is typically found in forensic populations, their findings do suggest that psychopathy levels found in university settings may be higher than initially thought. According to another study, samples of university students had higher rates of psychopathic characteristics (8.1%) than community samples (1.9%) (Sanz-García et al., 2021); there was also a statistically significant difference between college students versus non-college students in the individual

meta-regression analysis that was conducted in this study. Based on these results, university samples had a rate of psychopathy that was over four times higher than community samples.

Moreover, the nature of college requires some level of success and appropriate functioning (i.e., matriculating to college is one indicator of functional outcomes), although a wide range of functioning is represented in college samples (Bruffaerts et al., 2018; Bravo et al., 2018; Conley et al., 2018). Examining the concept of functional psychopathy in emerging adult college students makes for a potentially interesting investigation. Thus, the current study aimed to identify latent profiles of emerging adult college students based on prominent features of psychopathy, as well as to compare identified profiles across functional outcomes and types of aggression. Finally, given gender differences on psychopathy, the effects were considered across men and women.

### **Differences Between Functional and Dysfunctional Psychopathy**

Though there are numerous characteristics that could help identify psychopathy among individuals, certain features can aid in the determination of whether an individual can be categorized with “successful” or “unsuccessful” psychopathy. For clarification purposes, successful psychopathy is also often referred to as functional or primary psychopathy, whereas unsuccessful psychopathy can be referred to as dysfunctional or secondary psychopathy.

#### ***Physiological***

At the physiological level, functional psychopaths, like normal functioning individuals, tend to not have any abnormalities or impairments in the prefrontal cortex, hippocampus, or amygdala regions of the brain (Raine et al., 2004). According to previous research, these individuals also have intact P300 responses (i.e., an event-related potential that occurs during the

process of making a decision; Gao et al., 2011). This allows functional psychopaths to proficiently process information being presented to them. These individuals also possess shorter frontal P300 latencies, which help demonstrate these individuals' ability to retain encoded information and compare it with new incoming information (Gao et al., 2011). Additionally, this research provides evidence that functional psychopaths have intact autonomic functioning (Gao & Raine, 2010). These individuals have also been shown to exhibit normal cardiovascular responses in specific situations, which was demonstrated during an emotional manipulation where these individuals displayed significantly increased heart rates when compared with their dysfunctional counterparts (Ishikawa et al., 2001).

Unlike functional psychopaths, dysfunctional psychopaths reportedly have hippocampal abnormalities and reduced prefrontal cortex and amygdala volumes (Raine et al., 2004; Yang et al., 2005). These individuals exhibit deficits in P300 responses, which helps to explain the issues they may have when it comes to information processing (Gao et al., 2011). According to previous research, these individuals tend to have lower autonomic functioning when compared with institutionalized nonpsychopaths and their successful counterparts. These individuals have shown reduced anticipatory heart rates in situations deemed stressful (Ishikawa et al., 2001). In older studies of incarcerated psychopaths, these individuals also have smaller skin conductance responses when they are faced with situations that would be stressful for normal individuals, such as awaiting their punishment (Tharp et al., 1980) and anticipating another individual's pain (Aniskiewicz, 1979), and have also demonstrated poor skin conductance conditioning when exposed to aversive stimuli (Tharp et al., 1980).

## *Cognitive*

Physiological differences between functional and dysfunctional psychopaths could play a role in cognitive differences between the two types based on which areas of the brain are affected. Functional psychopaths are capable of enhanced executive functions, have relatively intact fear conditioning, have great cognitive empathy, and are able to make better decisions overall (Ishikawa et al., 2001). It is theorized that executive function influences goal-directed behaviors by operating hierarchically, simultaneously, and interactively (Ellis et al., 2009; Zelazo & Müller, 2002). Because these functions are intact, functional psychopaths are better able to inhibit and plan their behaviors while cognitively switching between these different tasks to achieve what they desire, which demonstrates cognitive flexibility. Working memory is also related to executive functioning, and it allows an individual to keep their attention focused over time (Goldstein et al., 2014; Miyake et al., 2000; Woltering et al., 2015).

Unlike functional psychopaths, dysfunctional psychopaths have impaired executive function and fear conditioning deficits (Raine et al., 2004; Yang et al., 2005). The reduced amygdala volumes found in these individuals can account for deficits in fear conditioning, which is a characteristic particular to dysfunctional psychopaths due to the individuals' predisposition for making poor decisions and exhibiting risky behaviors, which could lead to poor outcomes in life (Bütchel et al., 1998; Mahmut et al., 2008). Poor executive function in these individuals can be associated with their impaired planning abilities and lack of inhibitory control (Ellis et al., 2009). Because these individuals demonstrate social cognitive deficits, it is likely that they are not as cognitively flexible as their functional counterparts (Dodge et al., 1997; Dickstein et al., 2007).



## ***Behavioral***

In previous research, functional psychopaths have demonstrated a tendency to display proactive aggression, which is goal-directed and predatory in nature (Pardini et al., 2014) and has been linked to lower psychophysiological activity and greater psychopathic traits (Raine et al., 2014); this type of aggression is more complex due to its cognitive demands. It also requires a planning component and can be a long, drawn-out process (Reidy et al., 2011). It is believed that this type of aggression can be linked back to their intact executive function, as previously mentioned (Ellis et al., 2009; Zelazo & Müller, 2002).

Functional psychopaths display other discrepancies in processing emotions as well. In a previous study, emotion processing and trait anxiety were evaluated as predictors of primary and secondary psychopathy. For psychopaths classified as primary (i.e., functional), it was found that trait anxiety, reappraisal, and emotional manipulation were significant predictors of this type (Burns et al., 2015). The most noteworthy finding was the relationship between emotion manipulation and primary psychopathy, which accounted for 17.64% of the variance in the model. Karpman (1941) originally theorized that individuals with primary psychopathy displayed a lack of anxiety, which contradicts the finding reported for trait anxiety and primary psychopathy; however, Schmitt and Newman (1999) posited that the significant relationships found between psychopathy and anxiety are largely influenced by the antisocial psychopathy component and that affective and interpersonal components may be unrelated to trait anxiety.

Unlike their functional counterparts, dysfunctional psychopaths typically display reactive aggression; this type of aggression is characterized by a hostile response to a perceived threat or provocation, which is usually very minor in nature. This aggression type has been affiliated with emotional hyper-reactivity and poor behavioral control (Dodge et al., 2015). One behavior that

has been linked with reactive aggression is impulsivity (Fite et al., 2009). These individuals are prone to making risky and dangerous decisions, are very susceptible to boredom, and tend to blame others for mistakes, among other things (Frick & Hare, 2001).

Individuals with dysfunctional psychopathy also display differences in their processing of emotions. Burns et al. (2015) reported that trait anxiety, emotion manipulation, poor emotional skills, and general emotion dysregulation were significant predictors of the secondary (i.e., dysfunctional) type. The most noteworthy finding was the relationship between trait anxiety and secondary psychopathy, which accounted for 16.00% of the variance in the model. Karpman's (1941) findings support those reported in this study for secondary psychopathy regarding trait anxiety (i.e., these individuals have been associated with intense chronic anxiety), and emotion dysregulation, as the difficulties experienced by these individuals in regard to susceptibility, impulsivity, and extreme negative emotions are likely due to emotion regulation difficulties.

In a study with a population of emerging adult college students, Guerra and White (2017) examined the relationship between functional subtypes of aggression and how rumination and gender differences impacted these relationships. They found that secondary psychopathy was more associated with reactive aggression, and anger rumination enhanced this relationship. The relationship between primary psychopathy and proactive aggression was also enhanced, but this only occurred with high levels of anger rumination.

### **Gender Differences in Psychopathy**

Research regarding gender differences in psychopathy is quite complex. Some research suggests that psychopathy presents across gender in a consistent manner regarding symptom presentation with differences only occurring in the overall psychopathy score. For instance, Forth et al. (1996) found that while men did score higher than women on self-report measures, the

difference between scores was not statistically significant; this difference may be due to women displaying less antisocial and criminal behavior compared to men. Miller et al. (2011) found that the men in their sample had higher psychopathy scores than women; however, when examining how men and women compared across the constructs, there was not much variation across gender. Two exceptions included traits related to impulsivity and openness, where stronger correlations between the two factors were found in women with a higher level of factor 2 (i.e., impulsive antisociality, which includes lifestyle and behavioral traits) psychopathy. Marion and Sellbom (2011) found that associations between externalizing behaviors (e.g., aggression, impulsivity, substance abuse) and psychopathic traits appeared to be similar between men and women. Results from this study showed that there were stronger associations between psychopathy and aggression, antisocial behavior, and risk-taking behavior for men, whereas women had stronger associations between psychopathy and a lack of empathy.

In the previously mentioned study on the relationship between functional subtypes of aggression and how rumination and gender differences impacted these relationships, the men involved in the study also exhibited higher mean levels of psychopathy than women (Guerra & White, 2017). In addition to higher psychopathy scores, men displayed higher mean levels of aggression and anger rumination. In terms of gender differences, primary psychopathy reduced the secondary psychopathy and reactive aggression relationship, but only for men in the sample (Guerra & White, 2017). Though the pattern in psychopathy scores was consistent with the previous study, there were gender differences across the examined factors (aggression and rumination), which demonstrates more variation across gender in this particular sample.

This ties into research studies in the field that argue that there are distinct gender differences in the core characteristics of psychopathy. A study conducted by Forouzan (2003)

demonstrated that most psychopathic features that can be identified in men could also be found in women; however, there are differences in how these traits are expressed behaviorally, the degree of disorder that is required to be present before symptoms are apparent, and the psychological meaning of behaviors across gender. Regarding behavioral expression, for example, women who were manipulative would demonstrate flirtatious behavior, whereas men were more likely to engage in conning behaviors. Conduct disorder and impulsivity in women were characterized by self-harm behaviors, running away, and manipulation; in men, it was typically characterized by violent behaviors (Forouzan, 2003). Women were also less likely to demonstrate interpersonal symptoms, such as superficial charm, glibness, and grandiose sense of self-worth, unless they were experiencing extreme cases of the disorder. Regarding the psychological meaning of behaviors, women may use something like promiscuous sexual behavior to exploit individuals to obtain social, financial, or narcissistic gain; on the other hand, promiscuous sexual behavior may be underpinned by mating effort or sensation seeking in men (Quinsey, 2002).

Gender biases can impact the assessment of psychopathy as well. One example that plays a role in the assessment of psychopathy is societal norms. For example, it is culturally and socially acceptable for women to have a certain degree of dependency on their family and/or their partner (Forouzan, 2003). If a man were to display the same degree of dependency, it may be viewed as parasitic in nature, which could be due to the fact that men have historically been seen as providers. These differences listed in Forouzan (2003) can impact how psychopathic characteristics are viewed across gender.

For gender equivalence to be obtained across measures, the factor structure must also be equivalent. Cooke and Michie (2001b) were among the researchers who examined the factor

structure of the PCL-R and found that some psychopathy symptoms may not come together to form equivalent syndromes for men and women. Some items (i.e., impulsivity, lack of realistic long-term goals, and poor behavioral controls) did not load onto the traditional two factors for women as it did for men; other items did not load onto any factor (i.e., many short-term marital relationships, failure to accept responsibility, and revocation of conditional release) (Salekin et al., 1997). According to the study, the sample that the instrument was developed with (e.g., incarcerated men) may not generalize to other samples or represent a similar construct. Based on this, the factor structure may need to be refined for women (Cooke & Michie, 2001a; Salekin et al., 1997).

Psychopathy may also look different across diverse samples (e.g., incarcerated versus general population). According to a previous study investigating psychopathic traits and differences between genders in type and correlates of aggressive behaviors in an adjudicated youth population (aged 11-17), both girls and boys in a combined proactive/reactive aggression cluster exhibited the highest levels of impulsivity, aggression, and callous unemotional traits when compared with a group exhibiting moderate levels of reactive aggression (Stickle et al., 2011). In this study, the girls had significantly higher rates of both relational and physical aggression when compared to boys; the girls also displayed this aggression towards both boys and girls, whereas the boys were only extremely aggressive with other boys. The girls in this sample displayed numerous indications of emotionality and severity, which were indicated by higher rates of anxiety, empathy, distress about social provocations, and negative affect (Stickle et al., 2011).

In an undergraduate sample, psychopathy scores were shown to be similar in both men and women; however, men in the sample tended to exhibit traits that were more antisocial,

whereas women displayed personality traits that were more histrionic (Hamburger et al., 1996). Though men and women with psychopathy seem to demonstrate lack of remorse and shallow affect, Logan and Weizmann-Henelius (2012) argued that men usually lacked anxiety, and women were more likely than men to appear as anxious and emotionally unstable. These gender differences could be due to differences in symptom and affect expression (Falkenbach, 2008), but it is not known exactly how these differences manifest within the psychopathy subtypes. Since little is known about these differences between men and women, it is imperative to continue researching these subtypes in varying populations, including emerging adults, where previous research supports the existence of these variants in psychopathy (Falkenbach et al., 2014).

## **Outcomes**

Functional psychopaths can be defined by an expression of particular traits affiliated with psychopathy that help contribute to personal achievements in different aspects of life (e.g., success in an occupational setting) while also subverting adversarial outcomes (e.g., being incarcerated; Hall & Benning, 2006; Benning et al., 2018). The traits that help characterize successful psychopaths are often found among individuals in elite professions – such as CEOs and lawyers – and riskier professions, like first responders (Gao & Raine, 2010; Lilienfeld et al., 2015; Lilienfeld et al., 2016; Patton et al., 2018).

Conversely, individuals categorized as dysfunctional psychopaths tend to have different combinations of these traits when compared with individuals who have higher functioning psychopathy. Dysfunctional psychopaths' inability to properly interpret social and environmental cues plays a huge role in misunderstanding another individual's emotions, predicting danger, and evading capture, which is why these individuals are more likely to be arrested and convicted than

functional psychopaths (Gao & Raine, 2010). Prior research has demonstrated a potential relation between intelligence and the different facets of psychopathy. Criminal behavior has been previously shown to be inversely linked with intelligence (Rushton & Timpler, 2009; Walsh et al., 2004). More specifically, it seems that this holds true for impulsive and reactive behavioral offenses, but not for instrumental offenses that were highly planned (Vitacco et al., 2008; Salekin et al., 2004). Additional research shows that individuals who score higher on interpersonal and affective features of psychopathy (i.e., functional psychopathy) are more intelligent than those who score higher on antisocial and lifestyle features (i.e., dysfunctional psychopathy) (Heinzen et al., 2011; Salekin et al., 2004; Vitacco et al., 2005).

Regarding other outcomes experienced differently by men and women, research also has been conducted on mate preference of men and women displaying either functional or dysfunctional psychopathic characteristics. According to Blanchard et al. (2016), men and women who were evaluated as being higher in primary or secondary psychopathy were deemed unattractive for both short and long-term relationships. However, women who displayed primary psychopathic characteristics preferred partners who were similar regarding long-term mating. Women who were characterized with secondary psychopathy preferred similar partners for both short and long-term mating (Blanchard et al., 2016). Both types of men (i.e., primary and secondary psychopaths) did not prefer similar partners for short or long-term mating. This lack of preference could be due to the men's inability to identify adversarial characteristics of a similar mate. For men with primary psychopathy, this could be due to deficits in cognitive egocentrism or Theory of Mind (Ali et al., 2009; Bresin et al., 2013); for men with secondary psychopathy, negative urgency, anxiety, and the inability to learn from their past mistakes could

play a part in their poor judgement (Whiteside & Lynam, 2001; Wilkowski & Robinson, 2008; Levenson et al., 1995).

### **Current Study**

The goal of the current study was to identify latent profiles of emerging adult college students based on psychopathy (i.e., fearless dominance, self-centered impulsivity, and cold heartedness). Upon identifying the best-supported (i.e., informed by theory and fit indices) solution, the latent profiles were then compared across functional outcomes (i.e., family relations, work adjustment, school performance, life skills, self-concept, social functioning, and risk) and aggression types (i.e., reactive and proactive). These effects also were considered across men and women, given the reported gender differences on psychopathy.

To aid in rationalizing these goals, previous research has used these variables (i.e., fearless dominance, self-centered impulsivity, and cold heartedness) to predict the outcomes of individuals, but fewer studies have utilized a person-centered approach, which can be achieved with latent profile analysis. Additionally, theoretically relevant groups have been hypothesized to exist (i.e., primary and secondary psychopathy), and a goal of this study is to see what groups of individuals with psychopathy are also present in a university sample, where the rate of psychopathic characteristics has been shown to be 4 times higher than in community samples. This data-driven approach was utilized to see if it would reveal these theoretically relevant groups or if different groups would be identified in the university sample instead.

Another goal of the current study was to examine how cognitive and behavioral correlates of psychopathy moderate the associations between psychopathy profiles and functional outcomes and aggression types across gender. Although a wide range of characteristics associated with psychopathy have been investigated by past research (e.g., from structural brain



differences to mate selection as discussed above), the current study selected the most salient cognitive and behavioral correlates. Specifically, the current study examined how executive functioning, empathy, impulsivity, and emotion regulation moderated the associations between psychopathy profiles and functional outcomes across gender.

Based on theory, it is anticipated that a group that has no or low levels of psychopathy, a group that has levels of psychopathy consistent with primary psychopathy (i.e., high in traits assessed other than impulsivity), and a group that has levels of psychopathy consistent with secondary psychopathy (i.e., high in traits assessed including impulsivity) would be identified. Hypothesis 1 stated that men would score higher on psychopathy across profiles compared to women. Hypothesis 2 stated that profiles that are identified as having higher levels of impulsivity would have worse outcomes than groups who are identified as having lower levels of impulsivity. Research has shown that impulsivity contributes to the negative aspects of psychopathy and fearless dominance (which has been linked to educational attainment, executive functioning, and sociability; Patrick, 2006) could be linked to more positive aspects, whereas cold-heartedness has not been shown to be negative or positive (Eisenbarth et al., 2018). Hypothesis 3 stated that women higher in psychopathy would report worse outcomes than men, as suggested by Stickle et al. (2011). Hypothesis 4 stated that cognitive and behavioral correlates would moderate the associations between psychopathy profiles and functional outcomes. Specifically, it was hypothesized that higher executive function and empathy and lower emotion dysregulation and urgency and lack of premeditation/perseverance would ameliorate the negative functional outcomes associated with psychopathy, whereas the opposite trends (i.e., lower executive function and empathy and higher urgency and higher lack of

premeditation/perseverance and emotion dysregulation) would exacerbate negative functional outcomes.

## CHAPTER II

### METHOD

#### **Participants and Procedure**

The current study consisted of 500 emerging adults who were recruited from an online subject pool used for psychological research at a large southern United States university. The sample was majority White, women, and consisted of individuals who grew up in a two-parent household (biological or stepparents). See Table 1 for participant demographic information.

Following university IRB approval, the survey was posted to SONA, a research subject online pool system. Potential participants were provided a description of the study and clicked a link to participate. Participants were provided with an online informed consent form. Questionnaires from the survey were provided in random order. Following completion of the questionnaire or voluntary withdrawal from the study, a printable debriefing form was provided to the participants. Participants were then given class credit for their participation. All participants were treated in accordance with the APA Code of Ethics.

#### **Materials**

##### **Psychopathy**

Psychopathy was assessed using scales from the Psychopathic Personality Inventory-Revised: Short Form (PPI-R: SF; Lilienfeld & Widows, 2005). The PPI-R: SF is a 56-item measure that assesses eight subdomains of psychopathic personality. This measure yields an overall psychopathic personality score and can also be analyzed in three higher-order factors,

including Fearless Dominance, Self-centered Impulsivity, and Cold-heartedness (Lilienfeld et al., 2014). The Fearless Dominance domain includes behaviors such as low fearlessness, low resting stress, and social control. Self-centered Impulsivity includes carelessness, blaming others, ego-driven behavior, and non-conformity. Cold-heartedness is a relatively small domain that focuses on a lack of interest in interpersonal and social issues. Each item is rated on a 4-point Likert type scale including 0 = *False*, 1 = *Mostly False*, 2 = *Mostly True*, and 3 = *True*. Given that research frequently supports two higher-order factors (i.e., fearless dominance and self-centered impulsivity) and sometimes a third factor (cold-heartedness), these three factors were included in an LPA. In the current study, an internal consistency value of .82 was identified for fearless dominance, .76 was identified for self-centered impulsivity, and .77 was identified for cold-heartedness.

### **Executive Function**

The Comprehensive Executive Function Inventory Adult (CEFI Adult; Naglieri & Goldstein, 2017) scale consists of 80 items used to assess executive functions in individuals 18 and older. The CEFI Adult consists of a full-scale measure and nine subscales including Attention, which describes how well individuals can concentrate on tasks, avoid distractions, and sustain attention; Emotion Regulation, which indicates management and control of emotions; Flexibility, which reflects how well an individual can adjust his or her behavior to circumstances; Inhibitory Control, which is the ability to control impulses or behavior; Initiation, which indicates how an individual begins projects or tasks on his or her own; Organization, which is the ability to manage work, personal effects, or multitask; Planning, which describes how well an individual can create and implement strategies to accomplish tasks; Self-Monitoring, which is the ability to evaluate behavior and determine when another approach is

necessary; and Working Memory, which indicates how well an individual can retain information in his or her mind that is important for knowing what to do and how to get it done. According to Naglieri and Goldstein (2017), data from this measure for reliability and validity indicate strong psychometric qualities. A single score was utilized to assess executive function as indicated by factor analyses conducted by Naglieri and Goldstein (2013). In the current study, an internal consistency value of .93 was identified for this measure.

## **Empathy**

The Interpersonal Reactivity Index (IRI; Davis, 1980) consists of 28 statements that assess the individual's cognitions and affect in a variety of contexts. The IRI is a multidimensional self-report measurement of empathy examining Perspective-Taking (PT; the tendency for someone to adopt the view of others), Fantasy (FS; ability to transpose themselves into a fictional characters' place), Empathic Concern (EC; a measure of affective empathy), and Personal Distress (PD; the discomfort one feels when another is in distress). These four factors were derived from factor analysis (Davis, 1983). Participants endorse items ranging from 0 (*does not describe me well*) to 4 (*describes me very well*). Scores are derived by summing the number for each item. Items include statements such as *I try to look at everybody's side of a disagreement before I make a decision* (PT), *I daydream and fantasize, with some regularity, about things that happen to me* (FS), *I am often quite touched by things that I see happen* (EC), and *I tend to lose control during emergencies* (PD). The internal reliability for this questionnaire ranges from .70 to .78. Test-retest reliability ranges from .61 to .81 (60 to 75 days). Davis (1983) reports that when compared to previous empathy measures for concurrent validity, the correlations range from .37 to .63. In this study, the IRI was used to measure empathy. As indicated by factor analyses completed by Chrysikou and Thompson (2015), the Perspective-

Taking, Fantasy, and Empathic Concern domains were used as a single score of empathy, leaving out Personal Distress. In the current study, an internal consistency value of .83 was identified for this measure.

### **Impulsivity**

The Short Impulsive Behavior Scale (S-UPPS-P; Cyders et al., 2014) is a 20-item scale used to measure impulsivity in individuals. The scale consists of five distinct facets of impulsivity, including Negative Urgency (e.g., *When I am upset I often act without thinking*), Positive Urgency (e.g., *I tend to lose control when I am in a great mood*), Lack of Perseverance (e.g., *Unfinished tasks really bother me*), Lack of Premeditation (e.g., *I like to stop and think things over before I do them*), and Sensation Seeking (e.g., *I quite enjoy taking risks*). These items are rated on a 4-point Likert scale including 1 = *agree strongly*, 2 = *agree some*, 3 = *disagree some*, and 4 = *disagree strongly*, and some of the items are reverse scored. The internal consistency of this measure has ranged from acceptable to good with a Cronbach's alpha between .70 and .81 (Dugré et al., 2019) and good external validity (Cyders et al., 2014). Three scores were derived from the S-UPPS-P; Positive Urgency and Negative Urgency were combined into an urgency score, Lack of Premeditation and Lack of Perseverance were combined into a score (reversed), and Sensation Seeking was left separate, as indicated by factor analysis conducted by Cyders et al. (2014). In the current study, an internal consistency value of .85 was identified for urgency, a value of .85 was identified for lack of premeditation/perseverance, and a value of .71 was identified for sensation seeking.

## **Emotion Dysregulation**

The Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) was used to assess emotion dysregulation. Items are rated on a 5-point scale including 1 = *almost never*, 2 = *sometimes*, 3 = *about half the time*, 4 = *most of the time*, and 5 = *almost always*. The measure contains six scales including nonacceptance (e.g., *when I'm upset, I become angry with myself for feeling that way*), difficulty engaging in goal-directed behavior (e.g., *when I'm upset, I have difficulty getting work done*), impulse control difficulties (e.g., *I experience my emotions as overwhelming and out of control*), lack of emotional awareness (e.g., *I pay attention to how I feel* [reversed]), limited access to emotion regulation strategies (e.g., *when I'm upset, I believe that I will remain that way for a long time*), and lack of emotional clarity (e.g., *I have no idea how I am feeling*). Prior research supports the use of the DERS total score (i.e., summing all items/scales) as a reliable and valid measure of overall emotion regulation difficulties (Gratz et al., 2006). In the current study, an internal consistency value of .88 was identified for this measure.

## **Impairment**

The Weiss Functional Impairment Rating Scale – Self Report (WFIRS-S; Weiss, 2000) is a 69-item measure developed for use with adults that assesses impairment in numerous aspects of life. The items are rated using a 4-point Likert scale ranging from *never or not at all* to *very often or very much*. The domains on the scale include family relations (e.g., *causing fighting in the family*), work adjustment (e.g., *problems with your supervisor*), school performance (e.g., *problems with your teachers*), life skills (e.g., *problems managing money*), self-concept (e.g., *not feeling happy with your life*), social functioning (e.g., *trouble cooperating*), and risk (e.g., *doing things that are illegal*). According to previous research, the WFIRS-S has excellent internal consistency, test-retest reliability, and concurrent validity (Weiss, 2000; Epstein & Weiss, 2012;

Canu et al., 2016). In the current study, an internal consistency value of .96 was identified for this measure.

### **Aggression**

The Reactive-Proactive Aggression Questionnaire (RPQ; Raine et al., 2006) is a 23-item measure that was used to evaluate reactive (e.g., *yelled at others when they have annoyed you*) and proactive (e.g., *used physical force to get others to do what you want*) aggression. Responses include 0 = *never*, 1 = *sometimes*, and 2 = *often*. The RPQ has demonstrated good reliability and validity in prior research (Raine et al., 2006) and has been validated for use with adults in forensic and non-forensic settings (Brugman et al., 2016). In the current study, an internal consistency value of .86 was identified for proactive aggression, and a value of .82 was identified for reactive aggression.



## CHAPTER III

### RESULTS

#### **Preliminary Analyses**

Missing data occurred at a rate of less than 2% and was handled with multiple imputation; such a low rate of missingness is highly unlikely to affect analyses (Bennett, 2001; Schafer, 1999). Data were found to be within normal limits regarding normality and multicollinearity (Kline, 2016).

#### **Descriptive Statistics**

Mean comparisons across gender are shown in Table 2. Men, compared to women, reported significantly higher levels of fearless dominance, self-centered impulsivity, and cold-heartedness on the PPI-R: SF. Additionally, men reported significantly higher sensation-seeking and proactive aggression levels than women in this study. Women, compared to men, reported significantly higher levels of emotion dysregulation and empathy.

Table 3 displays correlations by gender. Generally, the three psychopathy scales (i.e., fearless dominance, self-centered impulsivity, and cold-heartedness) are mostly orthogonal with no or very low correlations between them. Some, but not all, of the psychopathy scales correlated strongly with some of the correlates being examined (e.g., self-centered impulsivity with urgency and lack of premeditation/perseverance; fearless dominance with sensation seeking).

Additionally, fearless dominance was positively correlated with the CEFI, but self-centered impulsivity and cold-heartedness were negatively correlated with the CEFI. For women, fearless

dominance indicated less impairment, but it did not predict aggression in the sample. Self-centered impulsivity indicated more impairment and aggression in the sample, whereas cold-heartedness was unrelated to impairment, but it predicted proactive aggression. For men, self-centered impulsivity indicated more impairment as well as proactive and reactive aggression in the sample. Fearless dominance and cold-heartedness did not approach significance.

### **Latent Profile Analysis**

AMOS 28.0 was used to conduct Bayesian LPA with Markov Chain Monte Carlo simulation to identify profiles of emerging adults based on their reported psychopathy from the PPI-R: SF, consistent with Costa et al. (2013). LPA identifies latent profiles based on observed continuous variables (Muthén and Muthén, 2000). Solutions tested included 2 through 6 profiles using approximately 55,500 samples and were statistically compared against the Gelman et al. (2004) and AMOS 28.0 convergence criteria (i.e., does the solution fit well), posterior predictive *p*-value (i.e., is the solution likely to be reproduced upon resampling), and Nagin's (2005) criterion of posterior probabilities of correct class assignment (i.e., are cases accurately grouped, similar to entropy provided by other programs). These fit statistics favor solutions with fewer groups (i.e., parsimony) and often identify multiple statistically fitted models. Thus, theoretical rationale substantively guides the decision to select a particular solution among statistically competitive models (Berlin et al., 2014).

### **Psychopathy LPA**

As shown in Table 4, the 3- through 6-group solutions demonstrated poor convergence and thus were rejected. Overall, the 2-group solution demonstrated excellent fit to the data, high

likelihood of being reproduced upon resampling, and accurate classification of over 83% of the sample, indicating that this solution is statistically superior.

As shown in Figure 1, the groups supported by the 2-group solution were labeled as low in psychopathic characteristics (lower fearless dominance, self-centered impulsivity, and cold-heartedness) and high in psychopathic characteristics (higher fearless dominance, self-centered impulsivity, and cold-heartedness). Based on the 2-group solution, the three groups that were anticipated to be found based on theory (no or low levels of psychopathy, levels of psychopathy consistent with primary psychopathy, and levels of psychopathy consistent with secondary psychopathy) were not all identified; groups that were identified in the sample include a group that was low in psychopathy and a group that was higher in psychopathy.

### **Functioning LPA**

As shown in Table 4, the 5- and 6-group solutions demonstrated poor convergence and thus were rejected. The 2- through 4-group solutions converged, had a high likelihood of being reproduced upon resampling, and accurate classification of over 85% of the sample, indicating that these three solutions are statistically valid. Although the 4-group solution was statistically valid, it was rejected because it produced a group with a small amount of participants. The 3-group solution seemed theoretically plausible; however, it was also rejected to avoid further reductions in power since the primary focus of this study is psychopathic characteristics rather than a higher number of potentially interesting functioning groups which would result in smaller cell sizes. The 2-group solution was selected, and the percent of the sample classified was equal to 71%.

As shown in Table 4, the groups supported by the 2-group solution were labeled as healthy (higher executive function and lower empathy, reactivity, urgency, lack of

premeditation/perseverance, and emotion dysregulation) and unhealthy (higher empathy, reactivity, urgency, lack of premeditation/perseverance, and emotion dysregulation and lower executive function). The LPA initially identified 327 individuals in the low psychopathy group and 173 individuals in the high psychopathy group. After using Nagin's criterion of posterior probabilities of correct class assignment, 299 individuals were left in the low psychopathy group, and 116 were left in the high psychopathy group. Based on this, 85 individuals were not classified from the total sample.

### MANOVA

SPSS 28.0 was used to conduct a MANOVA with psychopathy profile membership and gender as independent variables (2 x 2) and the three psychopathy variables (fearless dominance, self-centered impulsivity, and cold-heartedness) as dependent variables to test hypothesis 1.

Partial  $\eta^2$  served as the measure of effect size for the MANOVAs, where values of .01 to .04, .04 to .14, and greater than .14 are considered small, medium, and large, respectively (Cohen, 1988).

A large multivariate effect was observed for psychopathy profiles, Wilks'  $\lambda = .29$ ,  $F(3, 409) = 327.86$ ,  $p < .001$ , partial  $\eta^2 = .70$ . As shown in Table 5, all univariate effects across the psychopathy profiles were significant, ranging from medium to large.

A medium multivariate effect was observed for gender, Wilks'  $\lambda = .94$ ,  $F(3, 409) = 8.38$ ,  $p < .001$ , partial  $\eta^2 = .06$ . As shown in Table 5, all univariate effects across gender were significant and higher in men than women; all effects across gender were small (between .01 and .04). A significant multivariate effect was not observed for the interaction between psychopathy profiles and gender, Wilks'  $\lambda = .96$ ,  $F(3, 409) = 2.03$ ,  $p = .11$ , partial  $\eta^2 = .02$ . As shown in Table 5, a small univariate effect was found for self-centered impulsivity. When the low functioning group was examined, there were no notable differences between self-centered impulsivity in

women and men; however, when the high functioning group was examined, women had higher levels of self-centered impulsivity than men. Based on these findings, hypothesis 1 is partially supported (i.e., men scored higher across cold-heartedness and fearless dominance profiles than women, but this pattern was not found for self-centered impulsivity).

## MANCOVA

SPSS 28.0 was used to conduct a MANCOVA with psychopathy profile membership, functioning profile membership, and participant gender as independent variables (i.e., 2 x 2 x 2 design); race, parental education, and age as covariates; and functional outcomes (WFIRS) and reactive and proactive aggression (RPQ) as dependent variables.

The independent variable of gender and its interactions, as well as the covariates of race, parental education, and age were not significant, so they were dropped from the model to improve parsimony, resulting in a final 2 (psychopathy profiles) x 2 (functioning profiles) design. A medium multivariate effect was observed for the psychopathy profiles, Wilks'  $\lambda = .92$ ,  $F(3, 348) = 10.36$ ,  $p < .001$ , partial  $\eta^2 = .08$ . As shown in Table 6, a medium univariate effect for proactive aggression indicated that individuals who were in the low psychopathy group had lower proactive aggression than the high psychopathy group, which is in support of hypothesis 2. Failing to support hypothesis 2, differences were not observed across psychopathy profiles for reactive aggression or outcomes observed on the WFIRS.

Hypothesis 3 was not supported as evidenced by gender and its interactions not having any significant effects in this MANCOVA and therefore being dropped from the analyses. This finding suggests that women with higher psychopathy did not statistically differ on outcomes compared to men higher in psychopathy.

Although no hypothesis was made regarding functioning profiles, a large multivariate effect was observed for functioning profiles, Wilks'  $\lambda = .74$ ,  $F(3, 348) = 39.92$ ,  $p < .001$ , partial  $\eta^2 = .26$ . As shown in Table 6, all univariate effects across the WFIRS and RPQ were significant, ranging from medium to large. The high functioning group had lower impairment as well as lower reactive and proactive aggression than the low functioning group.

A medium multivariate effect was observed for the interaction between psychopathy and functioning profiles, Wilks'  $\lambda = .96$ ,  $F(3, 348) = 4.82$ ,  $p < .01$ , partial  $\eta^2 = .04$ . As shown in Figure 2 and in support of hypothesis 4, higher psychopathy was not associated with higher proactive aggression when functioning was high; however, higher psychopathy was associated with higher proactive aggression in the low functioning group. This finding suggests that higher functioning could buffer against the effects of psychopathy on proactive aggression. Failing to support hypothesis 4, no interactions were observed when examining the WFIRS or RPQ reactive aggression.

## CHAPTER IV

### DISCUSSION

The goal of the current study was to identify latent profiles of emerging adult college students based on psychopathy and compare the profiles across functional impairment and aggression types using a person-centered approach. Additionally, the current study aimed to examine how cognitive and behavioral correlates of psychopathy moderate the associations between psychopathy profiles and functional outcomes and aggression types across gender. Overall, two psychopathy profiles were supported, where high functioning behavioral/cognitive correlates appeared to act as a buffer against proactive aggression in the profile with higher psychopathy scores.

It was hypothesized that men in the current sample would score higher on psychopathy across profiles compared to women. Based on the results, hypothesis 1 was partially supported (i.e., men scored higher across cold-heartedness and fearless dominance profiles than women, but this pattern was not found for self-centered impulsivity, where women scored similarly or higher). Overall, the results generally demonstrated what was expected for this hypothesis. As previously mentioned, analyzing gender differences in psychopathy can be complex due to mixed findings in the literature. A previous study that partially supports the current findings is Miller et al. (2011); these researchers found that men did have higher psychopathy scores than women, with two exceptions including traits that were related to impulsivity and openness. Based on the findings, there were stronger correlations between these two factors in women with

a higher level of factor 2 (i.e., impulsive antisociality, which includes lifestyle and behavioral traits) psychopathy (Miller et al., 2011).

These findings can also tie into previous research stating that the factor structure for psychopathy measures must be equivalent for men and women. The traditional PPI-R two factor model (i.e., fearless dominance and self-centered impulsivity) was originally validated on samples exclusively comprised of men (Benning et al., 2003; Neumann et al., 2008). Due to this, it is not surprising when this two-factor model poorly fits data when both men and women are included in studies, as mentioned by Anestis et al. (2011). Additionally, Salekin et al. (1997) utilized data of women offenders and compared it with Hare et al.'s (1990) initial sample that only included men. Based on this study, only four of the nine items that made up Factor 2 (i.e., socially deviant behaviors related to psychopathy) loaded appreciably for women, whereas seven of the eight items comprising Factor 1 (i.e., interpersonal and affective aspects of psychopathy) were able to be replicated. Cooke and Michie (2001b) identified that impulsivity was one of the items that did not load onto the traditional two factors for women. If this is still the case, it could impact how these scores are interpreted regarding gender.

Hypothesis 2 stated that profiles identified as having higher levels of impulsivity would have worse outcomes than groups identified as having lower levels of impulsivity. This hypothesis was partially supported, as individuals who were in the low psychopathy group had lower proactive aggression than the high psychopathy group; failing to support hypothesis 2, differences were not observed across psychopathy profiles for reactive aggression or outcomes observed on the WFIRS. Overall, the results did not fully demonstrate what was expected for this hypothesis. Previous research has shown that impulsivity contributes to negative aspects of psychopathy (Patrick, 2006), one of which could be aggression. Individuals who were low in



psychopathy in the current study also demonstrated lower proactive aggression, which may indicate that these individuals would be less likely to utilize aggressive behaviors to manipulate individuals to get what they desire.

As previously stated, the current study did not find any significant differences across profiles for reactive aggression or outcomes. This was not entirely surprising, as functional and dysfunctional psychopathic groups were not identified in the sample. If these populations were identified in the current sample as they were in previous studies (e.g., Gao & Raine, 2010), it is possible that significant differences in reactive aggression and outcomes would have been identified.

Additionally, research on the relationship between psychopathy and proactive and reactive aggression is still being established today. According to Hecht et al. (2016), the association between reactive aggression and psychopathy is less established than the relationship between proactive aggression and psychopathy. In a study conducted by Woodworth and Porter (2002), approximately 6.7% of the homicides that were committed by men with psychopathy who were incarcerated were deemed reactive; according to the same study, 71.8% of homicides committed by those without psychopathy were deemed as reactive. In Hecht et al.'s (2016) study, they utilized the Levenson Self-Report Psychopathy Scale (LSRP; Levenson et al., 1995) to assess psychopathy, which yields two factor-analytically derived scores (i.e., primary and secondary psychopathy) which map onto the traditional two-factor structure of the PCL-R; they also utilized the RPQ to assess for proactive and reactive aggression. According to Hecht et al.'s (2016) results, self-reported psychopathy was associated broadly with proactive aggression and was also associated with reactive aggression, but to a lesser extent; psychopathy explained 15-21% of the variance in proactive aggression, but only 5% of the variance was explained with

reactive aggression. These findings are consistent with the PPI-R's predecessor (i.e., the PPI; Lilienfeld & Andrews, 1996), which found that psychopathy was positively associated with proactive aggression, but not reactive aggression (Cima & Raine, 2009). Based on these results, it is possible that individuals with high psychopathy scores may be less likely than other individuals to engage in reactive aggression; this is another potential explanation for why reactive aggression, though found to be significant in other studies, was not significant in the current study.

Hypothesis 3 stated that women higher in psychopathy would report worse outcomes than men, as suggested by Stickle et al. (2011). This was not supported, as evidenced by gender and its interactions not having any significant effects, which suggests that women with higher psychopathy did not statistically differ on outcomes compared to men higher in psychopathy. Though a difference between genders was anticipated, it is possible that a notable difference was not identified due to the population sampled in the current study. Stickle et al. (2011) sampled adolescents who had been found guilty of a delinquent act; though some individuals in the current sample may have experienced legal troubles, it is possible that the severity of the legal troubles experienced may not have been as intense as the sample previously discussed, which could impact the generalizability of the results. This could also be tied into the research discussing differences in symptom and affect expression between men and women and how it is still relatively unknown how the differences manifest in psychopathy subtypes (Falkenbach, 2008; Falkenbach et al., 2014). If the manifestation of symptoms is unknown, it may impact how the outcomes for men and women are viewed.

Hypothesis 4 stated that higher executive function and empathy and lower emotion dysregulation and urgency and lack of premeditation/perseverance would ameliorate the negative

functional outcomes associated with psychopathy, whereas the opposite trends would exacerbate negative functional outcomes. In support of hypothesis 4, higher psychopathy was not associated with higher proactive aggression when functioning was high, whereas higher psychopathy was associated with higher proactive aggression in the low functioning group. This finding suggests that higher functioning could buffer against the effects of psychopathy on proactive aggression.

Failing to support hypothesis 4, no interactions were observed when examining the WFIRS or RPQ reactive aggression. Overall, the results did not fully demonstrate what was expected for this hypothesis. The current findings do not fully exemplify previous research in the field displaying differences in characteristics like emotional manipulation and aggression subtypes between psychopathic groups (e.g., Burns et al., 2015; Fite et al., 2009). This can be related back to the fact that functional and dysfunctional psychopathic groups were not identified in the current study, which may contribute to why differences in outcomes and reactive aggression were not identified. The previously stated research regarding the relationship between reactive aggression and psychopathy could also play a role in why there were not significant differences identified across profile types (e.g., Cima & Raine, 2009; Hecht et al., 2016). Additionally, as stated previously, the nature of college requires some level of success and appropriate functioning, although a wide range of functioning is represented in college samples (Bravo et al., 2018; Bruffaerts et al., 2018; Conley et al., 2018). A potential explanation for the lack of significance in functional outcomes could be due to the nature of how the sample was obtained. An online participant pool was utilized to get college student subjects to participate in this research, as previously described. College students receive course credit for the completion of studies, such as this one. It is possible that the students who chose to participate have less impairment in certain aspects of their lives (e.g., school performance, social functioning) than

individuals who chose to not participate to receive course credit; if this is the case, it could aid in the explanation for why there were not significant differences in outcomes observed across profiles.

### **Implications and Limitations**

Though utilizing a college sample can introduce limitations into the study (e.g., not generalizable to the whole population), there was a strength component associated with this sample. As previously mentioned, university samples have been shown to have higher rates of psychopathic characteristics than community samples (8.1% vs. 1.9%, respectively), as demonstrated by Salekin et al. (2001). Due to the higher rates found in college samples relative to community samples, it was anticipated that it would be more likely that psychopathic characteristics could be identified in this sample of college students. Additionally, the current study found that high functioning may plausibly ameliorate high levels of proactive aggression in individuals who score higher on psychopathy measures; in other words, individuals who had higher scores on functioning and psychopathy measures did not score high on measures assessing proactive aggression, suggesting that functioning could buffer against the effects psychopathy has on proactive aggression. This link should be evaluated by more rigorous research to assess evidence stronger than associations.

These findings suggest implications for the treatment and assessment of emerging adults experiencing psychopathic characteristics. For example, interventions that target functionality across multiple domains (e.g., family relationships, school/work, self-concept) could potentially help individuals scoring higher on psychopathy measures to reduce certain things like proactive aggression tendencies. Reducing aggression could potentially help these individuals to not

engage in activities that would possibly get them in trouble (e.g., using force to get what they desire).

Despite the strengths of the study, limitations should be noted. For instance, this sample was limited to college students from a large southern United States university, and the participants were majority White, women, and consisted of individuals who grew up in a two-parent household (biological or stepparents). Utilizing self-report measures can subject the results obtained to the limitations inherent in these methods, including self-report bias. The cross-sectional design also prevents the interpretation of causality in the observed variables. Additionally, the lack of functional versus dysfunctional psychopathy groups (specific to self-centered impulsivity being high versus low across groups, as previously mentioned) was surprising. It is possible that individuals experiencing more functional or dysfunctional psychopathic characteristics may not have participated due to the nature of the study. For example, it is possible that individuals with dysfunctional characteristics may not be organized enough to remember to participate in research where participation is a requirement for certain courses. Individuals who may possess more functional characteristics may avoid the study due to the description, or they may deliberately choose answers that do not pertain to them, purposefully deceiving the researcher and altering the data collected. Additionally, the sample was recruited through the PRP system, which greatly limited the amount of individuals who had access to the study; this could be another limiting factor due to the very small population of individuals who were able to participate, which could have further impacted the recruitment of participants who could have displayed more functional or dysfunctional characteristics.

The findings related to psychopathic characteristics may also be impacted by the PPI-R: SF; while other psychopathy measures investigate fearless dominance, self-centered impulsivity,

and coldheartedness, it is difficult to compare the findings from the study to other research since this measure has not been utilized as often. While findings may be comparable, it is difficult to equate them with findings from other studies due to the lack of normative data for this measure.

In the future, it may be beneficial to screen for functional and dysfunctional psychopathic characteristics, potentially at young ages. As demonstrated in previous research (e.g., Kimonis et al., 2016; Waller et al., 2017) these traits are able to be reliably assessed in children as young as 3 years old, with these traits typically remaining stable into adult life. If this is the case, early screening could allow children who demonstrate these characteristics to get assistance by aiding them in learning ways to control the characteristics they possess. By providing assistance, it is possible that these individuals could avoid negative outcomes currently linked with psychopathic characteristics (e.g., going to jail, not being able to form relationships). Additionally, future research should continue to investigate how psychopathic characteristics are displayed across gender. Continuing to research the differences in psychopathic characteristics displayed by men and women can aid in identifying appropriate factor structures, which can assist future researchers in properly identifying functional and dysfunctional characteristics among men and women.

### **Conclusion**

The current study aimed to identify latent profiles based on a highly validated psychopathy measure and compare them across behavioral/cognitive correlates, functional outcomes, and types of aggression. Gender differences were also examined in the study in an effort to contribute to the literature on how men and women may differ across commonly identified psychopathic characteristics.

The results demonstrated that men scored higher across cold-heartedness and fearless dominance profiles, but this did not occur for self-centered impulsivity. The low psychopathy group had lower proactive aggression than the high psychopathy group, but differences were not observed for reactive aggression or outcomes. Additionally, men and women did not significantly differ regarding experienced outcomes when reported psychopathy was high. Lastly, higher psychopathy was not associated with higher proactive aggression when functioning was high, whereas higher psychopathy was associated with higher proactive aggression when functioning was low; however, no interactions were observed when examining outcomes or reactive aggression. Continuing to research gender differences can aid in identifying appropriate factor structures for psychopathy measures, which can assist future researchers in properly identifying functional and dysfunctional characteristics among men and women. Additionally, identifying these characteristics early and providing intervention could ameliorate maladaptive traits, which could lead to individuals experiencing better outcomes.

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APPENDIX A  
DESCRIPTIVE STATISTICS



Table A1

*Participant Demographics*

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Age

Range = 18 to 26

$M = 19.75, SD = 1.87$

Gender

58.4% women

41.6% men

Race

77.8% White or European American

15.0% Black or African American

3.0% Asian or Asian American

2.2% Hispanic, Latino, or Latinx

2.0% Other

Living in parental household

Two parent (biological or step) 76.8%

Single parent 17.8%

Grandparents 2.4%

Aunt(s) and/or Uncle(s) 0.6%

Other 2.4%

<u>Parent's highest degree</u>	<u>Maternal Figure</u>	<u>Paternal Figure</u>
Graduate	4.2%	6.2%
Master's	22.0%	17.4%
Bachelor's	37.8%	33.8%
Associate's	11.8%	8.8%
High school	21.4%	29.0%
< High school	2.8%	4.8%

Table A2

*Mean Comparisons*

	<u>Women (n = 292)</u>		<u>Men (n = 208)</u>		<i>t</i>	<i>Cohen's d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
PPI Fearless Dominance	15.45	3.32	17.38	3.12	6.56**	.60
PPI Self-Centered Impulsivity	13.15	2.90	13.69	2.95	2.05*	.19
PPI Cold-Heartedness	12.64	3.47	15.70	4.21	8.60**	.81
Urgency	8.48	2.60	8.75	2.67	1.15	.11
Lack of Premed/Persevere	7.06	2.08	7.09	2.04	0.15	.01
Sensation Seeking	10.01	2.88	11.40	2.75	5.44**	.49
DERS Total	98.08	18.24	93.30	18.90	-2.84**	-.26
IRI Total	96.90	12.17	87.93	13.14	-7.86**	-.71
CEFI Total	263.04	34.62	258.70	36.72	-1.35	-.12
WFIRS Total	38.04	26.60	36.61	27.72	-0.58	-.05
RPQ Proactive Aggression	13.46	2.68	14.02	3.05	2.14*	.20
RPQ Reactive Aggression	18.28	3.83	18.40	4.02	0.34	-.15

*Note.* \*\* indicates significant difference between women and men mean scores at  $p < .01$ , \* indicates significant difference between women and men mean scores at  $p < .05$ . PPI = Psychopathic Personality Inventory, Premed/Persevere = Premeditation/Perseverance, DERS = Difficulties in Emotion Regulation Scale, IRI = Interpersonal Reactivity Index, CEFI = Comprehensive Executive Function Inventory, WFIRS = Weiss Functional Impairment Rating Scale – Self Report, RPQ = Reactive-Proactive Aggression Questionnaire.

Table A3

*Correlations among Variables*

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. PPI Fearless Dominance	--	.21**	.04	-.03	-.14*	.64**	-.20**	-.11	.31**	-.13	.09	.01
2. PPI Self-Centered Impulsivity	.13*	--	.06	.52**	.35**	.24**	.25**	.08	-.31**	.51**	.43**	.37**
3. PPI Cold-Heartedness	.15**	.19**	--	.04	.08	.08	-.20**	-.55**	-.22**	.11	.09	.02
4. Urgency	-.06	.56**	.04*	--	.19**	.17*	.41**	.19**	-.26**	.37**	.25**	.36**
5. Lack of Premed/Persevere	.02	.46**	.27**	.33**	--	-.20**	.11	-.01	-.53**	.39**	.35**	.23**
6. Sensation Seeking	.59**	.27**	.07	.13*	.01	--	-.07	-.02	.30**	-.02	-.03	.07
7. DERS Total	-.18**	.43**	-.11	.45**	.21**	-.02	--	.41**	-.10	.42**	.10	.27**
8. IRI Total	-.28**	-.07	-.56**	.04	-.09	-.15*	.25**	--	.04	.10	-.15*	-.02
9. CEFI Total	.17**	-.25**	-.18**	-.30**	-.40	.09	-.04	.13*	--	-.29**	-.20**	-.14*
10. WFIRS Total	-.16**	.47**	-.001	.44**	.38**	-.04	.49**	.11	-.24**	--	.31**	.39**
11. RPQ Proactive Aggression	.12*	.41**	.26**	.24**	.38**	.003	.21**	-.14*	-.12*	.32**	--	.44**
12. RPQ Reactive Aggression	-.06	.33*	.11	.34**	.17**	.03	.31**	.001	-.22**	.39**	.44**	--

*Note.* \*\* indicates  $p < .01$ , \* indicates  $p < .05$ . Correlations for men and women appear above and below the diagonal, respectively. PPI = Psychopathic Personality Inventory, Premed/Persevere = Premeditation/Perseverance, DERS = Difficulties in Emotion Regulation Scale, IRI = Interpersonal Reactivity Index, CEFI = Comprehensive Executive Function Inventory, WFIRS = Weiss Functional Impairment Rating Scale – Self Report, RPQ = Reactive-Proactive Aggression Questionnaire.

APPENDIX B

FIT INDICES FOR LATENT PROFILE ANALYSES

Table B1

*Fit Indices for Psychopathy and Functioning Latent Profiles*

Psychopathy Solutions

	Convergence statistic	Posterior predictive <i>p</i>
2-Profile Solution	1.0012	.56
3-Profile Solution	1.0186	.58
4-Profile Solution	1.0238	.59
5-Profile Solution	1.0232	.61
6-Profile Solution	1.0232	.62

Functioning Solutions

	Convergence statistic	Posterior predictive <i>p</i>
2-Profile Solution	1.0002	.59
3-Profile Solution	1.0003	.61
4-Profile Solution	1.0007	.63
5-Profile Solution	1.0243	.64
6-Profile Solution	1.0242	.65

## APPENDIX C

### UNIVARIATE EFFECTS FROM MULTIVARIATE ANALYSES OF VARIANCE

Table C1

*Univariate Effects of Psychopathy Profiles and Gender on PPI Subscales*

PPI Scale	Gender <i>F</i> (partial $\eta^2$ )	Interaction <i>F</i> (partial $\eta^2$ )	PPI (Low) <i>F</i> (partial $\eta^2$ )	PPI (High) <i>M</i> ( <i>SD</i> )	Total <i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )
Cold-heartedness	572.16(.58)**	8.31(.02)**	.03(< .01)			
Men				12.04(2.24)	19.46(3.01)	15.78(4.57)
Women				11.20(2.49)	18.52(1.92)	12.15(3.45)
Total				11.44(2.45)	19.21(2.78)	13.61(4.32)
Fearless Dominance	509.66(.12)**	9.65(.02)**	.37(< .01)			
Men				16.11(2.99)	18.65(2.57)	17.38(3.06)
Women				14.74(3.24)	17.73(2.48)	15.13(3.30)
Total				15.12(3.22)	18.39(2.57)	16.03(3.39)
S-C Impulsivity	89.23(.18)**	5.12(.01)*	5.51(.01)*			
Men				12.48(2.33)	14.75(3.04)	13.62(2.94)
Women				12.45(2.62)	16.23(2.00)	12.94(2.85)
Total				12.46(2.54)	15.16(2.86)	13.21(2.90)

*Note.* Univariate  $F(1, 409)$ . \*\*indicates  $p < .01$ , \* indicates  $p < .05$ . S-C Impulsivity = Self-Centered Impulsivity.

Table C2

*Univariate Effects of Psychopathy Profiles and Functioning Profiles on Impairment and Aggression Types*

PPI Scale	Function <i>F</i> (partial $\eta^2$ )	Interaction <i>F</i> (partial $\eta^2$ )	PPI (Low) <i>F</i> (partial $\eta^2$ )	PPI (High) <i>M</i> ( <i>SD</i> )	Total <i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )
WFIRS Total	2.96(< .01)	93.93(.21)*	0.47(< .01)			
Low Fun.				21.99(15.07)	55.78(35.20)	51.33(29.41)
High Fun.				48.65(25.06)	25.05(15.62)	22.61(15.18)
Total				34.95(24.46)	46.41(33.65)	38.35(27.96)
RPQ Proactive	26.91(.07)*	43.72(.11)*	13.87(.04)*			
Low Fun.				13.38(1.84)	15.97(4.37)	14.36(3.28)
High Fun.				12.54(1.02)	12.97(.97)	12.63(1.02)
Total				12.95(1.53)	15.06(3.92)	13.58(2.67)
RPQ Reactive	0.70(< .01)	39.18(.10)*	0.98(< .01)			
Low Fun.				19.28(4.05)	20.15(4.86)	19.61(4.38)
High Fun.				16.81(2.82)	16.73(3.70)	16.79(3.00)
Total				18.01(3.68)	19.11(2.82)	18.34(4.06)

*Note.* Univariate  $F(1, 350)$ . \* indicates  $p < .01$ . WFIRS = Weiss Functional Impairment Rating Scale – Self Report, RPQ = Reactive-Proactive Aggression Questionnaire, and Fun. = Functioning.

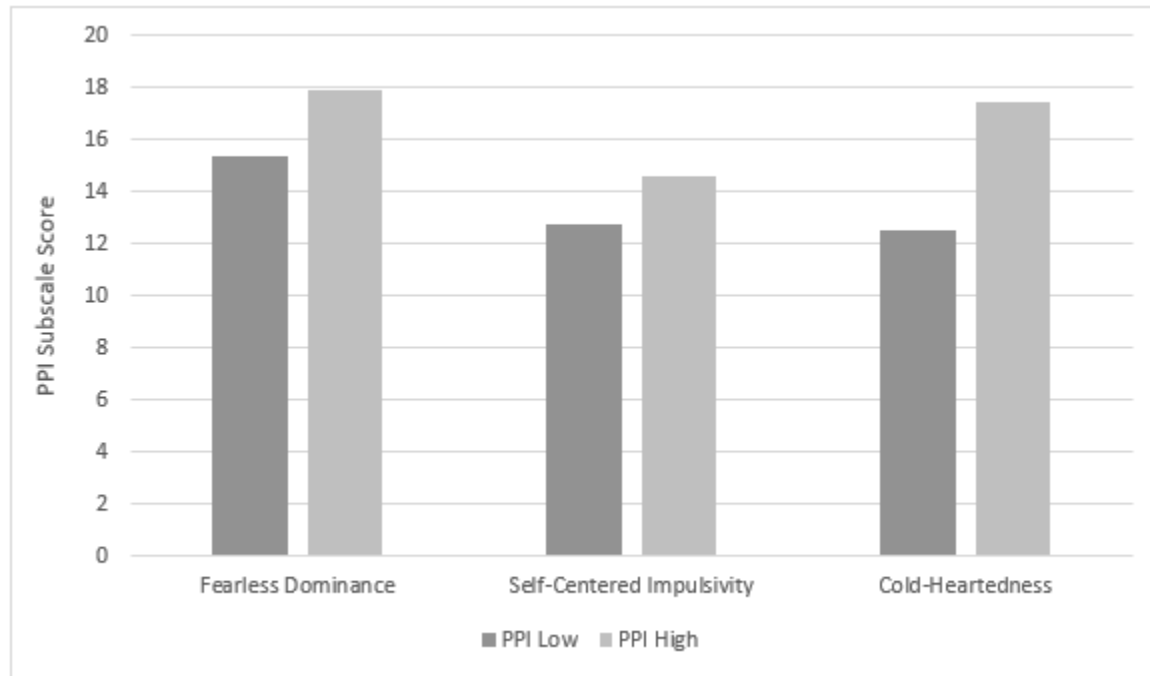


APPENDIX D

PSYCHOPATHY CHARACTERISTICS ACROSS PROFILES

Figure D1

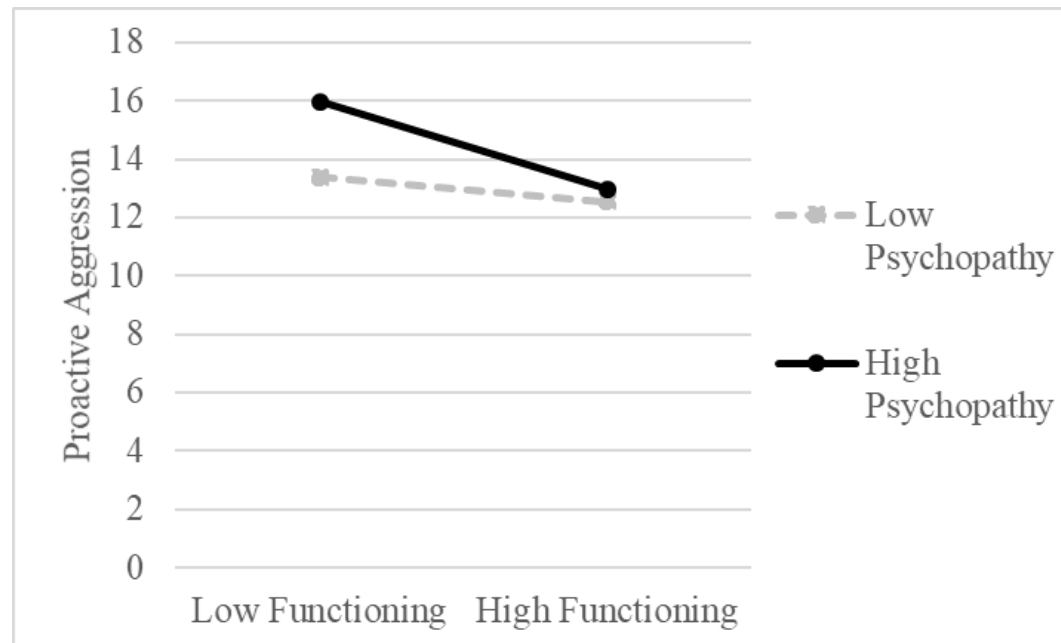
*Psychopathy Characteristics Across Profiles*



APPENDIX E  
SIGNIFICANT INTERACTION EFFECTS

Figure E1

*Interaction Effect of Psychopathy Profiles by Functioning Profiles on Proactive Aggression*



APPENDIX F

HUMAN SUBJECTS INSTITUTIONAL REVIEW BOARD APPROVAL

**NOTICE OF DETERMINATION FROM THE HUMAN RESEARCH PROTECTION PROGRAM**

**DATE:** March 05, 2021  
**TO:** Clifford McKinney, PhD, Psychology, Hilary DeShong, Eric Winer  
Hilary DeShong, Psychology, Lydia Stanhope, Psychology, Eric Winer, Psychology  
**PROTOCOL TITLE:** Functional Psychopathy  
**FUNDING SOURCE:**  
**PROTOCOL NUMBER:** IRB-21-015  
Approval Date: March 05, 2021                      Expiration Date: March 04, 2026

**EXEMPTION DETERMINATION**

The review of your research study referenced above has been completed. The HRPP had made an Exemption Determination as defined by 45 CFR 46.101(b)2. Based on this determination, and in accordance with Federal Regulations, your research does not require further oversight by the HRPP.

Employing best practices for Exempt studies is strongly encouraged such as adherence to the ethical principles articulated in the Belmont Report, found at [www.hhs.gov/ohrp/regulations-and-policy/belmont-report/#](http://www.hhs.gov/ohrp/regulations-and-policy/belmont-report/#) as well as the MSU HRPP Operations Manual, found at [www.erc.msstate.edu/humansubjects](http://www.erc.msstate.edu/humansubjects). As part of best practices in research, it is the responsibility of the Principal Investigator to ensure that personnel added after this Exemption Determination notice have completed IRB training prior to their involvement in the research study. Additionally, to protect the confidentiality of research participants, we encourage you to destroy private information which can be linked to the identities of individuals as soon as it is reasonable to do so.

Based on this determination, this study has been inactivated in our system. This means that recruitment, enrollment, data collection, and/or data analysis CAN continue, yet personnel and procedural amendments to this study are no longer required. **If at any point, however, the risk to participants increases, you must contact the HRPP immediately. If you are unsure if your proposed change would increase the risk, please call the HRPP office and they can guide you.**

If this research is for a thesis or dissertation, this notification is your official documentation that the HRPP has made this determination.

If you have any questions relating to the protection of human research participants, please contact the HRPP Office at [irb@research.msstate.edu](mailto:irb@research.msstate.edu). We wish you success in carrying out your research project.

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**Review Type:** EXEMPT  
**IRB Number:** IORG0000467