EXPLORING THE RELATIONSHSIPS AMONG DARK PERSONALITY AND BASIC AFFECTIVE TRAITS

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by
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Abstract

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This study aimed to explore the associations between a broad range of dark personality and affective traits with the intention of further developing the affective properties of dark personality. Seeing as most studies have focused on unitary trait measures of dark personality or higher order feelings, there was room for improvement in developing their affective nomological network. Specifically, the study examined relationships among psychopathy, narcissism, Machiavellianism, sadism, and spite in conjunction with basic affective traits derived from the affective neuroscience personality scales (Davis & Panksepp, 2011). An evolutionary perspective was used to develop clarity for the emotional language present and as a general starting point for emotional understanding. The methodology consisted entirely of self-report typical in personality research. Controlling for sex differences, correlations between the dark personality traits and affective traits showed that angry and caring feelings were most consistently associated with dark personality. Overall, this advanced the literature by giving a detailed account of how a broad range of basic feelings are related to socially aversive temperaments.

Table of Contents

Abstract iv

Table of Contents v

List of Tables vi

List of Figures vii

Exploring the Relationships Among Dark Personality and Basic Affective Traits 1

Difficulties in Affective Science: What is an Emotion? 1

Evolutionary Views on Emotion and Personality 5

Dark Personality and Emotion 17

The Current Study 24

Methods 26

Results 29

Discussion 33

References 40

Appendix 81

Vita 96

List of Tables

Table 1. Panksepp's Criteria for Defining Basic Emotional Brain Systems 84

Table 2. Key Brain Areas and Chemistries for Basic Emotional Systems 85

Table 3. Basic Affective Trait Descriptions 86

Table 4. Predicted Correlations for the Study.....87

Table 5. Descriptive Statistics for All Variables 89

Table 6. Correlations Among ANPS Traits 90

Table 7. Correlations Among Dark Personality Traits 90

Table 8. Pearson Correlations Among Dark Personality and ANPS Traits.....91

Table 9. Sex Difference Among ANPS and Dark Personality Traits 92

Table 10. Multilevel Correlations Controlling for Sex 93

Table 11. Correlations Among Dark Personality and ANPS Traits for Females 94

Table 12. Correlations Among Dark Personality and ANPS Traits for Males.....94

Table 13. Depiction of Which Hypotheses Were Supported Based on Correlations 95

Table 14. Depiction of Which Hypotheses Were Supported After Controlling for Sex ...95

List of Figures

Figure 1. Graphical Depiction of Combinatory Approaches to Emotional Theories 81

Figure 2. Graphical Depiction of Emotion as a Functional State 82

Figure 3. Convergent Evidence Available for Testing Hypothesized Adaptations 83

Figure 4. Demographic Questions Asked at the End of the Survey 88

Exploring the Relationships Among Dark Personality and Basic Affective Traits

Why do people differ in the way they behave? Some behave more aggressively than others, while some seem very concerned with the well-being of those around them. Surely, there are several different motivational factors. Perhaps they consistently act this way for material gain, or perhaps they want others around them to believe they are good. These external factors are good motivators, but what internal reasons may be involved? One key motivational force lies in the power of emotion. Derived from the Latin term *emovere*—meaning "to move"—emotions are an inescapable pressure inspiring people to act. Personality psychology has long been interested in understanding the emotional components of people's consistent behavior (Davis & Panksepp, 2018). This is a logical conclusion. If people are behaving in consistent ways over time, then perhaps there are consistent motivational forces that perpetuate those behaviors. This relationship is well understood and well-integrated in lexical models of personality (e.g., the Big Five). However, there has been a recent burgeoning of interest in other personality models that do not conform to the lexical structure. Quite a few of these models can be found in a research area revolving around "dark" personality. Unfortunately, compared to the lexical models, emotion has not been investigated with the same detail in dark personality traits. The goal of this study was to shed light on the affective components involved in dark personality and establish an affective nomological network around these traits.

Difficulties in Affective Science: What is an Emotion?

Emotion researchers coming from different scientific traditions have long been at odds with each other and the continuing debate has resulted in little consensus. Some have characterized this ebb and flow as a "Hundred Year War" (Lindquist et al., 2013) and many

have offered solutions for creating peace. Needless to say, no proposal has been completely successful. Indeed, like other psychological constructs, determining how to conceptualize emotion has been difficult to pin down. It is for these reasons that I feel compelled to specify what emotional framework was used here and the basis for selecting it. So, the rest of this section will be dedicated to briefly explaining some different ways of looking at emotion and evidence pertaining to the chosen framework. As a disclaimer, since the purpose of this study was not to solve the problems of emotion science, I have not provided an extensive review of everything about emotion.

Any aspiring emotions expert will find that there are quite a few theoretical perspectives on emotion. As a truly cross-discipline research area, there have been a range of theories from pure social constructivism to radically reductionist biology (e.g., Adolphs & Anderson, 2018; Al-Shawaf et al., 2015; Barrett, 2006, 2017; Cannon, 1927; Damasio, 1994, 2018; Darwin, 1872; Ekman, 1992; Izard, 2007; James, 1884; LeDoux, 1994, 1996, 2012; Leventhal & Scherer, 1987; Moors et al., 2013; Panksepp, 1998, 2005; Panksepp & Biven, 2012; Russell, 2003; Scarantino, 2009; Zajonc, 1980). On one extreme, the "read-out" theories have trouble establishing boundary conditions due to difficultly in comparing emotional constructs across cultures and languages (Fiske, 2020). Comparably, purely physiological emotional constructs have similar issues when comparing emotions across phyla (Adolphs & Anderson, 2018). As always, the answer likely lies in some compromise between the two. This is how the field has ended up with combinatory approaches to emotional theory. These types of approaches typically depict emotion as some combination of physiology, behavior, thoughts, and conscious feeling experience (see Figure 1).

At a glance, the combinatory approach makes good sense. It allows theorists to sow together different fields of study in hopes of making a unified theory. Bacon (1620) developed this same scientific principle called *inductivism* long ago. This principle is the basis of the scientific method and was further developed into what Wilson (1998) called *consilience*. However, while modern psychological theories (e.g., appraisal theories; see Moors et al., 2013 for a review) have recognized that emotional states arise from physiological processes, they rarely invoke physiological criteria for developing constructs. Ultimately, there is a good reason for why this happens. That is, people simply do not know enough about higher order emotions (e.g., elation or regret) to create good physiological criteria (Barrett, 2017). This is compounded by the fact that most psychological and anthropological research on emotions must be conducted at the level of conscious experience. While research at this level of analysis is important (in fact, that is the level of analysis here), theories based on this level of analysis can become disconnected from more functional or fundamental aspects of emotion. Based on that premise, I am arguing that researchers should be attentive in selecting a framework that fits their goals. If their interest involves looking at "feeling" constructs that are seemingly unique to humans, languages, and cultures (e.g., schadenfreude; Barrett, 2017; Fiske, 2020), then they should likely work with the corresponding framework. On the other hand, if a researcher is interested in human universal constructs, then they may want to take a different approach.

Generally speaking, the goal here concerns connecting more foundational affective processes to human personality. More specifically, affective processes that we can more readily deem to be *adaptations* in the evolutionary sense of the word. It is for this reason that I decided to use an evolutionary framework here developed by Adolphs and Anderson (2018)

(Adolphs, 2017; Adolphs & Andler, 2018; Anderson & Adolphs, 2014). In addition to supporting the interests of the study, I have also specified this framework for the sake of clarity in the rest of the document. This framework is *not* a theory about what emotions are or how they work per se. Rather, this framework aims to develop our understanding of emotion by taking a *functional* perspective that more easily compares emotion across disciplines and cultures. How does the functional approach allow for this? It allows for this because all features of an emotion (e.g., physiology, subjective reports, behavior, cognition, valence) can be examined in relation to some central emotional state (see Figure 2). So, instead of basing criteria from only a couple vantage points (psychological, physiological, cognitive, behavioral, etc.), we can define the emotion by its functional role. A clear analogy is provided by Adolphs and Anderson (2018) themselves.

> We actually have lots of functional definitions we encounter in everyday life. Consider a clock. If I asked you to tell me what a clock is, you would hopefully not begin by saying, "well, it has to have a pendulum and gears inside," or, except as a joke, "a clock is something that weighs 1.2 pounds." Definitions like that would immediately exclude most clocks, including my computer's clock and atomic clocks. So what's a clock? It's a device that measures time. That's a functional definition. (p. 40)

As this paper proceeds, I have used the term "emotion" to characterize the central functional state, whereas the term "feeling" was reserved for the conscious cognitive representation of the functional state. The term "affect" was used as a blanket term that encapsulates a broad range of emotional experiences (e.g., moods, feelings, and emotions). Further, the

methodology used to examine affective traits within this study was conducted at the *feeling* level of analysis, which is most common for psychological research.

Evolutionary Views on Emotion and Personality

Emotions as Adaptations and Pankseppian Affective Neuroscience

Evolutionary views on emotion have been entertained ever since the publication of Darwin's (1872) *The Expression of the Emotions in Man and Animals*. The concepts in this book were expanded upon in psychology by Ekman (1973), who mainly studied emotions based on their role as communicative signals. However, there have been good critiques of this basic emotions theory (e.g., Barrett et al., 2019; Ortony, 2021). For this reason, evolutionary psychology has moved away from defining emotions based on their ability to display distinctive signals (Al-Shawaf et al., 2015; Nelson & Russell, 2013). Modern views of emotion in evolutionary psychology tend to see emotions as functional adaptations that coordinate physiological, cognitive, and behavioral processes to solve adaptive problems (Al-Shawaf et al., 2015; Tooby & Cosmides, 1990, 2008). For example, in same way that the eye-blink reflex (the adaptation) evolved to protect the eye from being damaged (the adaptive problem), emotions seem to be similarly designed to meet adaptive challenges. At this point, it may be helpful to clarify what exactly I mean by an adaptation. There are many things in evolution that are not adaptations but seem like they are (e.g., byproducts, exaptations). It is for this reason that there is a perpetually evolving list of criteria for devising *hypothesized* adaptations (see Figure 3; Schmitt & Pilcher, 2004). Of note, the validity of an adaptation as a biological system must involve a fair amount of converging evidence and the mechanism should be conserved among *almost* all humans of one sex. Further, adaptations should (a) not be too costly for the organism to maintain, (b) show some precision in solving the adaptive

problem, (c) reliably solve the problem, and (d) reliably develop within a given species (Al-Shawaf et al., 2020; Hagen, 2015, 2020; Lewis et al., 2017; Tooby & Cosmides, 2015; Williams, 1966). Broadly speaking, it is likely that something arose as an adaptation—rather than by chance alone—if it met these criteria for human ancestors within the *environment of evolutionary adaptedness* (EEA; i.e., the Pleistocene), if it was conserved across related taxa (e.g., eye-blink reflex is present across species), and if it appears across cultural boundaries. All this points to evidence of natural functional design which has so far been best explained by the theory of natural selection (Darwin, 1859).

The reason emotions are good working candidates for adaptations is because they often meet much of these criteria. To illustrate, certain emotions like "fear" tend to be present in all cultures and mammals as demonstrated by physiological, anthropological (e.g., hunter-gather societies), cultural (e.g., cultural artifacts), phylogenetic, historical, and psychological convergent evidence (Ansah, 2014; Keats, 1848; LeDoux, 1996; Pontius, 2002). When compared to other hypothesized adaptations that are human specific (e.g., language; Pinker & Bloom, 1990), the proposal of said adaptation becomes much weaker. It is here that my optimism about more complex feelings being adaptations diverges from what other evolutionary psychologists have suggested (e.g., guilt; Al-Shawaf et al., 2015). Not only because these hypothesized—human specific—adaptations are unable to invoke arguments of *strong vertical homology* (i.e., these adaptations are lacking in other animals; Smith, 2019), but also because they are not well established as appearing across other cultures (Barrett et al., 2019; Fiske, 2020). A finding posited by cognitive theorists pointing out that there are strong cultural and language influences on these kinds of feelings (Barrett, 2017; Lim, 2016; Shaver et al., 1992). Thus, while these feelings could be human specific

adaptations, it is difficult to rule out that complex feelings are instilled by some general learning mechanism. A separate adaptation that Skinner described in his views on human evolution (Skinner, 1984; Wilson et al., 2014)

One basic emotions view that is rarely discussed in critiques of basic emotion theories (e.g., Crivelli & Fridlund, 2019; Parrott, 2010; Sabini & Silver, 2005; Scarantino, 2015; Scarantino & Griffiths, 2011; Turner & Ortony, 1992)—which prefer to focus on Ekman's (1973) work—is that of Panksepp's (1998) *affective neuroscience theory*. Rather than emphasizing the communicative function of emotion, Panksepp favored an emotional taxonomy derived from the behavioral and physiological properties of emotions. Ultimately, he developed a neuroevolutionary theory of emotions congruent with the functional perspective described above (i.e., Adolphs & Anderson, 2018). There is an overwhelming amount of convergent evidence that supports the working taxonomy of seven basic emotions that Panksepp was comfortable to put forth (Davis & Panksepp, 2018; Panksepp & Biven, 2012). Originally, these emotions were defined by a set of physiological and behavioral criteria (see Table 1). As such, each emotion maintains a unique behavioral, anatomical, and chemical configuration. These seven emotions are SEEKING, LUST, PLAY, CARE, PANIC, RAGE, and FEAR (Panksepp, 1998; Panksepp & Biven, 2012). The all caps favored by affective neuroscience theory attempts to indicate that these terms should not be conflated with their folk psychology usage, while still maintaining some of the heuristic power that colloquial English provides (see Fiske, 2020 for a review on the challenges with emotional language in science).

First, SEEKING can be described as an emotion that functions to propel a mammal's interest in the environment. This coincides with behaviors like foraging, exploration, and

forward locomotion. As the most general-purpose system, it appears to influence global arousal and permits the integration of other emotional states into intentional behavior (Alcaro et al., 2007; Wright & Panksepp, 2012). The physical system that constitutes SEEKING is nearly synonymous with the highly studied mesocorticolimbic pathway—a circuit that has gone by many different names (e.g., the behavioral activation system, the wanting system, the reward system; Berridge et al., 2009; Berridge & Robinson, 2016; Depue & Collins, 1999; Gray, 1987; Oishi & Lazarus, 2017). This brain system starts in the periaqueductal gray matter (PAG) of the midbrain and extends dorsally to the ventral tegmental area (VTA) before moving rostrally toward the nucleus accumbens (NA). Along this main trajectory, other connections meet with the lateral hypothalamus, anterior cingulate cortex, and orbitofrontal cortex. Chemically, a hallmark of this system is denoted by the many dopaminergic cell groups (e.g., A8, A9, and A10) that modulate its function (German & Manaye, 1993; for a review of this system see Alcaro et al., 2007 or Panksepp & Moskal, 2008).

Moving on to LUST, the function of this emotion is to modulate the motivation and desire to mate. Contrary to the well-known phrase, “survival of the fittest” (Spencer, 1864), sexual selection is the most powerful form of selection within sexually reproducing species (Petrie, 2021). For if an organism does not reproduce, then survival is not such an impressive feat from the Darwinian perspective. It is for this reason that mammals developed a motivational system whose function was to influence their engagement in mating behaviors. The physical system necessary for this emotion is somewhat distinct for males and females, likely contributing to the differences in sexual arousal between men and women (Canli & Gabrieli, 2004; Chivers, 2005; Chivers et al., 2004; Holmes et al., 2021; Knoth et al., 1988;

Rupp & Wallen, 2008; Suschinsky & Lalumière, 2011; Suschinsky et al., 2009). The overlapping anatomy includes excitatory connections from the ventromedial hypothalamus (VMH) to the ventral PAG. On top of that, more dorsorostral connections move through the bed nucleus of the stria terminalis (BNST), cortico-medial amygdala, preoptic area (POA), and septum (for reviews see Pfaff, 1999 and Hashikawa et al., 2016). Hormonally, luteinizing-hormone releasing hormone (LHRH) signals testosterone production in adult males and estrogen/progesterone production in females. However, both sexes receive excitatory modulation of this system from vasopressin and oxytocin (Holley et al., 2015; Mac Cionnaith et al., 2020).

The purpose of PLAY is to motivate the social interaction, social learning, and internalization of social rules. Similar to children laughing with their peers, adolescent rats have specific 50-hz ultrasonic vocalizations that accompany rough-and-tumble play and other positive emotions (Burgdorf et al., 2020; Knutson et al., 2002). This is not to say that PLAY is absent in adults. Rather, the adaptive function of PLAY may be primarily geared toward childhood development. While the anatomical arrangement of PLAY has not been entirely worked out, there does seem to be some agreement about certain structures. In accordance with the sensorimotor aspects of PLAY, it appears that the parafascicular area of the thalamus (PFA; Siviy & Panksepp, 2011) is a necessary structure in conjunction with more ventral diancephalic brain areas (e.g., the hypothalamus) and the PAG (Siviy, 2016; Siviy & Panksepp, 2011; Vanderschuren, 1997; Vanderschuren et al., 2016). Excitatory neurotransmitters specific to this system include glutamate, acetylcholine, and in small amounts, opioids (Achterberg et al., 2019; Panksepp et al., 1985).

Considering CARE, the function of this emotion is most closely associated with nurturing offspring and encouraging caring responses to genetic relatives. Since caring for offspring has disproportionately been the responsibility of females, this system has been most studied within that sex. However, it is worth mentioning there is a great deal of diversity within mammals in the amount of parental investment that is dedicated to rearing children (e.g., human males invest much more into offspring compared to other primates; Storey & Ziegler, 2016; see Royle et al., 2012 for a detailed review of parental care evolution). That being said, the physiology seems to be quite similar throughout. The circuitry in caring behavior involves axons from the medial preoptic area (MPOA)/BNST that send inhibitory signals to the PAG, VTA, and paraventricular nucleus of the hypothalamus (PVN) that ultimately activate approach behaviors via the NA and reticular formation (for a review see Kohl et al., 2017 or Numan & Insel, 2003). This system is modulated primarily by oxytocin, prolactin, and dopamine, which are all excitatory chemistries for the associated behaviors (Kohl et al., 2017; Numan & Insel, 2003; Storey & Ziegler, 2016).

The purpose of PANIC appears to be eliciting care responses from conspecifics and has been primarily emphasized within the parent-child social relationship (Bornstein et al., 2017; Swain et al., 2007). In this case, one can see how an emotion maintains a communicative function that elicits emotive responses from others (Hofer et al., 1998; Kim et al., 2011; Ordóñez-Gómez et al., 2019; Seifritz et al., 2003; Swain et al., 2017). For instance, with PANIC, there is often an immediate communicative mechanism that goes alongside it. Most parents will have experience with this mechanism and can likely still conjure up memories of their child crying in their crib. Otherwise, if the reader has ever had a litter of a cats, then they have likely seen the mother respond to vocalizations (known as

isolation calls) from the newborn kittens. There are even cross-species cases of dogs showing separation distress when their owners depart (Bradshaw et al., 2002; Storengen et al., 2014). The brain circuit involved in producing this emotion involves the PAG and continues rostrally through the dorsomedial thalamus (DMT), BNST, medial anterior cingulate cortex, and POA (for a review see Panksepp, 2011; Panksepp, 2003; Freed et al., 2009). This system is also highly innervated with the lacrimal nuclei that mediate tear production in the lacrimal gland just above the eye (Bylsma et al., 2019). Whilst oxytocin and prolactin have excitatory effects on the CARE system, these chemistries tend to have inhibitory effects on the PANIC system. The main excitatory hormone of the PANIC system is corticotropin-releasing hormone (CRH), a hormone that is often cited as accompanying stress (e.g., Smagin et al., 2001).

The primary concern of RAGE is to thwart encroachment on a creature's physical freedom, resources (e.g., food or mates), or territory. Effectively, this allows mammals to protect themselves, offspring, and maintain their ability to survive. This emotion is closely associated with the reactive aggression that emerges from unexpected circumstances (Blanchard & Blanchard, 2003; Ramirez & Andreu, 2006). This is contrast to aggressive action that is motivated by more positive feelings (Međedović, 2017; Chester et al., 2018). For example, female lions—who do all the hunting for their cubs—will display predatory SEEKING-like aggression (Aleyasin et al., 2018) when stalking prey. However, this is not emotionally charged by RAGE such as the aggression displayed when defending her cubs from an unfamiliar male lion. This rage is mediated by connections that run rostrally from the PAG to the perifornical hypothalamus, as well as the connections from the medial amygdala to the BNST. Less is known about the chemical modulators of the RAGE system, but there

does seem to be consensus on excitatory molecules like acetylcholine, glutamate, and substance P (see Guerra et al., 2011; for a detailed review see Seigel, 2005).

Likely the most researched emotion to date, the function of FEAR has long been understood as motivating mammals to avoid harm. This emotion plays a large part in the lives of humans. Clinical disorders related to feeling fear—such as anxiety disorders and specific phobias—are some of the most prevalent across the world (Alonso, et al., 2007; Baxter et al., 2013; Baxter et al., 2013). Since truly inducing fear in humans can come at great costs, there have been well developed animal models for studying fear learning in animals (e.g., fear conditioning via electric shock). In conjunction with human imaging, people have developed a good understanding of the neural substrates that produce fear (Johansen et al., 2011; LeDoux, 2014; LeDoux & Pine, 2016; Mobbs et al., 2007; Mobbs et al., 2010). The FEAR system is principally made up of the connections running from the central and lateral amygdala to the medial hypothalamus and PAG (see Panksepp et al., 2011). These structures receive sensory information both directly from the cortex and thalamus, but these structures are not necessary or sufficient for inducing fear responses via deep brain stimulation (Davis et al., 2010; LeDoux, 1996). Meanwhile, there are a host of hormones and neurotransmitters that activate FEAR including glutamate, CRF, cholecystokinin, alpha-MSH, and neuropeptide Y (LeDoux & Pine, 2016 see Table 2 for a summary of emotional brain systems).

Evolutionary Views on Personality and the Affective Neuroscience Personality Scales

Since Cattell (1945, 1956) offered the use of factor analysis to develop his 16-personality factor questionnaire, personality psychology has emerged as a mature field over the last 70 years. Shortly after that time, there were a number of studies that indicated those

same trait adjectives (originally used by Allport, 1936) were more replicable within a five-factor structure (Digman & Takemoto-Chock, 1981; Norman, 1963; Tupes & Christal, 1961). This eventually produced a model that came to be known as the five-factor model of personality (Goldberg, 1990; McCrae & Costa, 1987). Today, lexical models of personality have been refined to include newer six-factor models and hierarchical models that help researchers understand individual differences at higher levels of resolution (Ashton & Lee, 2005; DeYoung et al., 2007). All of these models of personality have demonstrated their predictive power in a number of different life outcomes (Hampson et al., 2006; Roberts et al., 2007; Soto, 2019). Additionally, personality psychology methodology has been an important part of developing assessment tools for clinical and social psychological research.

Although the first paragraph discussed the highlights of personality psychology developed during the cognitive revolution, there have always been biological and evolutionary accounts in the periphery. For prudence, I will mention that the cognitive (i.e., language based) models of personality are in no way incongruent with what evolutionary psychology expects (Buss, 1991, 2009; Buss & Penke, 2015; Figueirdo et al., 2005; Figueirdo., 2009; Lewis et al., 2020; Michalski & Shackelford, 2010; Nettle, 2006; Reale et al., 2010; Smither, 1993). This is illustrated by the fact that scientists have created models of personality with the same methodology for animals and non-speaking humans (Bennet et al., 2017; Evans et al., 2021; Freeman & Gosling, 2010; Gosling, 2008; Gosling & John, 1999; Weiss, 2017; Zupancic, 2003). The difference for evolutionary viewpoints is that they view personality as emerging from the adaptations that govern behavioral output (Lukaszeski et al., 2020) As *required* for natural selection to occur, the variability of a given adaptation is part of why there are individual differences in personality, intelligence, and behavior. As an

example, one could consider an adaptation like the emotion FEAR. Something that we know about FEAR is that proneness to fearful experience varies from person to person (Pineles et al., 2009). So, because FEAR—the behavior regulating mechanism in this case—varies from person to person, it partially influences the variation in peoples' descriptions of personality. By this line of reasoning, the adaptationist framework for personality hypothesizes how adaptations can be analogs for explaining personality differences based on how these differences are manifested in language (Lukaszeski et al., 2020).

Although he never quite articulated it in modern evolutionary psychology terms, Panksepp essentially came upon the same conclusion in his goal to expand the neurological understanding of emotion to human personality (for an in-depth review see Davis & Panksepp, 2018). In doing so, he helped develop an evolutionary biological model of personality (Davis et al., 2003; Davis & Panksepp, 2011). Recently, these kinds of models have not received much attention within personality psychology (for current directions in personality psychology see Roberts & Yoon, 2022). Some of the more prominent examples of the past include the work of Eysenck (1967) and Cloninger (1986, 1987) which perhaps were the last ones to garner much attention. Interestingly, there is the exception of Gray's (1970) personality model involving the behavioral activation and inhibition systems (Wilson et al., 1990; Carver & White, 1994). However, this model has been favored more so by developmental psychologists studying *temperament,* than personality psychologists wanting to understand the basis of adult personality (e.g., Blair et al., 2004; Bjornebekk et al., 2010; Colder et al., 2011; Colder et al., 2004; Van Meter et al., 2015; Vervoort, 2015). The reason for this is likely because purely biological models of personality are somewhat limited in the cognitive characteristics of human behavior compared to the lexical models. That being said,

the bottom-up theoretical guidance provided by biological models offers an extra bit of convergent evidence that supports their validity in comparison to top-down models that use a purely cognitive approach. Even though researchers can investigate biological correlates of the cognitively oriented models, their ability to map onto human biology becomes quite complicated across cultures. This is part of the reason why theories must be edited in response to new biological findings. That is, it is typically the case that psychology has to adjust its theories to new neurological findings that conflict with the current ideas about how people operate. On the other hand, starting from the biological perspective may offer the opportunity for psychological theories to grow in relation to biological findings as opposed readjusting with new results. Moreover, the evolutionary perspective theoretically should produce more cross-culturally valid concepts of human personality seeing as this is a focus of the field (Saad, 2020).

As alluded to previously, one example comes from the personality model derived from affective neuroscience theory. The Affective Neuroscience Personality Scales (ANPS; Davis & Panksepp, 2001; Davis et al., 2011) were designed to capture the relative influence of biological systems on people's description of emotional experience. So, in this case, it would be expected that the feelings people experience are cognitive elaborations of the functional affective mechanisms described above. Since the feelings that people describe in language are not necessarily exactly the same as the functional mechanisms regulating behavior, the ANPS traits are treated as separate from the biological systems themselves. Hence the reason why some of the construct names are adjusted to match the parlance of everyday language more closely. These emotional traits are listed as SEEKING, LUST, PLAY, CARE, SADNESS, ANGER, and FEAR. Trait descriptions can be found in Table 3.

These scales have been used in a wide variety of studies of personality ranging from clinical science to predicting food choice preferences (see Montag et al., 2021 for a review; Orri et al., 2017; Marengo et al., 2021; Knezevic et al., 2020; Montag & Davis, 2018; Montag et al., 2016; Montag et al., 2016; Montag & Panksepp., 2017).

The traits within the ANPS have been shown to be quite cross-culturally valid and the instrument has been translated into a number of different languages including both eastern and western syntax—something that has challenged the five-factor model in some respects (Church et al., 2011; Ozkarar-Gradwohl, 2019; Ozkarar-Gradwohl & Turnbull, 2021). A recent meta-analysis showed that women in 15 different countries—both WEIRD (Western, educated, industrialized, rich, and democratic societies; Heinrich et al., 2010) and non-WEIRD—tend to score universally higher on the CARE, SADNESS, and FEAR traits, whereas there were no differences between genders on the other traits (save maybe LUST because this trait is rarely examined; Ozkarar-Gradwohl & Turnbull, 2021). These traits are also moderately heritable, insinuating that the emotional adaptations are passed on via the basis of natural selection—genetic transmission (Montag et al., 2016). The ANPS traits have also been predictive of various clinical disorders based on how the corresponding systems were expected to influence personality when those systems operate on extremes (Fuchshuber et al., 2019a, 2019b; Malcolm-Smith et al., 2013; Savitz et al., 2008a, 2008b; Wernicke et al., 2019). To illustrate, depressed patients reported higher SADNESS and FEAR, and lower SEEKING and PLAY scores compared to control conditions (Montag et al., 2017). As for personality disorders, avoidant personality disorder is associated with lower ANGER, SEEKING, and PLAY, while maintaining positive correlations with FEAR. Additionally,

borderline personality disorder is positively associated with SEEKING, ANGER, and SADNESS (Karterud et al., 2016).

Dark Personality and Emotion

Dark personality refers to a constellation of traits that are considered to be generally socially aversive (Marcus & Zeigler-Hill, 2015; Zeigler-Hill & Marcus, 2016). These traits often depict interpersonal styles that do not conform to societally sanctioned guidelines for morality. As an example, consider the villains from a television show, book, or movie. These villains are often self-centered, vengeful, impulsive, and act in accordance with their own interests even if their behavior appears to be noble on the surface. Although there is no strict list of personality traits that have been deemed purely socially aversive, there are some that are well agreed upon. Usually, these traits are the ones that have been deemed antagonistic. The three that have been more intensely investigated are those within the *dark triad*—narcissism, psychopathy, and Machiavellianism (Furnham et al., 2010). However, there are more recent additions that have garnered some attention. Specifically, with the advent of scales to measure them, there has been an emerging field of study on sadism and spitefulness (Johnson et al., 2019; Marcus et al., 2014). The relationships among these traits with emotionality varies depending on the trait in question. While some of these traits have partially integrated feeling characteristics as a part of their constructs (e.g., narcissism), others have very little information about the feelings that they are associated with. It is for this reason that each of these are discussed individually.

Psychopathy

Psychopathy is a personality disposition that was mostly popularized after Cleckley's (1941) psychiatric synthesis of the construct in his book *The Mask of Sanity.* The book

formally outlined the initial clinical description of psychopathic personality based on the psychiatrists' interviews with institutionalized men. Although this book was influential in developing an understanding of psychopathic personality, it would not be widely researched with modern methodology until Hare (1980) developed a clinical assessment that could be used by researchers across the world. This assessment tool is now widely known as the Psychopathy Checklist (Hare, 1980). It was clear from these early developments that psychopathy—based on the male inmates that were studied—involved emotional processes that deviated from the average person. Specifically, the original psychopathy checklist contains symptoms reflecting "lack of remorse or guilt," "proneness to boredom," and "lack of affect" (Hare, 1980). Today, the Psychopathy Checklist has been revised numerous times in response to new findings and has influenced the clinical conceptualization of the psychopathic personality (Cooke et al., 2007; Hare et al., 1990; Neumann et al., 2007; Patrick et al., 2007). In the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition,* psychopathy has been recognized as a distinct variant of antisocial personality disorder marked by the addition of low anxiety and bold interpersonal style (5th ed.; DSM–5; American Psychiatric Association, 2013). Again, the emphasis on emotionality, but this time with infrequent anxious feelings.

That being said, personality psychology has extended the clinical understanding of psychopathic personality toward dimensional models as opposed to diagnostic criteria (Edens et al., 2006; Hudziak et al., 2007; Kotov et al., 2017; Krueger et al., 2002; Wright, 2009). An approach that has begun to grow more rapidly in clinical research. From this, the structure of psychopathy has been understood as maintaining two factors (Douglas et al., 2012; Marcus et al., 2013; Patrick et al., 2006; Salekin et al., 2014). The first factor, primary psychopathy, has

been characterized by callousness and interpersonal behaviors like manipulativeness. The second factor, aptly named secondary psychopathy, has been characterized by impulsive, risky, and antisocial behaviors reminiscent of those found in antisocial personality disorder (Ogloff, 2006). At this point, it is worth saying that there are other models of psychopathy (e.g., evolutionarily based triarchic models or five-factor models; Evans & Tully, 2013; Lynam & Miller, 2015; Somma et al., 2016). And, like the lexical models, there is always debate about which ones are the most valid. Nonetheless, this paper will largely deal with the two-factor model because it is the most common, but other models will be mentioned and explained as they arise.

As it pertains to affect, it was mentioned that psychopathy was originally conceptualized with affect (or lack thereof) in mind, so it is no wonder that affect has been a point of interest in further developing the construct. For example, the claim that psychopathy involves an inability to experience fear has cropped up over the years. Seemingly based on the theoretical guidance of Lykken (1957), these claims stem from a series of studies that involved exposing male inmates—who scored on the higher in end of psychopathy—to a variety of fearful stimuli including electric shocks, images, and loud tones (Blankenstein, 1969; Dengerink & Bertilson, 1975; Hare, 1978, 1982; Hare et al., 1978; Hare & Thorvaldson, 1970; Hare & Quinn, 1971; Ogloff & Wong, 1990; Patrick et al., 1993). From these studies, it was found that these men responded less fearfully to the stimuli compared to control samples or low psychopathy inmates. However, there have been recent studies that provide a more nuanced explanation of this deficit (see Hoppenbrouwers et al., 2016 for a review; Newman & Brinkley, 1997). Namely, modern cognitive research has connected the deficit in fear responses to the ability to attend fear stimuli rather than the capacity to

experience fear itself (Baskin-Sommers, 2011; Lake et al., 2011). Then, when it comes to self-reported feelings, there are instances where high psychopathy individuals show no differences between control groups (Forth, 1992; Patterson, 1991). It is for these reasons that some have asked for a reevaluation of the fear deficit hypothesis (Brook et al., 2013; Hoppenbrouwers et al., 2016). Working out the specifics of fear within psychopathy will be particularly important for future editions of the DSM, which currently emphasizes the low anxiety aspect of the disorder within the third section.

Broadly speaking, some of the difficulties may have been born out of treating psychopathy as a unidimensional construct. While this may be useful in certain circumstances, there are likely differences between different psychopathy subtypes in regard to affective experience. For instance, Hick and Patrick (2006) found that trait anger-hostility was a stronger predictor of secondary psychopathy than primary psychopathy and that fearfulness was negatively associated with primary psychopathy but not at all with secondary. It has also been shown that the relationship between defensive aggression and secondary psychopathy was moderated by *high* anxiety (Guerra et al., 2017). Similarly, in affective disorders such as depression—a disorder characterized by feelings of sadness, hopelessness, worthlessness, and diminished interest—there are mixed results in their relationship to psychopathic personality. Some studies show positive correlations based on unitary measures, whereas others show no relationship between either factor of psychopathy (Love & Holder, 2014; Willemsen et al., 2011). On the happier side of things, the same issues arise. The findings using unitary measures indicated that psychopathy is negatively associated with general positive affect, while others show that only secondary psychopathy is negatively associated with happiness (Egan et al., 2014; Love & Holder, 2014).

Seemingly, as time progresses, research has started to develop a more nuanced understanding of emotion in psychopathy. Beginning to divide the construct into various facets has helped clarify which feelings relate to each psychopathy factor. Even though this has improved since the development of dimensional models of psychopathy, there is still work to be done in examining how general emotionality relates to what has often been called "successful psychopathy" and subclinical populations more broadly (LeBreton et al., 2006).

Narcissism

Narcissism is another trait that is often split into two factors. The first factor, grandiose narcissism, is the most stereotypical form. These people are often outgoing, socially dominant, and tend to have fewer negative feelings. On the other hand, vulnerable narcissism is a trait characterized by social withdrawal, anxiety, and other negative feelings. What links these two subtypes together is that they both involve an unrealistic sense of self-importance sensitive to interpersonal threats (Derry et al., 2019; Kaufman et al., 2018; Miller et al., 2011). Narcissism is the best understood "dark" personality trait that is mentioned within this study. The emotional components that makeup this trait and its subtypes have been well researched and well-integrated within the construct (see Czarna et al., 2018 for a review). It is a good illustration of how understanding the feelings that accompany a trait can help strengthen the nomological network around it (e.g., Miller et al., 2011; Miller et al., 2021). It worth noting that this was not always the case. Apart from shame (Freud, 1914; Kohut, 1966), early discussion about narcissism had little emphasis on the negative feelings that accompany this disposition. In particular, the Narcissistic Personality Inventory (NPI)—the main tool for early clinical research on narcissism—focused predominantly on the grandiose aspects of narcissism (Emmons, 1987; Raskin & Hall, 1979). It was unclear at that

time that narcissism could be manifested in someone who was withdrawn, anxious, and unlikely to show themselves off to the world.

Presently, what is known about affect and narcissism is fairly well organized. Grandiose narcissism tends to correlate positively with positive emotions (Czarna et al., 2018). People who report high levels of grandiose narcissism tend to report positive feelings and greater well-being (Sedikides et al., 2004). Moreover, this trait also correlates negatively with negative feelings including sadness, loneliness, and anxiety (Miller et al., 2011; Rose, 2002). Conversely, vulnerable narcissism depicts the opposite pattern. This trait has shown positive correlations with anxiety, loneliness, and neuroticism (Miller et al., 2017; Miller et al., 2018; Rose, 2002). It also appears that vulnerable narcissism is more closely associated with angry feelings that lead to defensive aggressive behavior (Barry et al., 2007; Fossati et al., 2010; Krizan & Johar, 2015). Overall, emotionality has recently been of keen interest for further developing the narcissism construct and has been integral in developing our current conceptualizations.

Machiavellianism

Machiavellianism is a personality trait characterized by a willingness to manipulate others for personal gain and a cynical view of the social world. Unless you count the lessons of Machiavelli (1532) himself, there has not been a long history of Machiavellianism research in psychology. Most research on this trait has been conducted as a part of dark triad research and only recently have people began to establish a nomological network around the construct independently. One compelling suggestion is the two-dimensional model of Machiavellian personality which treats the cynical views and manipulative tactics as separate dimensions (Monaghan et al., 2018; Monaghan et al., 2020). The nomological network

analysis for the two-dimensional Machiavellianism scale (TDMS) did not look at many specific emotions, but these researchers did find relationships with emotional traits like HEXACO-emotionality and five-factor model neuroticism (Monaghan et al., 2018). There was no correlation between neuroticism and Machiavellian tactics, yet there was a positive correlation for Machiavellian views. For emotionality, there was also a positive correlation with Machiavellian views, but a negative correlation with Machiavellian tactics. To my knowledge, there has only been one other study attempting to investigate the feelings related to Machiavellian personality (Al Ain et al., 2013). The findings for that study indicated that interpersonal deceit, cynical world views, and lack of morality positively correlated with anxiety and depressive symptoms like sadness.

Sadism and Spitefulness

I have included these two traits together because, compared to the rest, the emotional research around them is underdeveloped. So, starting with sadism, this trait is characterized by a tendency to enjoy the suffering of others (Paulhus & Dutton, 2016). This enjoyment does not have to be inflicted by the person but can also be experience vicariously (e.g., watching online videos). Across history these kinds of behaviors have been fairly prevalent, but public acceptance of them has markedly decreased (Dutton, 2007; Nell, 2006; Pinker, 2011). Research wise, there has only been a couple of studies looking at the expected pleasure someone high in sadism might experience in response to another's suffering. The first of these found that participants high in sadism reported more positive affect and less negative affect in response to violent imagery (Međedović, 2017). Another study showed that sadism was associated with increased pleasure during aggressive behavior, whereas there was increased negative affectivity after the behavior occurred (Chester et al., 2018). Although

these studies are informative of the feelings that occur in sadistically relevant situations, they do not clarify how sadistic personalities feel on average over time.

The spitefulness construct was influenced by evolutionary viewpoints and has simply been described as a tendency to inflict costs on others at some cost to the self (Marcus & Norris, 2016). People who are spiteful are willing to take a punch in order to deliver one, or intentionally drive slowly when another person is tailgating them. Even though these acts deliver a cost to the person (e.g., pain or being late for work), they still engage in these behaviors to inflict the cost on another. To my knowledge, the only study that mentions any feelings associated with this trait comes from the validation study for the Spitefulness Scale (Marcus et al., 2014). This study found that spitefulness was negatively correlated with guilt proneness and HEXACO-emotionality. As an emerging construct, there is good reason to further understand the affective traits that relate to spite.

The Current Study

This study was an extension of two prior studies that have examined the relationships between dark personality traits and the basic affective traits derived from affective neuroscience theory. The first of these studies investigated personality predictors of dietary choice (Sariyska et al., 2019). In that study, they used unitary measures of the dark triad (psychopathy, narcissism, and Machiavellianism) to examine the relationships. Narcissism was positively associated with SEEKING and PLAY, whereas it was negatively associated with FEAR, SADNESS, and CARE. Machiavellianism was positively associated with ANGER and FEAR but was negatively associated with CARE. Finally, psychopathy was positively associated with ANGER and negatively correlated with CARE (see Sariyska et al., 2019). Interestingly, the second study focused exclusively on narcissism and demonstrates

why it can be useful to look at constructs multidimensionally (Sauls & Zeigler-Hill, 2020). They looked at associations between the five-factor model of narcissism (Glover et al., 2012) and the same basic emotional traits described above. The constructs in this model—extraverted narcissism, antagonistic narcissism, and neurotic narcissism—were characterized by the facets within the five-factor model said to contribute to narcissistic personality. Overall, they found that ANGER was positively associated with all three dimensions. Moreover, the other emotional traits helped differentiate these dimensions. Neurotic narcissism was positively correlated with ANGER, FEAR and SADNESS (similar to what one would expect to see in vulnerable narcissism). Extraverted narcissism was negatively correlated with both FEAR and SADNESS. Then, antagonistic narcissism was negatively correlated with everything except for SADNESS (no correlation) and ANGER (positive correlation; see Sauls & Zeigler-Hill, 2020).

While both studies have been informative, their findings can be extended. Understandably, since dark personality and emotion was not their focus, the first study used unitary measures of the dark triad traits (i.e., Sariyska et al., 2019). As demonstrated in the study done by Sauls and Zeigler-Hill (2020), examining these constructs in their entirety can reveal differential feeling experiences across trait dimensions. This may also indicate what common feeling experiences exist across different trait constructs. Additionally, other traits that were included in this study have very little prior research examining their relationships with affect.

The goal of this thesis was to conduct an exploratory study aimed at understanding the associations between the five aforementioned dark personality traits and basic affective traits using self-report methodology. This investigation was meant to highlight both the

similarities and differences across these personality traits in terms of feeling experience. This study also offered the chance to investigate the relationships between dark personality traits and trait LUST, which was not included in any of the prior studies. The main predictions involved negative associations between *all* the dark traits and CARE in combination with positive associations between *most* dark traits and ANGER. Full predictions for this study can be found in Table 4.

Methods

Participants and Procedure

The intended sample was meant to obtain 350 participants from Prolific's online crowdsourcing platform based on an a priori power analysis ($r = .20$, $\beta - 1 = 80$, $\alpha = .01$, two-tailed). However, an error occurred such that the anonymous survey link was sent to Prolific participants other than those active in the study. This resulted in 602 total responses. Data cleaning involved the removal of participants who did not accurately respond to all four attention checks (17 participants removed). Attention checks consisted of items that explicitly instructed participants to give a specific response on a Likert scale (e.g., "Please select *disagree* for this item"). Then, so sex differences could be more easily analyzed, participants were also removed from the dataset if they indicated that their sex was something other than male or female (2 participants removed). Overall, the final analysis included 583 participants (56% Female, 44% Male; $M_{age} = 28.43$, $SD_{age} = 9.79$). The gender demographics largely correspond to the sex demographics (55 % Woman, 44% Man, 1% Non-Binary, and less than 1% indicated their preferred identity was not listed).

The study consisted of an online survey delivered through Qualtrics containing several self-report questionnaires. At the beginning of the survey participants were asked for

consent and were told that they would respond to questions about their thoughts, feelings, and behaviors. The presentation of the self-report instruments was counterbalanced such that all possible orders (6 instruments and 36 different orders) were presented evenly. At the end, participants were asked questions about their age, sex, gender, sexuality, relationship status, and race (see Figure 4). Altogether, the study took about 25 minutes to complete.

Materials

Affective Traits

The affective traits in this study were measured by a modified version of the Affective Neuroscience Personality Scales 3.1 (ANPS 3.1; Davis & Panksepp, 2011; Montag et al., 2021). As mentioned above, these scales were intended to measure the conscious elaborations of basic affective traits derived from affective neuroscience theory. The modifications included a removal of the Spirituality scale and the addition of a 14 item LUST scale. The Spirituality scale was removed because it was not of interest in this study. The LUST scale was designed in a previous study alongside the other ANPS scales and showed adequate psychometric properties ($\alpha = .91$; van der Weshuizen & Solms, 2015). The final list of trait constructs was as follows: SEEKING, LUST, PLAY, CARE, SADNESS, FEAR, and ANGER. Overall, this battery consisted of 98 items that participants responded to on a 6-point Likert scale (0 = Strongly Disagree; 5 = Strongly Agree). Each scale consisted of 14 items and showed adequate reliability coefficients as follows: SEEKING ($\omega = .80$; e.g., Almost any little problem stimulates my interest), LUST ($\omega = .91$; e.g., I rarely have sexual thoughts), PLAY ($\omega = .82$; e.g., I am a person who is easily amused and laughs a lot), CARE ($\omega = .78$; e.g., I often feel a strong need to take care of others), SADNESS ($\omega = .80$; e.g., I

often feel lonely), FEAR (ω = .90; e.g., I often feel nervous and have difficulty relaxing), and ANGER (ω = .87; e.g., When I'm frustrated, I usually get angry).

Psychopathy

Psychopathy was measured using the Self-Report Psychopathy Scale Short-Form (SRP-SF; Gordts et al., 2015; Paulhus et al., 2016). This scale measured all four facets of psychopathy and were combined to create the primary psychopathy (ω = .84) and secondary psychopathy (ω = .82) factors. The facets were callous-affective (ω = .70; e.g., I am often rude to people), interpersonal manipulation (ω = .68; e.g., It is amusing to see other people get tricked), erratic lifestyle (ω = .75; e.g., I enjoy taking risks), and antisocial (ω = .76; e.g., I purposely tried to hit someone with the vehicle I was driving). Participants responded to the 28 items using a 5-point scale (1 = Strongly Disagree; 5 = Strongly Agree)

Narcissism

Narcissism was measured using the narcissism scale (NS; Derry et al., 2019). This scale was based on the two-factor model of narcissism discussed above with an emphasis toward clinical trait models of personality. Four subscales were used to create the usual two factor solution with both grandiose (ω = .82) and vulnerable narcissism (ω = .81). The subscales themselves were interpersonal grandiose narcissism (ω = .76; e.g., It's easy for me to control other people), intrapersonal grandiose narcissism (ω = .79; e.g., I have always known that I am gifted), interpersonal vulnerable narcissism (ω = .68; e.g., Sometimes I avoid people because I know they will disappoint me), and intrapersonal vulnerable narcissism (ω = .79; e.g., When other people notice me I start to feel worthless). Overall, there were 20 questions that participants responded to on a 5-point scale (1 = Strongly Disagree; 5 = Strongly Agree).

Machiavellianism

Machiavellianism was measured using the Two-Dimensional Machiavellianism Scale (TDMS; Monaghan et al., 2019). This measure maintains a two-factor solution to Machiavellianism: Machiavellian views (ω = .79; e.g., In my opinion, human a nature is to be dishonest) and Machiavellian tactics (ω = .83; e.g., It is sometimes necessary for me to mislead others to get things done). Participants responded to the 12 items on a 7-point scale (1 = Strongly Disagree; 7 Strongly Agree).

Sadism

Sadism was measured by the Assessment of Sadistic Personality (ASP; Plouffe et al., 2017). Participants responded to the 20 items (ω = .87; e.g., I'd lie to someone to make them upset) using a 5-point scale (1 = Completely Disagree; 5 = Completely Agree).

Spitefulness

Spitefulness was measured using the Spitefulness Scale (ω = .88; Marcus et al., 2014). Participants responded to the 17 items (e.g., There have been times when I was willing to suffer a small harm so that I could punish someone else who deserved it) on a 5-point scale (1 = Strongly Disagree; 5 = Strongly Agree)

Results

Due to the large number of analyses in the study, the alpha level (a) was reduced to .01 in an effort to protect against the type-I error inflation that arises from multiple hypothesis testing (Shaffer, 1995). Descriptive statistics are presented in Table 5 and correlations among affective traits are presented in Table 6. One point of weakness in past versions of the ANPS has been sometimes reporting less desirable inter-item reliability coefficients ($a < .70$). However, with the move from a 5-point scale to a 6-point scale in the

ANPS 3.1, there seems to be an improvement in the reliability coefficients as depicted in Table 5 (Montag et al., 2021). As for inter-trait correlations, English versions tend to show relatively high correlations between FEAR and SADNESS ranging from .68 to .78 (Amiri et al., 2017; Barrett et al., 2013; Davis et al., 2003). This study showed a correlation between FEAR and SADNESS similar to those of other studies using the English edition (r = .75). Although correlations of this magnitude do not necessarily indicate that the FEAR and SADNESS are identical measures—in fact, one may expect a relatively large correlation between these two traits—other translations of the ANPS have shown notably lower correlations between these constructs ranging from .58 to .59 (e.g., Ozkarar-Gradwohl et al., 2014; Pascazio et al., 2015). The ANPS may benefit in this sense from establishing a wider nomological network around these affective traits in terms of their convergent and divergent validity. All in all, there were reasonably consistent correlations among ANPS traits as compared to another study that analyzed relationships between brief and full-length forms of the ANPS (Barrett et al., 2013). Specifically, there were positive correlations among positively valenced affective traits as well as positive correlations among negative affective traits.

Correlations among dark personality traits are presented in Table 7. The relationships among these traits also came out as expected. All traits were positively correlated with each other, which tends to be the case with dark personality traits (see Moshagen et al., 2019). Since these are all under the umbrella of socially aversive traits, it is typically the case that these personality dispositions maintain similarities (Zeigler-Hill & Marcus, 2016). It is for this reason that researchers have proposed a hypothesized latent core (*D*) that is said to be characterized by a lack of empathy and ruthless selfishness (Bader et al., 2021).

The correlations for the ANPS traits with the dark personality traits are presented in Table 8. For completeness, it should be mentioned that these same correlations were compared to a dataset which removed outliers ±3.00 standard deviations from the mean. There were no differences in statistical significance compared to the results in Table 8 and effect sizes deviated no more than ±.02. To start, SEEKING was negatively correlated with vulnerable narcissism and spitefulness and positively correlated with grandiose narcissism. PLAY was negatively correlated with primary psychopathy, vulnerable narcissism, Machiavellian views, and sadism, whereas it was positively correlated with grandiose narcissism. The correlations for CARE were quite consistent, seeing negative correlations with all traits except for grandiose narcissism. LUST was negatively correlated with vulnerable narcissism and positively correlated with secondary psychopathy, grandiose narcissism, and sadism. The correlations with ANGER were also quite consistent. All dark personality traits were positively correlated with ANGER. As for SADNESS, there was a negative correlation with grandiose narcissism, whereas there was a positive correlation with vulnerable narcissism. Lastly, FEAR was negatively correlated with grandiose narcissism and positively correlated with vulnerable narcissism and Machiavellian views. Overall, the most clearly related traits to dark personality appeared to be CARE and ANGER, extending the previous findings to a larger variety of dark traits and supporting most initial predictions (see Table 13).

Considering that there are often sex differences on both the affective and dark personality traits, the relationships between these traits were investigated with these differences in mind. Sex differences between traits are presented in Table 10. Almost all traits revealed statistically significant sex differences (12 of 15). Females reported higher

levels of CARE ($t = 6.23,\ d = .52,\ p < .001$), ANGER ($t = 4.16,\ d = .35,\ p < .001$), SADNESS ($t = 7.71,\ d = .64,\ p < .001$), FEAR ($t = 7.11,\ d = .59,\ p < .001$), and vulnerable narcissism ($t = 3.20,\ d = .27,\ p = .001$). On the other hand, males reported higher levels of PLAY ($t = -3.07,\ d = -.26,\ p < .001$), LUST ($t = -5.37,\ d = -.45,\ p < .001$), primary psychopathy ($t = -6.38,\ d = -.53,\ p < .001$), secondary psychopathy ($t = -4.55,\ d = -.38,\ p < .001$), Machiavellian tactics ($t = -3.39,\ d = -.28,\ p < .001$), sadism ($t = -4.35,\ d = -.36,\ p < .001$), and spitefulness ($t = -3.98,\ d = -.33,\ p < .001$). There were no differences for SEEKING ($t = 0.63,\ d = .05,\ p = .529$), grandiose narcissism ($t = 0.92,\ d = .08,\ p = .359$), or Machiavellian views ($t = -1.90,\ d = -.16,\ p = .058$).

Multilevel correlations controlling for sex are presented in Table 10. For the most part, these correlations are similar to those found in Table 8. However, there were a number of correlations that dissipated under these conditions. The relationships between ANGER and grandiose narcissism, LUST and secondary psychopathy, LUST and vulnerable narcissism, LUST and grandiose narcissism, as well as LUST and sadism all failed to reach statistical significance. This suggested that these relationships may have been spurious correlations driven by group identify. To further elucidate these relationships, the correlations were examined within female and male groupings. These correlations are presented in Table 11 and Table 12 respectively. The differences between these two sets of correlations indicated that SEEKING was negatively associated with sadism for males, whereas one unique positive relationship emerged between LUST and secondary psychopathy for females. Besides these two relationships, it appeared that the associations between basic affective traits and dark personality were mostly comparable across the sexes. Tables 13 and 14 show

the number of accurate predictions based on the raw correlations and multilevel correlations, respectively.

Discussion

While research on affect and dark personality has largely focused on specific emotions, feelings, emotional disorders, specific dark personality traits, and unitary measures of those traits, the study here extends those findings to a broad range of affective and dark personality traits. Two other studies have used similar methods in examining the relationships among dark personality and affective traits using the affective neuroscience framework. However, the findings in those studies either used unitary trait measures (Sariyska et al., 2019) or focused on detailing a single trait (i.e., narcissism; Sauls & Zeigler-Hill, 2020). The findings here were mostly accordant with what was found in these prior two studies in regard to the relationships between CARE, ANGER, and dark personality. Like Sauls and Zeigler-Hill (2020), I found consistent positive associations with vulnerable (neurotic) narcissism and ANGER. Although, I found that the relationship between ANGER and grandiose narcissism—the more outgoing and stereotypical form of narcissism (akin to extraverted narcissism in their study)—failed to reach significance when controlling for sex. Then, similar to the conclusions of Sariyska and colleagues (2019), I found negative associations with CARE and all dark traits except for grandiose narcissism. In other words, a lack caring feelings toward others remained closely related to the socially aversive personality traits examined here. A finding that insinuates a lack of attention dedicated toward the well-being of others may be related to the behaviors and thoughts pertaining to dark personality. Additionally, for some of the dark personality traits, there is very little information about their relationships with the feelings that coincide with them. In particular,

the results here have provided a good starting point for continuing to investigate the affective properties of Machiavellian, sadistic, and spiteful personalities. There also appeared to be a common affective core to all the dark personality traits.

Mostly in accordance with the main hypotheses, CARE and ANGER were the most common traits related to dark personality. These traits revealed consistent negative and positive associations respectively with almost all dark traits (save grandiose narcissism). This suggests that consistently combined angry and uncaring feelings associated with dark personality may make up an affective core that perpetuates the attitudes and behaviors coinciding with socially aversive interpersonal styles. For CARE, this is congruent with expectations of the dark triad in terms of the empathic difficulties that are attached to it (Jonason, 2015; Jonason et al., 2013; Lowicki et al., 2017; Pajevic et al., 2018; Schimmenti et al., 2019). On the other hand, feelings of anger in most dark personality traits have not been emphasized with the same regularity. Further, anger is not often considered in establishing convergent and discriminant validity for trait models. Notable exceptions include the five-factor models of psychopathy and narcissism (Lynam & Miller, 2014; Miller et al., 2016). The ANGER/CARE associations demonstrate that these traits are important components of dark personality as a whole and perhaps that similar feelings should be considered for future trait development. That is, if these are primary factors in dark personality, then it is possible increased validity could be derived from partially integrating them within trait constructs. This also speaks to the utility of basic trait models in dark personality which utilize basic affective descriptors like anger/hostility and warmth (Lynam & Miller, 2014; Miller et al., 2016).

Psychopathy

The relationships between the psychopathy factors and affective traits were largely undifferentiated. For example, differences between primary and secondary psychopathy—characterized by callousness and antisocial behavior, respectively—only emerged in relation to LUST when these traits were examined independently for the male and female groups. The positive relationships between secondary psychopathy and LUST for females may reflect a motivational aspect of the short-term mating strategies that those high in psychopathy often pursue (Jonason et al., 2011; Jonason et al., 2009; Khan et al., 2017; Tsoukas et al., 2018). It may also suggest that the short-term mating strategies men high in psychopathy employ may not be driven by LUSTful feelings. Meaning that the low commitment, short-term, sexual relationships that people high in psychopathy engage in may be differentially motivated between the sexes. Two unsupported hypotheses were the predicted associations between secondary psychopathy and negative feelings. Even though ANGER was associated with secondary psychopathy, there was no relationship with SADNESS or FEAR. This contradicts the fear deficit hypothesis in psychopathy and calls into question the relationship between psychopathy and emotional disorders that are partially constituted by feelings of sadness (Love & Holder, 2014).

Narcissism

The two factors of narcissism were mostly differentiated by positive and negative feelings. When taking sex into account, grandiose narcissism—the factor reflecting an outgoing attitude—was positively associated with all positive affective traits except for CARE, whereas it was negatively associated with all other negative affective traits except for ANGER. Conversely, vulnerable narcissism showed the expected positive correlations with

all negative affective traits and negative associations with all positive affective traits except LUST. These findings were consistent with what is typically found in narcissistic personality (Czarna et al., 2018). Interestingly, SEEKING showed significant relationships with both factors of narcissism, but it is unclear as to what this means. It could be that this reflects the tendency for grandiose narcissism to involve more approach-like behavior and for vulnerable narcissism to involve more withdraw-like behavior. Grandiose narcissism was also the only dark trait not correlated with CARE or ANGER when taking sex into account, which suggested that the socially aversive aspects of this trait may not be related to caring or angry feelings. It also insinuates that the prior relationships found between CARE, ANGER, and narcissism may have been driven by sex differences (Sariyska et al., 2019; Sauls & Zeigler-Hill, 2020). Moreover, it is worth mentioning that in this sample the usual pattern of men being higher in grandiose narcissism was not replicated and did not reflect the diagnostic patterns that are found in clinical work (Green et al., 2021).

Machiavellianism

Since Machiavellianism is not generally thought of in emotional terms, the findings for this trait are mostly novel. Machiavellian tactics did not appear to involve many feeling tendencies apart from the previously mentioned relationships with CARE and ANGER. However, Machiavellian views did show a positive relationship with FEAR and a negative relationship with PLAY. The relationship with FEAR is congruent with findings that showed Machiavellianism is associated with neuroticism and anxiety (Al Ain et al., 2013; Monaghen et al., 2018). The relationship with PLAY also makes sense in that cynical views of the world may not be conducive to experiencing joy.

Sadism and Spitefulness

Sadism initially differentiated itself from other dark traits showing a negative relationship with PLAY and a positive relationship with LUST. However, these relationships did not persist when controlling for sex, indicating that these were spurious associations driven by group differences between the sexes on these traits. Since trait sadism is often kept separate from sexual sadism, it makes sense here that LUST was not related to this construct. This provides further justification for keeping trait-sadism as a separate construct from sexual sadism. For spite, SEEKING and PLAY were the two associated affective traits besides ANGER and CARE. The meaning of these unexpected relationships is also unclear, but it may reflect the tendency spiteful persons not to explicitly seek out aggressive action toward others. Instead, their actions are often in response to those they feel deserve punishment (e.g., "There have been times when I was willing to suffer some small harm so that I could punish someone else who deserved it" or "If I am checking out at a store and I feel like the person in line behind me is rushing me, then I will sometimes slow down and take extra time to pay").

Limitations, Future Directions, and Conclusion

As always, every study has its limitations. First, the nature of self-report commonplace in personality research may have provided an avenue for participants to respond in socially desirable ways. For instance, participants may not have wanted to endorse certain behaviors related to dark personality traits for fear of being seen as amoral. They also may not have wanted to honestly answer questions about sexual feelings due to societal expectations about promiscuity. Separately, even though the alpha level was reduced to .01 in this study, the large number of analyses may have inflated the type-I error rate and should be replicated in future studies to ensure consistent relationships (Shaffer, 1995). A third

limitation is reflected by the range of feelings investigated. While the seven basic affective traits investigated a broad range of feelings, there are many more feeling constructs that may be worth examining. For example, other overlooked feelings in dark personality research (e.g., regret) could serve further development in trait nomological networks. As mentioned previously, the ANPS has also not been subjected to an in-depth study establishing its convergent and discriminant validity with other scales that measure similar feelings. This could be useful in further developing the scale and differentiating its constructs from each other. Namely, researchers may want to continue investigating the close relationships between the FEAR and SADNESS constructs which maintain relatively high correlations in the full-length English version. A fifth limitation lies in the difficulty in drawing casual inferences from correlational data. Experimental studies could assist in further establishing the relationships among these affective traits and dark personality. Finally, the research here investigated how dark personalities feel in a general sense but may not say terribly much about how feelings motivate socially aversive behaviors within situational contexts. Future studies may want to see if these kinds of feelings motivate the actions manifested in socially aversive personalities. Even though there are instances where socially aversive behaviors seem to be motivated by anger and impulsivity, others have demonstrated that these behaviors can be preceded by positive feelings (Chester et al., 2018). Of course, this may well depend on the behavior and personality in question.

In sum, using an evolutionary framework, this study demonstrated the key finding that CARE and ANGER were core affective features in dark personality. Further, except for grandiose and vulnerable narcissism, there were no other traits that had clear affective patterns that differentiated them based on their facets. For example, there were no huge

differences between primary and secondary psychopathy apart from sex dependent relationships with LUST. Although empathy has been heavily implicated in dark personality, anger has been a less noticeable feature despite showing relationships of similar magnitude here. Thus, it may be that angry feelings should be treated as having similar value for socially aversive behaviors and attitudes. Studies interested in trait development and relationships among measures should consider CARE/ANGER as important affective features when investigating “dark” personality traits. That being said, the study also provided a good starting point for dark personality research—particularly, for the less popular traits—in continued efforts to illuminate the affective processes involved.

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Appendix

Figure 1

Graphical Depiction of Combinatory Approaches to Emotional Theories

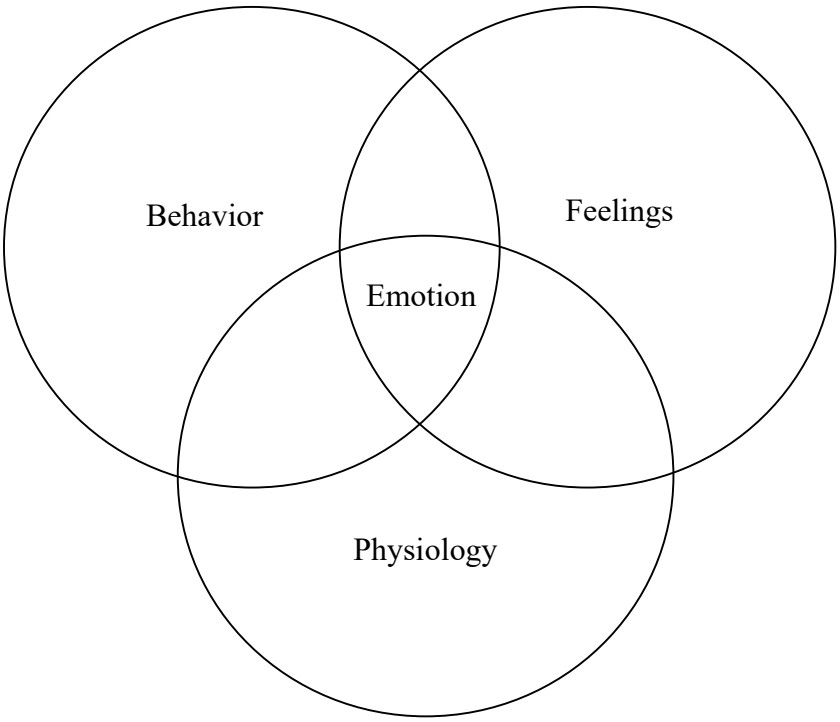
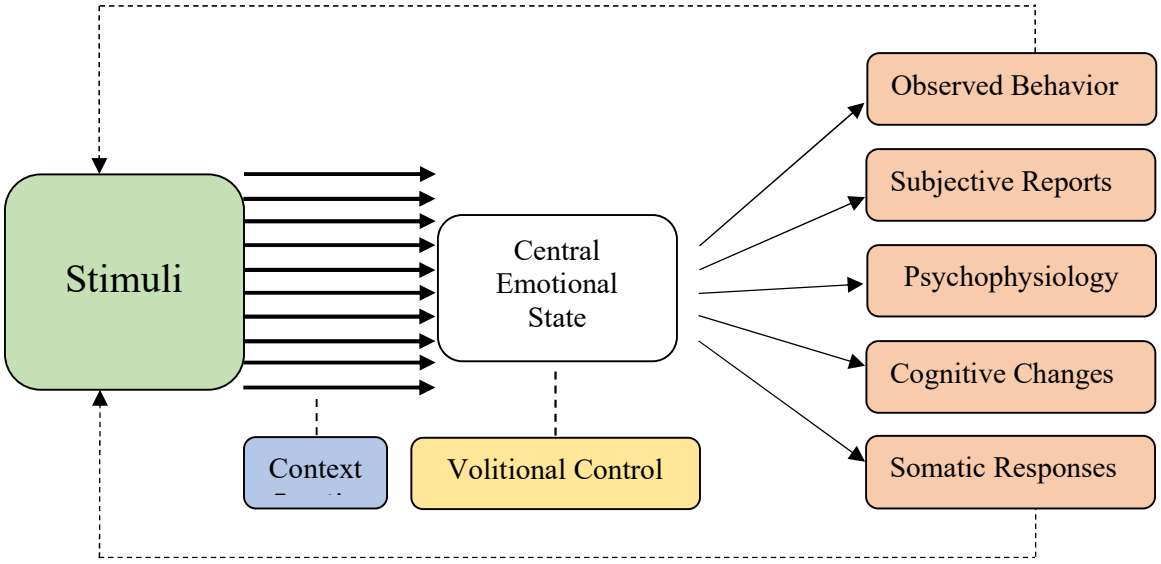


Figure 2

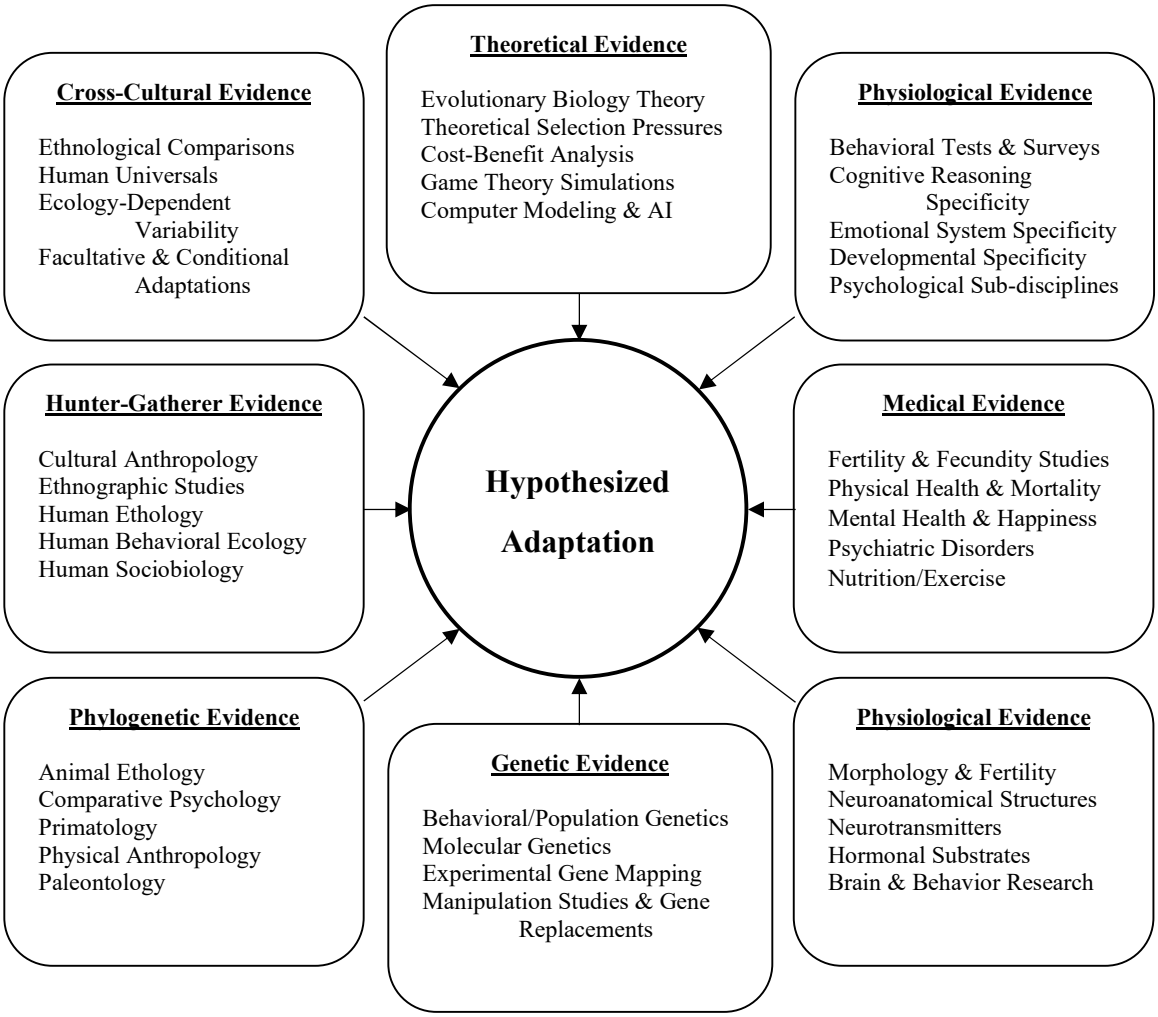
Graphical Depiction of Emotion as a Functional State



Adapted from Adolphs & Anderson, 2018

Figure 3

Convergent Evidence Available for Testing Hypothesized Adaptations



Adapted from Schmitt & Pilcher, 2004

Table 1

Panksepp's Criteria for Defining Basic Emotional Brain Systems

1. Genetically predetermined subcortical circuits responding unconditionally via activation of sensory modalities to a discrete number of unconditioned stimuli that arise from major life threatening or reproductive circumstances.
2. Ability to organize and coordinate various instinctual behaviors and unconditioned autonomic-visceral bodily responses.
3. Ability to gate and change sensitivities of relevant sensory systems.
4. Capacity for neural activity, from stimulation of circuits, that outlasts precipitating events.
5. Ability to come under the conditional control of emotionally neutral environmental stimuli.
6. Reciprocal interactive control of brain mechanisms that elaborate higher decision-making processes and consciousness
7. Unique subjective valence

Adapted from Panksepp, 1998

Table 2

Key Brain Areas and Chemistries for Basic Emotional Systems

Basic Emotional Systems	Key Brain Areas	Key Neuromodulators
SEEKING/Interest	Nucleus Accumbens – VTA; Mesolimbic and mesocortical outputs; Lateral hypothalamus - PAG	Dopamine (+); Glutamate (+); Opioids (+); Neurtensin
RAGE/Anger	Medial amygdala to Bed Nucleus of Stria Terminalis (BNST); Medial and perifornical hypothalamus; PAG	Substance P (+); Acetylcholine (+); Glutamate (+)
FEAR/Anxiety	Central and lateral amygdala to medial hypothalamus and dorsal PAG	Glutamate (+); Diazepam Binding Inhibitor; Corticotrophin Releasing Factor; cholecystokinin, alpha-MSH; Neuropeptide Y
LUST/Sexuality	Cortico-medial amygdala; BNST; preoptic and ventromedial hypothalamus; PAG	Steroids (+); Vasopressin; Oxytocin; Luteinizing Hormone-releasing Hormone (+); cholecystokinin (-)
CARE/Love	Anterior cingulate, BNST; Preoptic area; VTA; PAG	Oxytocin (+), prolactin (+); Dopamine (+); opioids (+/-)
PANIC/Sadness	Anterior cingulate; BNST; preoptic area; Dorsomedial thalamus; PAG	Opioids (+/-); oxytocin (-) Prolactin (-); CRF (+); Glutamate (+)
PLAY/Joy	Dorso-meidal diencephalon; perifascicular area; PAG	Opioids (+/-); Glutamate (+); Acetylcholine (+)

Adapted from Panksepp, 2011

Table 3

Basic Affective Trait Descriptions

Emotional Trait	Example behavior and feelings	Brain System
SEEKING	Feeling curious, feeling like exploring, striving for solutions to problems and puzzles, positively anticipating new experiences, and a sense of being able to accomplish anything.	SEEKING
PLAY	Having fun versus being serious, playing games with physical contact, humor and laughter, being generally happy and joyful.	PLAY
CARE	Nurturing, being drawn to young children and pets, feeling soft-hearted towards animals and people in need, feeling empathy, caring for the sick, feeling affection or liking toward others.	CARE
LUST	Often thinking about sexual intimacy, having sexual thoughts, feeling sexual arousal, fantasizing about sexual foreplay.	LUST
ANGER	Feeling hot-headed, being easily irritated and frustrated, experiencing frustration that leads to anger, expressing anger verbally or physically, and remaining angry for long periods.	RAGE
SADNESS	Feeling lonely, crying frequently from sadness, thinking about loved ones often and past relationships, feeling distress when separated from loved ones.	PANIC
FEAR	Feeling anxious, feeling tense, worrying, struggling with decisions, ruminating about past experiences, not typically feeling courageous.	FEAR

Adapted from van der Westhuizen & Solms, 2015

Table 4

Predicted Correlations for the Study

Variable	SEEKING	PLAY	CARE	LUST	ANGER	SADNESS	FEAR
Primary Psychopathy	(+)		(-)	(+)			
Secondary Psychopathy	(+)		(-)	(+)	(+)	(+)	(+)
Grandiose Narcissism		(+)	(-)		(-)	(-)	(-)
Vulnerable Narcissism			(-)		(+)	(+)	(+)
Machiavellian Views			(-)		(+)	(+)	(+)
Machiavellian Tactics			(-)				
Sadism	(+)		(-)	(+)			
Spitefulness			(-)		(+)		

Positive relationships indicated by (+) and negative indicated by (-); $\alpha = .01$; two-tailed.

Figure 4

Demographic Questions Asked at the End of the Survey

What was your assigned sex at birth?

- Male
- Female
- Other

What gender do you identify as?

- Man
- Woman
- Non-Binary
- Response option not listed

What is your ethnicity?

- African American/Black
- Asian/Asian American
- Caucasian/White
- Hispanic/Latin
- Other

What is your sexuality?

- Bisexual
- Heterosexual
- Homosexual
- Other

What is your relationship status?

- Single
- In a relationship
- Married

Table 5

Descriptive Statistics for All Variables

Variable	Mean	SD	SE	Median	Skew	Kurtosis	Cronbach's α	McDonald's ω
SEEKING	4.22	0.63	.03	4.21	–0.09	0.18	.79	.80
PLAY	3.99	0.69	.03	4.00	–0.38	0.31	.80	.82
CARE	4.15	0.70	.03	4.14	–0.14	–0.03	.77	.78
LUST	4.41	0.90	.04	4.50	–0.77	0.56	.91	.91
ANGER	3.49	0.86	.04	3.50	0.09	0.06	.87	.87
SADNESS	3.91	0.70	.03	3.93	–0.21	0.09	.78	.80
FEAR	4.21	0.90	.04	4.21	–0.43	–0.07	.90	.90
Primary Psychopathy	2.16	0.62	.03	2.14	0.51	0.01	.84	.84
Secondary Psychopathy	1.86	0.52	.02	1.79	0.91	1.05	.79	.82
Grandiose Narcissism	2.85	0.69	.03	2.80	0.08	–0.34	.81	.82
Vulnerable Narcissism	2.96	0.72	.03	3.00	–0.19	–0.08	.80	.81
Machiavellian Views	3.72	1.02	.04	3.67	0.05	–0.26	.78	.79
Machiavellian Tactics	3.06	1.13	.05	3.00	0.25	–0.43	.83	.83
Sadism	1.77	0.59	.03	1.67	1.11	1.09	.84	.87
Spitefulness	1.88	0.69	.02	1.87	0.80	0.28	.88	.88

Table 6

Correlations Among ANPS Traits

Variable	SEEKING	PLAY	CARE	LUST	ANGER	SADNESS	FEAR
SEEKING	-	-	-	-	-	-	-
PLAY	.44***	-	-	-	-	-	-
CARE	.26***	.38***	-	-	-	-	-
LUST	.27***	.41***	.18***	-	-	-	-
ANGER	–.13**	–.20***	–.19***	–.01	-	-	-
SADNESS	–.17***	–.23***	.20***	.01	.39***	-	-
FEAR	–.17***	–.30***	.11**	–.12**	.40***	.75***	-

*** $p < .001$; ** $p < .01$; $N = 583$

Table 7

Correlations Among Dark Personality Traits

Variable	Primary	Secondary	GN	VN	Views	Tactics	Sadism	Spitefulness
Primary Psychopathy	-	-	-	-	-	-	-	-
Secondary Psychopathy	.70***	-	-	-	-	-	-	-
Grandiose Narcissism	.40***	.41***	-	-	-	-	-	-
Vulnerable Narcissism	.39***	.30***	.08	-	-	-	-	-
Machiavellian Views	.48***	.26***	.13**	.36***	-	-	-	-
Machiavellian Tactics	.54***	.41***	.24***	.26***	.29***		-	-
Sadism	.68***	.61***	.36***	.29***	.35***	.47***		-
Spitefulness	.56***	.54***	.25***	.38***	.35***	.46***	.59***	-

*** $p < .001$; ** $p < .01$; $N = 583$

Table 8

Pearson Correlations Among Dark Personality and ANPS Traits

Variable	SEEKING	PLAY	CARE	LUST	ANGER	SADNESS	FEAR
Primary Psychopathy	–.08	–.13**	–.48***	.10	.35***	–.06	.00
Secondary Psychopathy	–.01	.05	–.26***	.16***	.30***	–.01	–.02
Grandiose Narcissism	.31***	.22***	–.02	.23***	.11**	–.20***	–.22***
Vulnerable Narcissism	–.30***	–.35***	–.24***	–.13**	.47***	.47***	.47***
Machiavellian Views	–.09	–.22***	–.36***	.00	.32***	.09	.15***
Machiavellian Tactics	–.07	–.07	–.31***	.06	.26***	–.03	.01
Sadism	–.10	–.06	–.36***	.14**	.39***	–.03	–.03
Spitefulness	–.23***	–.16***	–.35***	.00	.30***	.01	.00

*** $p < .001$; ** $p < .01$; $N = 583$

Table 9

Sex Differences Among ANPS and Dark Personality Traits

					95% Confidence Interval	
	t	*p*	Mean Difference	Cohen's *d*	Lower	Upper
SEEKING	0.63	.529	0.03	0.05	–0.11	0.22
PLAY	–3.07	.002	–0.18	–0.26	0.42	0.76
CARE	6.23	< .001	0.35	0.52	0.35	0.69
LUST	–5.37	< .001	–0.39	–0.45	–0.62	–0.28
ANGER	4.16	<.001	0.29	0.35	0.18	0.51
SADNESS	7.71	< .001	0.43	0.64	0.47	0.81
FEAR	7.11	< .001	0.51	0.59	0.42	0.76
Primary Psychopathy	–6.38	< .001	–0.32	–0.53	–0.70	–0.36
Secondary Psychopathy	–4.55	< .001	–0.19	–0.38	–0.55	–0.21
Grandiose Narcissism	0.92	.359	0.05	0.08	–0.09	0.24
Vulnerable Narcissism	3.20	.001	0.19	0.27	0.10	0.43
Machiavellian Views	–1.90	.058	–0.16	–0.16	–0.32	0.01
Machiavellian Tactics	–3.39	< .001	–0.32	–0.28	–0.45	–0.12
Sadism	–4.35	<.001	–0.25	–0.36	–0.53	–0.20
Spitefulness	–3.98	< .001	–0.19	–0.33	–0.50	–0.17

Positive Cohen's *d* values correspond to Females being higher on trait.

Table 10

Multilevel Correlations Controlling for Sex

Variable	SEEKING	PLAY	CARE	LUST	ANGER	SADNESS	FEAR
Primary Psychopathy	–.07	–.17**	–.45***	.04	.41***	.01	.07
Secondary Psychopathy	–.01	.03	–.22***	.13	.34***	.04	.02
Grandiose Narcissism	.31***	.23***	–.03	.24***	.11	–.22***	–.24***
Vulnerable Narcissism	–.30***	–.34***	–.28***	–.10	.46***	.46***	.45***
Machiavellian Views	–.09	–.23***	–.35***	–.02	.34***	.11	.17**
Machiavellian Tactics	–.07	–.09	–.29***	.03	.29***	.01	.04
Sadism	–.10	–.08	–.33***	.10	.43***	.02	.02
Spitefulness	–.23***	–.19***	–.32***	–.04	.34***	.05	.04

*** $p < .001$; ** $p < .01$; $N = 583$

Table 11

Correlations Among Dark Personality and ANPS Traits for Females

Variable	SEEKING	PLAY	CARE	LUST	ANGER	SADNESS	FEAR
Primary Psychopathy	–.05	–.19***	–.43***	.03	.38***	–.01	.08
Secondary Psychopathy	.02	.09	–.18**	.18***	.31***	.07	.08
Grandiose Narcissism	.28***	.19***	–.11	.27***	.13	–.26***	–.21***
Vulnerable Narcissism	–.26***	–.33***	–.28***	–.13	.46***	.44***	.40***
Machiavellian Views	–.09	–.25***	–.35***	–.07	.34***	.10	.16**
Machiavellian Tactics	–.08	–.11	–.24***	.03	.23***	–.02	.08
Sadism	.02	–.04	–.30***	.14	.40***	–.01	.02
Spitefulness	–.15**	–.18**	–.34***	–.01	.29***	.01	.02

*** $p < .001$; ** $p < .01$; $N = 328$

Table 12

Correlations Among Dark Personality and ANPS Traits for Males

Variable	SEEKING	PLAY	CARE	LUST	ANGER	SADNESS	FEAR
Primary Psychopathy	–.10	–.15	–.46***	.06	.45***	.04	.08
Secondary Psychopathy	–.04	–.04	–.27***	.05	.38***	.03	–.02
Grandiose Narcissism	.35***	.27***	.06	.21***	.08	–.17**	–.28***
Vulnerable Narcissism	–.36***	–.35***	–.29***	–.05	.46***	.48***	.51***
Machiavellian Views	–.09	–.21***	–.35***	.07	.33***	.14	.20**
Machiavellian Tactics	–.06	–.08	–.34***	.02	.36***	.05	.02
Sadism	–.23***	–.13	–.37***	.05	.48***	.06	.03
Spitefulness	–.30***	–.20**	–.30***	–.09	.39***	.11	.08

*** $p < .001$; ** $p < .01$; $N = 255$

Table 13

Depiction of Which Hypotheses Were Supported Based on Correlations

Variable	SEEKING	PLAY	CARE	LUST	ANGER	SADNESS	FEAR
Primary Psychopathy			✓		✓		✓
Secondary Psychopathy		✓	✓	✓	✓		
Grandiose Narcissism		✓				✓	✓
Vulnerable Narcissism			✓		✓	✓	✓
Machiavellian Views	✓		✓	✓	✓		✓
Machiavellian Tactics	✓	✓	✓	✓		✓	
Sadism		✓	✓	✓		✓	
Spitefulness			✓	✓	✓	✓	

Check marks (✓) indicate prediction was supported

Table 14

Depiction of Which Hypotheses Were Supported After Controlling for Sex

Variable	SEEKING	PLAY	CARE	LUST	ANGER	SADNESS	FEAR
Primary Psychopathy			✓			✓	✓
Secondary Psychopathy		✓	✓		✓		
Grandiose Narcissism		✓				✓	✓
Vulnerable Narcissism			✓	✓	✓	✓	✓
Machiavellian Views	✓		✓	✓	✓		✓
Machiavellian Tactics	✓	✓	✓	✓		✓	
Sadism		✓	✓			✓	
Spitefulness			✓	✓	✓	✓	

Vita

Kaleb R. Davis was born in Goldsboro, North Carolina, on May 23, 1995. He graduated from Southern Wayne High School in June 2013. He later attended classes at East Carolina University and graduated with a Bachelor of Arts in Psychology in July 2019. The following year, he began studying at Appalachian State University in the experimental psychology program. In August 2022, he was awarded a Master of Arts in experimental psychology.