

EXPLORING THE CONNECTIONS BETWEEN PERSONALITY,  
SOCIAL COGNITION, AND PREJUDICE

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Very few studies have attempted to directly explore the relationship between psychopathic traits and prejudice. Among the scant studies that do exist, interpretation is often clouded by measurement limitations. The current study surveyed a large sample of adults from the general U.S. population to further our understanding of the associations between psychopathic traits and prejudicial attitudes, as well as critical constructs linked to prejudice. By using modern and well-validated measures of the target constructs new relationships were documented for the first time. A path analytic framework was utilized to represent the network of construct inter-relations. Finally, the current study examined the relationships between psychopathic traits, in relation to the other members of the Dark Triad and positive human traits, referred to as the Light Triad, as well as how the latter may serve as 'buffers' from prejudicial attitudes.

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# EXPLORING THE CONNECTIONS BETWEEN PERSONALITY, SOCIAL COGNITION, AND PREJUDICE

## Introduction

Psychopathic personality traits are consistently linked to negative interpersonal and societal outcomes. Since it was first considered in a more modern iteration, hallmark features of psychopathy include callousness, manipulativeness, and antisocial or dissocial behavior (Cleckley, 1941/1982). It is now clear that psychopathy is a dimensional construct, and thus psychopathic traits can range from low to more severe levels of expression (Hare & Neumann, 2008). The prototypic traits and behaviors combine to create a lifestyle pattern that frequently leads to violent criminal behavior at higher levels of expression, but at lower levels can still be interpersonally corrosive (Neumann & Hare, 2008). Individuals who have clinically significant elevations of psychopathic traits are estimated to be approximately one percent of the general population (Hare & Neumann, 2008). However, severely psychopathic individuals can be found at disproportionately high rates in correctional settings, ranging from 7-25%, depending on cut-off score criteria and country (e.g., Hare et al., 1991; Assadi, et al., 2006; Coid et al., 2009). Further, psychopathic traits predict increased risk of violent recidivism (Mokros et al., 2014) and several different types of violence (Walsh et al., 2007). Although the vast majority of individuals within the general population evidence very few psychopathic features, if any, and thus are well below the clinical cut-off for severe psychopathy (Neumann et al., 2015a) there is still variation of such traits which has led to a growing interest in understanding the characteristics and correlates of low levels of psychopathic and other dark traits, such as Machiavellianism and narcissism (Furnham et al., 2013).

To best understand the current state of research on psychopathic traits and the measures

used to assess such traits, it is helpful to understand the history of the construct for context. Hervey Cleckley, a physician in the mid-20<sup>th</sup> century, published a book titled, *The Mask of Sanity: An Attempt to Clarify Some Issues About the So-Called Psychopathic Personality* (1941/1982). In the *Mask of Sanity*, he proposed his conceptualization of psychopathy and detailed the traits he believed to be associated with the construct. The title refers to his hypothesis that psychopathic individuals can mimic normally functioning individuals while hiding their disrupted and destructive inner personality. He initially proposed 21 behavioral characteristics that made up the clinical profile of the prototypical psychopath, which he later reduced to 16 characteristics. From early on he identified that the construct involved personality pathology and believed it would have wide-ranging effects in the person's life (Cleckley, 1946). While he was a talented writer and highly insightful clinician, it must be emphasized that his work on psychopathy was based almost exclusively on individual interviews rather than systemic research (Lilienfeld, Watts, Smith, Patrick, & Hare, 2018). Further, some of the characteristics prove to be problematic in their conceptualization and assessment (e.g., suicide threats rarely carried out).

The eminent psychologist, Robert Hare, began his own study in psychopathy, having been influenced by Cleckley's work and many other early thinkers (Hare, 1996; Hare, Neumann, & Mokros, 2018). However, he became frustrated by the difficulty of researching the disorder, largely due to the fact that there were no existing comprehensive measures of psychopathy and it became clear that various investigators in the field were not measuring the same thing (Hare, 1997). In part through correspondence with Cleckley, the culmination of Hare's work led to the development of the Psychopathy Checklist- Revised (PCL-R; Hare, 1991/ 2003). The PCL-R is a clinician rated scale, that covers 20 prototypic traits of psychopathy. In order to properly utilize

the measure, the clinician must conduct a full file review and, whenever possible, a semi-structured interview with the individual. The clinician then rates the individual for each of the 20 traits on a 3-point scale. While this process is time consuming and requires specialized training, the PCL-R has become the most extensively validated measure of psychopathy and has been used in hundreds of studies (Hare et al., 2018). This measure was designed for research purposes, but due to the involved nature of its administration and its reliance on file review, use of the PCL-R in certain research settings can be prohibitive. The PCL-R can be used to arrive at a potential diagnosis of clinically significant psychopathy (Hare, 2003), but the underlying conceptual and statistical model treats psychopathy in terms of a continuous spectrum. As such, the PCL-R and the construct it assesses is highly relevant in general population settings, as well as clinical and forensic settings.

To help extend research on psychopathy, a suite of measures has been developed based on the conceptual framework of the PCL-R (Hare et al., 2018). Prominent among these measures is the Self-Report Psychopathy Scale, which is now in its fourth edition (SRP-4; Paulhus et al., 2016). The SRP-4 translates the construct language that can be employed in a self-report format, and thus greatly increases the accessibility and ease of measuring psychopathic traits outside of clinical/forensic settings. The SRP has been translated and used globally (Leon-Mayer et al., 2019; Seara-Cardoso et al., 2019). This measure has been found to work well in young adult samples (e.g., Dotterer et al., 2016), community samples (e.g., Gordts et al., 2017), and incarcerated samples (e.g., Tew et al., 2015). In addition to the ease of its use, the SRP excels in the measurement of psychopathic features at both low (Dotterer et al., 2016; Paulhus et al., 2016), and higher levels of personality pathology (Neumann et al., 2015).

Further expanding upon the suite of psychopathic scales is the Business-Scan 360 (B-



Scan 360; Mathieu et al., 2013) which also uses the conceptual framework of the PCL-R, though adapted for a business setting. To do this, items were restated in more sensitive ways, avoiding obviously pathologic language that might cause confusion or response bias. Further, the items were couched within a business context, but at the same time, tapped how psychopathic propensities would be expressed in such a context. Items were developed both for rating others, such as a supervisor, and for self-ratings.

The SRP (Paulhus et al., 2016) and B-Scan 360 (Mathieu et al., 2013) have been shown to have the same factor structure as the PCL-R. The whole suite of measures represents the syndrome of psychopathy as a superordinate construct underpinned by four coherent unidimensional first-order factors (Neumann et al., 2007), or in terms of the four correlated factors themselves (Hare & Neumann, 2008; Neumann et al., 2015a; Neumann et al., 2012; Neumann et al., 2015b). This four-factor model has demonstrated good fit in an aggregate sample of over 50,000 individuals from across the global (Neumann et al., 2015a), and is ideal for exploring how the four domains may be differentially associated with a range of external correlates (e.g., Carré et al., 2013; Neumann et al., 2013). The four factors represent the *Affective* (e.g., low empathy and shallow emotions, etc.), *Interpersonal* (e.g., manipulative, charming, etc.), *Lifestyle* (e.g., high impulsivity, parasitic living, etc.), and *Antisocial* (e.g., poor behavioral controls, criminal versatility) features of the larger syndrome (Hare & Neumann, 2008; Paulhus et al., 2016). The B-Scan 360 utilizes the same four-factor model, with factors labeled in terms of psychopathic features manifested in a business setting (Callous/Insensitive, Manipulative/Unethical, Unreliable/Unfocused, and Intimidating/Aggressive) (Mathieu et al., 2013). Inherent to these models is that overt antisocial features are an essential component of psychopathic personality, consistent with behavior genetic and longitudinal research, as well has

a host of structural equation modeling studies (Hare & Neumann, 2010; Neumann et al., 2015).

The emphasis on overt antisocial psychopathic features (aggression, poor behavioral controls), as opposed to more covert antisocial elements (e.g., deceitful manipulation, callous use of others), is one of several controversial topics in the field (Lilienfeld, 1994; Hare & Neumann, 2010; Skeem & Cooke, 2010). Some have argued that criminality is a correlate or byproduct of the true core elements of psychopathy (Drislane et al., 2014). While other have gone as far to claim that psychopathic traits are not necessarily antisocial (Lilienfeld, 1994) and could in fact be beneficial (Lilienfeld et al., 2018; Persson & Lilienfeld, 2019). Important to note is that none of these theories deny that psychopathic traits can be strongly associated with antisocial behavior. Rather the argument is centered around whether antisocial traits constitute a core component of psychopathy or if they represent a correlate to or consequence of the core components. Further concerns have been expressed regarding the alignment of the PCL-R and Cleckley's original conceptualization, suggesting that the PCL-R does not fully encompass the construct (Hare & Neumann, 2008).

While the debate continues, convincing evidence exists that has led many to state that dissocial and broad antisocial tendencies are core to the construct. It has been found that psychopathic traits, even at low levels in community samples, were interpersonally corrosive due to their association with deficits in key areas of socio-emotional functioning (Mullins-Nelson et al., 2006). Longitudinal studies have found a bidirectional relationship between psychopathic traits and antisocial behavior (Forsman et al., 2010). Further, serious concerns have been raised regarding the models of psychopathy that do not consider antisocial behavior as a core component, be it for statistical or methodological errors (Evans & Tully, 2016; Lynam & Miller, 2012) or theoretically incompatible external correlates (Miller & Lynam, 2012). Combined with

the consistent correlations between the antisocial factor, as conceptualized by the PCL-R, to external correlates (Hare & Neumann, 2008) across global samples (Neumann et al., 2015a), there are compelling reasons to prefer measures and models that treat it as an essential component. Similarly, the model's consistent performance globally has done much to assuage fears about construct drift, especially considering Cleckley's work was based on observations of limited and likely unrepresentative samples (Hare & Neumann, 2008).

Another potential measure of psychopathy is the Elemental Psychopathy Assessment (EPA; Lynam et al., 2011). This measure took items from different Five Factor Model (FFM) measurements that had consistently and strongly been linked to psychopathic traits, including those measured by the PCL-R and SRP. The authors also selected items from the PCL-R and translated them into FFM traits. The EPA, like the PCL-R, conceptualizes antisocial traits as a key component of psychopathy. The EPA was initially validated in both student and prison settings and has since found robust support by multiple studies with various populations (Collison et al., 2016). Due to the method of its creation, one of the EPA's strengths involves linking psychopathic traits to basic (or normal range) personality elements, which adds considerable depth to our understanding of the nature of psychopathic personality. Additionally, the items in the EPA tend to be phrased in non-clinical terms, making it especially well-suited for working with community samples. Despite its non-clinical language, scores on the EPA have been found to have positive correlations with antisocial personality disorder traits, as well as aggressive social cognition (Miller et al., 2014). However, recent modeling research on the 18-item super-short version of the EPA reveals that it has considerable item cross-loadings, and thus likely provides scales with limited interpretability (see Table 2 of Collison et al., 2016). Thus, the current project tested whether this new scale has coherent unidimensional factors.

Each of the measures detailed above represents psychopathic traits in terms of a continuum (Hare & Neumann, 2005; Miller & Lynam, 2015; Neuman et al., 2015b). In recent years, there has been a considerable research focus on low or sub-clinical traits, typically found in non-forensic and community samples. For instance, low levels of psychopathic traits have been linked to a range of relevant correlates such as interpersonal aggression (Miller et al., 2014), bullying behavior (Orue & Calvete, 2019; Welter Wendt & Jones Bartoli, 2018), and counterproductive work behavior (Blickle & Schütte, 2017; Scherer et al., 2013). A theme from this line of research is that even in low levels in the community, psychopathic traits can be linked to a wide range of negative behaviors and other ‘dark’ psychopathy-related features.

#### Extensions of Psychopathy to Other Forms of Dark Personality

One theory, and measure to articulate the theory, that has been used to explore the relationships between psychopathy and other problematic personality traits is the Dark Triad. The Dark Triad is a set of three closely interrelated personality traits that was first described by Paulhus and Williams (2002). The three personality domains are psychopathy, narcissism, and Machiavellianism. Notably, the first two constructs, which have relatively distinct clinical presentations, are considered within a subclinical context. In this context, typical psychopathic traits include high impulsivity and thrill seeking combined with low empathy and anxiety. Subclinical narcissistic traits include grandiosity, entitlement, dominance, and superiority. The construct of Machiavellianism comes from the works of Machiavelli (most notably *The Prince*) and represents ‘cold’ emotional processing and interpersonal manipulateness (‘the ends justify the means’). As originally described, each of these personality domains were thought to reflect separate constructs, even though they generally are moderately inter-correlated. Taken together, they are meant to represent a ‘dark’ cluster of personality, related to antisocial, aggressive,

manipulative, antagonistic, and self-centered behavior.

In the years since its publication, there has been much debate about if the three constructs of the Dark Triad are truly separate. Numerous studies have found that the three domains load onto a single latent factor (e.g., Hoddson et al., 2009). However, in a ten-year review of the measure, Furnham, Richards, & Paulhus (2013) continued to argue for the utility of the measure as three separate domains. Nevertheless, studies have continued to find that models which represent the significant overlap or shared variance among the three domains work best. For instance, a large multitrait-multimethod study utilizing exploratory structural equation modeling found that the model with a single latent core provided the best fit to the data (Volmer et al., 2019). Others have struggled to find significant differences between Machiavellianism and psychopathy in terms of their associations with a large number of external correlates (Miller et al., 2017; Vize et al., 2018). A meta-analysis further supported these findings, concluding that the nomological networks of Machiavellianism and psychopathy substantially overlapped, while narcissism showed some differentiation (Vize et al., 2018). A separate meta-analysis found that the three domains were substantially overlapping and questioned if they were sufficiently distinct to be considered separately (Muris et al., 2017). Glenn and Sellbom (2015) postulated that due to both theoretical and statistical considerations, the two other domains of the Dark Triad are better conceptualized as features of psychopathy. Then using a sample of nearly 1,000 offenders, these investigators found that psychopathy accounted for the vast majority of variance in external correlates assessed by the Dark Triad measure. They concluded that Machiavellianism and narcissism did not add incremental validity in their models beyond psychopathy, and thus questioned the use of measures beyond those that include psychopathy. Nevertheless, the links between the three domains of the Dark Triad still remains an open area of investigation (Volmer

et al., 2019). For instance, new large sample latent variable modeling research indicates that the dark domains are separable (Neumann et al., 2021), and thus previous studies and meta-analyses may be limited in that they relied on observed (manifest variable) approaches to assess the overlap versus unique contributions of each dark domain. At the same time, the findings thus far indicate that psychopathy tends to be the strongest predictor of various external correlates (Neumann et al., 2021), so much so that some question if the other domains are not just extensions or different variants of psychopathy (Miller et al., 2017).

While the literature on the Dark Triad is conflicted, it has undoubtedly spurred multiple areas of research (Muris et al., 2017). One very interesting and recent area of development has been looking at the ‘opposite’ traits of the Dark Triad. One study reasoned that if personality traits are normally distributed and if psychopathy represents one end of a continuum, there will be an opposite “light” side (Woodmass & O’Connor, 2018). Using multidimensional scaling analyses from a college student data set, it was found that the light side includes traits such as a tendency to experience guilt and shame, honesty, cooperation, high agreeableness, and humility. The authors labeled this trait ‘compassionate morality’ and speculated that it encompassed a wide worldview related to many behaviors, much like has been suggested for high levels of psychopathic traits, just in the opposite direction. There are concerns that could be raised regarding the study by these authors, in particular the notion that psychopathic traits are normally distributed. Based on a large general population sample, Neumann and Hare (2008) found that psychopathic traits are very skewed, and thus why the prevalence of elevated psychopathic features in general populations is extremely rare. Nonetheless, this line of research opens an interesting direction for study and has led investigators to consider whether there are personality trait domains that contrast with (though not necessarily the opposite of) psychopathic features.

Expanding on such an idea of traits that contrast with negative or ‘dark’ personality traits, investigators have recently sought to create a Light Triad Scale (LTS; Kaufman et al., 2019). The Light Triad was designed to assess more beneficent aspects of human personality and potentially conceptually mirror the nomological network of the Dark Triad. The Light Triad consists of Kantianism, Humanism, and Faith in Humanity. Kantianism reflects Kant’s principle of respecting the individuals for themselves (and thus not as a ‘means to an end’), contrasting with Machiavellianism. Humanism is conceptualized as the valuing of others and recognizing their worth, thus contrasting with narcissism’s self-centeredness. Faith in Humanity reflects the belief in the fundamental goodness of humans, in contrast perhaps, to the ‘evil’ that is often attributed to psychopathy. The LTS is meant to capture the attitude of seeing the world and others as good. To create the LTS, the authors conducted 4 studies including over 1,500 community members recruited online. They first conducted an exploratory factor analysis of potential theory-driven items and which resulted in identification of 12 items that demonstrated good fit for a three-factor model. These LTS scales were then administered with 40 different scales, tasks, or question clusters across the 4 studies. The authors concluded that the LTS measured constructs outside of existing measures. They found that the Light Triad was associated with increased feelings of self-transcendence, life satisfaction, well-being, and positive growth mindsets. While initially conceptualized as the converse of the Dark Triad, the overall findings led the authors to state that “... the Light Triad was not merely the inverse of the Dark Triad” (p. 20). Indeed, the LTS was only correlated .48 with the Dark Triad total score. Taken together, the findings showed that the ‘light’ and ‘dark’ trait domains are at least in part independent, not merely opposite ends of the same spectrum.

While in the early stages of development, the concept of a positive and prosocial cluster

of personality traits possibly being balanced with an antisocial or dissocial cluster, such as psychopathy, is a compelling one. It can be further explored by looking to some of the core correlates and conceptual building blocks of these trait domains. Determining if these traits exist on their own, rather than as one end of a spectrum, will be an open area of exploration for the foreseeable future.

### The Relationship of Empathy and Psychopathy

Across the Light and Dark Triads, as well as a host of personality traits, empathy often plays a critical role in defining or understanding the specified construct. Broadly, empathy has been defined as the process of perceiving emotional states of others, understanding these emotional states, and then responding to them (Jolliffe & Farrington, 2004). By this definition, there are two primary processes involved in an empathic response. First, there is the cognitive ability to perceive and process another person's emotional state. Second there is the affective process: after processing another person's emotional state, the individual may have their own reaction. Because there are multiple elements constituting empathy, the same result (e.g., a diminished empathetic response) could have different underlying causes. For example, both autism (Mazza et al., 2014) and psychopathy (Lishner et al., 2015) are strongly associated with diminished empathetic response. However, the underlying causes of these broad characterizations are sharply contrasting. Individuals on the autism spectrum have been found to have significant impairments primarily in the cognitive processes of empathy, rather than the affective domains (Mazza et al., 2014). Conversely, psychopathic traits have primarily been associated with deficits in the affective processes of empathy (Lishner et al., 2015; Mullins-Nelson et al., 2006; Seara-Cardoso et al., 2019) and not the cognitive processes (Vachon & Lynam, 2016). An understanding of these underlying differences helps explain a common



presentation type between two very distinct disorders.

As the above example helps demonstrate, there can be great merit in understanding the different components of empathy. However, the measurement of empathy has often not reflected this importance, which has been a detriment to research efforts. To demonstrate this problem, Vachon, Lynam, and Johnson (2014) conducted a meta-analysis focused on the relationship between aggression and empathy. While these constructs are generally considered to be strongly related, traditional measures of empathy were found to account for only approximately 1% of the variance in aggression scores. The authors concluded that measures that treat empathy as a unidimensional construct create significant theoretical and statistical issues that hamper their research utility. Inspired by this finding, some of the original authors of the meta-analysis created a new measure of empathy, the Affective and Cognitive Measure of Empathy (ACME; Vachon & Lynam, 2016). As suggested by the name, the ACME breaks the concept of empathy into two domains: cognitive and affective. The cognitive domain is a single factor which encompasses the processes involved in the perception and cognitive processing of emotional states in others. The affective domain is split into two different factors: affective resonance and dissonance. Affective resonance is the factor most closely related to previous measures of empathy. It is the alignment (or congruence) of emotional states or reactions between the individual and others. Affective resonance is associated with sympathetic and compassionate responding. Affective dissonance represents a more sinister response. Similar to schadenfreude or spitefulness, it is the incongruence of emotional states or reactions between the individual and others. An example of affective dissonance would be gaining pleasure from the sadness of another. Affective dissonance is reverse scored to maintain the conceptual direction of the measure (i.e. high scores in each factor represent empathetic responding). Using their own measure, the authors were able

to account for 14% of the variance in the same measures of aggression used in the meta-analysis. The authors further demonstrated the utility of their measure via correlations to the measures of a range of other disorders, including psychopathy.

Psychopathy and empathy have been linked together since psychopathy's modern conceptualization and were a focal point in Cleckley's writing (1941/1982). Low empathy or callousness is a key trait in the four-factor model of the PCL-R (Hare, 2003). However, this relationship is more than a single scoring criterion. Diminished empathetic response has been consistently and robustly linked to elevated psychopathic traits (Lishner et al., 2015; Seara-Cardoso et al., 2013; Seara-Cardoso et al., 2012). This relationship has been linked to interpersonal deficits and problematic social behavior (Mullins-Nelson et al., 2006), moral decision making (Seara-Cardoso et al., 2012), and other complex behaviors. Despite this longstanding relationship and previous warnings about the shortcomings of using older measures of empathy in studying psychopathy (Domes et al., 2013), only recently have researchers of psychopathy started emphasizing the necessity of reengaging past work with more multifaceted measures of empathy (Preston & Anestis, 2019). This relative dearth of research utilizing multifaceted measures of empathy is particularly concerning, making the use of measures such as the ACME more compelling, particularly when considering affective dissonance. The authors of the ACME noted that this domain was not well-captured by traditional measures of empathy (Vachon & Lynam, 2016). Given the strength of its relationship to aggression and externalizing behaviors, affective dissonance appears to be a very promising tool for future research on psychopathic traits. At the same time, it is important to recognize that the three ACME domains are significantly inter-correlated, especially at the latent variable level (Vachon & Lynam, 2016), and therefore it may be that the ACME can also be represented by a super-ordinate factor,

similar to the PCL-scales.

Nevertheless, there is research linking multi-domains of empathy to the facets of the Dark Triad (Pajevic et al., 2018; March, 2019; Turner et al., 2019). Across these studies it is consistently found that psychopathy is most strongly associated with deficits in affective empathy, rather than cognitive empathy. However, this subset of literature has also primarily made use of the older measures of empathy, thus suffers from the same limitations previously detailed.

### Psychopathy and Social Cognition

Social cognition refers to any set of cognitive processes that underlie our interpersonal perceptions and interactions (Showers & Cantor, 1985). There are a wide range of influences on social cognition, from situational to affective to dispositional. While investigating short-term and situational influences on social cognition has historically been a very popular pursuit in the social psychology literature, the links between personality and social cognition are becoming an area of greater focus (Glenn et al., 2017; Berggren et al., 2019).

As our knowledge of the interplay of personality and social cognition has grown, some researchers have started to investigate the relationships between psychopathic traits and established social cognitive variables (Jones & Figuerdo, 2013; Gordts et al., 2017; Glenn et al., 2017; Takamatsu, 2019). One such variable is Social Dominance Orientation (SDO), which was first proposed by Sidanius (1993). SDO refers to the tendency for an individual to prefer hierarchy and inequality in groups. Individuals high in SDO will strongly desire for their group to exist in a dominant position over other groups of lower status. While the SDO construct was initially conceptualized more in terms of a belief, subsequent research has found that SDO is more likely an early-emerging and stable disposition or trait (Bratt et al., 2016). For example,

SDO is significantly correlated with low agreeableness, a fundamental normal range personality trait, and also competitive worldviews (Sibley & Duckitt, 2013). Essential to the initial conceptualization of SDO was low empathy (Pratto et al., 1994) and it has consistently been found to have negative correlations to empathy (Sidanius et al., 2013). It is unsurprising then that SDO has been linked to psychopathy in multiple studies (Jonason, 2015; Jones & Figuerdo, 2013; Yokota, 2012; Glenn et al., 2017; Roy et al., 2020). In sum, the basic relationships between SDO, psychopathy, and empathy have been firmly established.

More recent models of SDO have begun to treat SDO as having two factors: Dominance and anti-Egalitarianism (Ho et al., 2015). The dominance factor captures the desire for strong groups to oppress lower status groups. The anti-egalitarian factor reflects a desire for inequality to exist among groups. The factors are largely similar to the concepts from the original writing, but the anti-egalitarian domain now includes preference for ideologies or policies that enhance unequal group hierarchies. Accordingly, the established measurement of SDO was updated to reflect these subtle changes and remove confounding language/items. This proposed update resulted in a shorter and more precise measure. It was then validated in a study utilizing data from approximately 2,500 participants across 7 samples (although notably only Black and White adults were included in the sample). However, it should be emphasized that this is a very short scale, and it remains a possibility that the two domains are higher correlated, and thus represent indicators for a higher-order (superordinate) SDO factor.

A second social cognitive variable of interest is Right-Wing Authoritarianism (RWA), which as it turns out is significantly correlated with SDO. The RWA construct should not be confused with the political ideology which loosely influenced the name. Instead, RWA is a dispositional propensity for desiring established authority (even if outside the individual),

conforming to societal norms, and punishing violations of these norms (Altemeyer & Hunsberger, 1992). Individuals high in RWA have a preference for homogeneity and structure in their surroundings and in society. The relationship between RWA and empathy is not as well established as is that between SDO and empathy. Some studies have found weak associations between RWA and empathy (Bäckström & Björklund, 2007), while others have failed to establish a relationship at all (MacFarland, 2010; Nicol & Rounding, 2013). The relationship between RWA and psychopathy is also ambiguous. Multiple studies have either null or small relationships between the two constructs (Hodson et al., 2009; Jones, 2013; Jonason, 2015). Notably, one of these studies did not find a significant relationship between RWA and psychopathy, but suggested that a particular combination of the two constructs influenced the type of prejudicial ideas individuals endorsed (Jones, 2013). When multi-dimensional measures of psychopathy have been used, relationships between specific factors of psychopathy and RWA have been found (Gordts et al., 2017). Overall, the relationships between RWA and empathy, as well RWA and psychopathy, appear to be weak or non-existent, but this could be due in part to measurement issues.

The original measure of RWA (Altemeyer, 1998) had several issues that clouded interpretation (Zakrisson, 2005). It mentioned specific racial groups and had extreme wording that was likely to induce socially desirable responding. Further, it has been demonstrated that RWA actually constitutes three separate factors: Authoritarianism (favoring coercive social control), Conservatism (maintenance of the status quo), and Traditionalism (expression of traditional morals and values) (Duckitt et al., 2010). These three domains constitute separate but inter-related factors, though some evidence suggests the three domains may be indicators for a higher-order (super-ordinate) ACT factor (see Discussion by Duckitt et al., 2010). Still, each has

been reliably measured in multiple countries and each have differential relationships to external correlates. Importantly, this modernized three-factor model treats the sub-factors of RWA more as social cognitive or attitudinal variables, than did Altemeyer (1998), who treated RWA like a personality trait. The authors did not discount the potential influence of personality characteristics on RWA but indicated that RWA should be considered distal to personality (Duckitt et al., 2010). Importantly, the authors emphasize that their updated model did not make major alterations to the concept of RWA, as they utilized Altemeyer's own items as a basis for their measure (Duckitt et al., 2010). Rather they offered a conceptual and statistical clarity in the measurement of the construct.

#### Dual Process Model

Both SDO (Sidanius, 1993) and RWA (Altemeyer, 1998) were conceptualized from their start to be related to prejudice. Indeed, both have been found to be potent predictors of prejudice on their own (e.g., Sidanius et al., 2013; Hodson, Hogg, & Busseri, 2017). It is not surprising then, that they quickly began to be used together in order to better understand prejudice. The first formal model to utilize both of these constructs in conjunction was the Dual Process Model (DPM; Duckitt, 2001). The DPM conceptualizes SDO and RWA as two separate motivations or driving forces for Generalized Prejudice (GP). Generalized Prejudice is based on the concept that individuals tend to hold similar levels of prejudice across different groups (Bierly, 1985). Therefore, it can be viewed as a tendency to hold prejudiced attitudes, outside of a specific group. One key benefit of assessing GP is that it frees researchers from the requirement of using multiple scales across multiple groups to assess prejudicial attitudes. However, once a person's level of GP has been measured, it can be used to estimate their level of prejudicial attitudes towards a specific group (Duckitt et al., 2002). Support for the DPM has been found in multiple

Western or Westernized populations and across many different measures of prejudice (Asbrock et al., 2010; Bäckström & Björklund, 2007; Duckitt, 2001; Hodson et al., 2017; McFarland, 2010). Different statistical models of GP have been able to explain as much as 70% of the variance in individual prejudicial attitudes towards a given group (Aosved & Long, 2006; Bäckström & Björklund, 2007; Ekehammar & Akrami, 2003).

As previously mentioned, the DPM conceptualizes SDO and RWA as underlying processes that influence GP (Duckitt, 2001). Further, they are specified to be social cognitions, which may be influenced by motivational goals. Conceptually, these processes were hypothesized to predict prejudicial attitudes. Longitudinal research now supports this hypothesis, where it was found that SDO and RWA predicted GP, not the other way around (Asbrock et al., 2010). Each of these factors represents a separate, but related, social cognitive motivation (Duckitt, 2001). SDO leads to prejudice through competitive-dominance which is driven by a lack of feeling for others. This somewhat detached and calculated prejudice has been referred to as cold discrimination (Fiske et al., 2002). On the other hand, RWA is hot discrimination driven by the presence of negative feelings for others. RWA leads to prejudice through threat-control motivations (Duckitt, 2001). Importantly, SDO and RWA were never conceptualized to be the sole predictors of GP in the DPM, rather they are two of the stronger predictors. Researchers have successfully integrated constructs such as empathy (Bäckström & Björklund, 2007; MacFarland, 2010) and personality traits, including the Dark Triad (Hodson et al., 2009), and psychopathy (Roy et al., 2021) into the DPM and found these variables improve the amount of variance accounted for in prejudicial attitudes above the original model.

While SDO and RWA have been conceptualized as separate constructs, they have consistently been found to be moderately to strongly correlated (Roccatò & Ricolfi, 2005; Sibley

& Duckitt, 2008). The strength of this consistent correlation led some to hypothesize that SDO and RWA are two representations of the same higher-order trait. By using these constructs to create a latent trait, named General Authoritarian (GA), researchers have created models that can outperform the DPM in accounting for variance in GP (Hodson et al., 2017). However, such a model has potential downsides, such as lowered ability to track the differential relationships SDO and RWA may have with other constructs (Hodson et al., 2009). This shortcoming, in conjunction with the modest improvement in its predictive power over the DPM, does limit the utility of the GA model. An additional consideration is the potential confound that may have come from measurement error introduced by the older measures associated with the DPM. As previously mentioned, traditional measures of SDO (Ho et al., 2015) and RWA (Duckitt et al., 2010) had blurred conceptual operationalizations and problematic item language. Further, concerns had been raised that traditional RWA measures partially captured SDO as well, which artificially increased the correlation between the two constructs (Zakrisson, 2005). Updated measures of RWA have been shown to have much smaller correlations to SDO. Taken together, there are compelling reasons to consider utilizing the DPM over GA models.

### Motivated Social Cognition

Social cognition is very much dependent on personal context. An individual's goals, mood, and incentives can all influence social cognition (Showers & Cantor, 1985). This context can provide motivation in how we evaluate ourselves or others and in our interactions with others, giving rise to what is called motivated social cognition. Researchers have long been able to show that there can be significant flexibility in our social cognitions with a wide range of motivators. The affected processes can include, adjusting interpretations of information, seeking alternative explanations, and reworking existing knowledge. These alterations can influence our



future cognitive processes and thus our experiences. These alterations can also be driven by personality traits (Berggren et al., 2019). Some have argued that personality can be viewed as a set of evaluative interpretations and goals used by the individual to transform their environment into a preferred state (Hirsh et al., 2009; DeYoung, 2010). Within this context, the links between personality and social cognition can be clearly seen. By better understanding a person's motivations, such as their goals and values, one can improve the prediction and understanding of their behavior (Showers & Cantor, 1985).

From its outset, RWA has been associated with motivated social cognition, even if it was not explicitly labeled as such (Altemeyer, 1998; Duckitt et al., 2010). Particularly in its most modernized conceptualization, the three factors of RWA revolve around values and goals related to security. Each can be seen through the lens of reducing individual autonomy to promote security. Thus, disruptions or change to societal norms represent a threat to security. Additionally, security can be found in the familiar, rather than the unknown. Therefore, an individual high in RWA will be more likely to view the unknown as more threatening. Accordingly, RWA has previously been associated with low openness to experience and viewing the world as a dangerous place (Hodson et al., 2007; Sibley & Duckitt, 2013). On the other hand, SDO has also been linked to motivated social cognition, however it appears to have very different underpinnings (Ho et al., 2015). SDO is driven by a sense of competition, thus the world is viewed as highly competitive. The threat is thus surrounding the availability of resources and relative power structures.

Some consideration has gone into how personality/dispositional propensities (such as SDO and RWA) may interact with situational triggers to affect social cognition. In light of the different underlying drives of the DPM mentioned above, one might expect different triggers to

activate motivated social cognition. Duckitt (2001) originally hypothesized that different beliefs about the world would appeal to different motivational goals and prejudices. As such, perceptions that the world is highly ruthless and competitive (competitive worldview; CW) are likely to activate SDO related attitudes (Perry & Sibley, 2010). On the other hand, perceptions that the world is harmful and threatening (dangerous worldview; DW) are likely to activate RWA related attitudes. Another way of understanding this relationship is that worldview represents how a person sees the world, while SDO and RWA represent how a person believes the world should be. An individual's current perception of the world can influence the expression of their underlying beliefs. By understanding these perceptions, researchers can better account for the expression of SDO or RWA in a sample.

Work has begun on investigating some of the more elemental processes that drive motivated social cognition. It has been hypothesized that since SDO and RWA are broad constructs, they may be composed of more narrow processes, such as need for closure, need for cognition, and intolerance of ambiguity (Berggren et al., 2019). Using established measures of cognitive styles, it was found that closed-mindedness (a subsection of need for closure, intolerance of ambiguity, need for cognition, and need for closure) was a potent predictor of GA, explaining between 36-56% of its variance. While the majority of the models developed in this study involved a latent GA factor, correlations and stepwise regressions revealed that the relationship with closed-mindedness varied between SDO and RWA, which can be seen as providing support for maintaining the more traditional DPM to help track the differential associations SDO and RWA may have with various external correlates.

Another similarly related cognitive style that may instigate motivated social cognition is intolerance of uncertainty. Intolerance of uncertainty involves general distress or anxiety in

response to ambiguous situations or future events that cannot be predicted (Carleton et al., 2007). Individuals high in intolerance of uncertainty generally interpret unclear information as threatening and broadly view the future with anxiety. While conceptually similar to other cognitive styles, such as intolerance of ambiguity, intolerance of uncertainty has been shown to be stable over multiple weeks and its measures have had convergent validity with relevant external correlates (i.e., assorted anxiety and worry measures). Intolerance of uncertainty can lead to motivated social cognition by causing an individual to perceive unfamiliar groups or individuals as a threat. Alternatively, another person's ambiguous actions will be viewed as threatening which may stimulate threat management attitudes and beliefs, such as RWA.

As previously stated, understanding an individual's values and goals can help inform the drives associated with motivated social cognition. Recent work has begun to understand the values and goals associated with psychopathic traits (Glenn et al., 2017). In a large online study, it was found that an elevation in psychopathic traits was associated with a complex array of underlying goals. The expected association between psychopathic traits and SDO was found. However, additional measures helped illuminate that this desire was for relative group dominance instead of absolute group standing. Put another way, the feeling of being higher than other groups was more important than actual group standing. Similarly, psychopathic traits were associated with a desire to seek power, such as material and financial success, but were not associated with values that lead to self-improvement (e.g., self-direction and achievement). Psychopathic traits were also associated with hedonism and typified by a focus on resources. Overall, it was found that psychopathic traits were associated with goals and values that were driven by others (i.e., either defined by others or exist relative to others) rather than internally focused goals.

## Motivated Social Cognition and Prejudice

Many different theories have attempted to explain how prejudicial attitudes are formed or why they are expressed. One prevalent and influential theory has been Terror Management Theory (TMT; Greenberg et al., 1986). According to this theory, when faced with large existential threat, people seek to instill meaning and security to combat this threat. It can occur through many different avenues, such as more closely identifying with a group or through endorsement of certain political attitudes and opinions. It has even been found that large events, such as war, can induce attitudes consistent with TMT (Gillath & Hart, 2010). This theory was quickly linked to prejudice, where it could be used as an explanatory mechanism for prejudicial attitudes (Greenberg et al., 2016). Notably, TMT is not conceptualized as a sole means of explaining prejudice, but rather a cluster or pattern of individual responses that result in prejudicial attitudes. However, one common mechanism of TMT is anxiety response or reduction.

Both anxiety and uncertainty have been established as driving forces of prejudice (Stephan et al., 1999). Whether by altering a person's appraisal, approach behavior, interaction style, etc., both anxiety and difficulty with uncertainty can contribute to individuals acting in prejudicial manners. Multiple theories have worked to clarify and better understand how anxiety translates into prejudice. One potential route is by looking to different cognitive processes underlying anxiety. For example, some have found that trait anxiety and mood had an interaction effect with the activation of motivated social cognition, which could lead to prejudicial attitudes in certain circumstances (Ciarrochi & Forgas, 1999). Need for closure, one of the elemental cognitive processes previously discussed which reflects a desire for fast, easy, and certain judgements, has also been linked to prejudice (Roets & Van Hiel, 2011). Specifically, it was

found that need for closure was related to essentialist beliefs about other groups. Essentialist beliefs include such ideas as out-groups are largely uniform and categories are highly informative, thus labels allow one to infer a great deal of information about an individual. It was proposed that these beliefs are the result of motivated social cognition driven by need for closure.

Others have attempted to differentiate the different types of threat that might generate prejudice. An explanatory model has been proposed in which prejudice arises from a threat to in-group resources or processes (Cottrell & Neuberg, 2005). Specifically, different types of prejudice arise when an out-group poses a threat to in-group resources than when the out-group stands to disrupt in-group functioning. In either of these instances, the out-group is treated with hostility or kept at a distance, however, the specific emotions that are activated and type of reaction will vary based on the threat. The creators of this model went on to caution against conceptualizing prejudice in a single dimension. Interestingly, these authors did not draw a parallel from their model to the DPM. As noted above, SDO is a competitive and resource driven attitude (Ho et al., 2015) and RWA is geared towards reducing threat to the individual and in-group (Perry & Sibley, 2010). Regardless of the conceptualization, it appears to stand that perception of anxiety and threat are large motivators of prejudice related social cognition.

### Psychopathy and Prejudice

The relationship between psychopathy and prejudice has only been scarcely investigated. This is a surprising fact, given the empirical findings such as those discussed earlier indicate these two constructs are related to one another. While Hare (1996) suggested that psychopathic traits could be linked to prejudicial actions, the first study to attempt to explore this relationship was not conducted until 2009 (Hodson et al., 2009). Even then, the authors did not directly explore this relationship, rather they created a DT latent variable and linked it to a correlate of

prejudice. Incidentally, they did find a significant relationship between the latent variable and the correlate (which then was predictive of prejudice).

The first attempt to directly test the link between psychopathy and prejudice did not occur until years later (Jones, 2013). In a series of studies, it was found that psychopathic traits, only in conjunction with RWA, predicted more explicit racial attitudes and endorsement of violent racial ideology. However, these results are limited given the measure of prejudice used was outdated. This can artificially depress item endorsement, as expression of racial prejudice has been found to change over time (Pearson et al., 2009).

Another published study has focused directly on the link between prejudice and psychopathy (Griggs & Manderson, 2015). This study found significant associations between the two constructs, however the psychopathy measure employed is not often used in most studies of psychopathy, despite some evidence of its validity (Neumann, Wampler, Blonigen, & Iacono, 2011).

Another study utilized the DT to explore attitudes towards immigrants in Australia (Anderson & Cheers, 2018). It was found that psychopathic traits were predictive of more modern expressions of prejudice and not old-fashioned expressions. The inverse was found for Machiavellianism. This conflicts with the findings from Jones (2013), where the opposite pattern was found. Of note is that anti-immigrant attitudes in Australia are highly prevalent and not met with the same degree of stigma as in the U.S. (Anderson & Cheers, 2018).

The most recent, and relevant, study was conducted by Roy and colleagues in 2021. These researchers developed a model which utilized a structural equation model to study the direct effects of psychopathic traits on the DPM factors and the indirect effect of these traits on prejudicial attitudes. This model was supported in both Greek and Croatian samples. The

findings demonstrated the significant effects (both direct and indirect) that psychopathic traits had on these constructs. This study most directly supports the connections between psychopathy and a dual-process model predicting prejudice.

While limited research has explored the direct relationship between psychopathy and prejudice, the links between psychopathic traits and correlates of prejudice are increasingly being investigated. As noted, psychopathy and SDO have been strongly linked across numerous studies (Jonason, 2015; Jones & Figuerdo, 2013; Yokota, 2012; Glenn et al., 2017; Roy et al., 2021). The relationship between RWA and psychopathy is much more complex, at times being evident (Gordts et al., 2017), while other times not (Hodson et al., 2009; Jones, 2013; Jonason, 2015). Looking to other social cognition variables, all three elements of the DT have been linked to competitive worldviews (Jonason, 2015). Outside of these studies, however, there exists very little other compelling literature investigating psychopathy and social cognitive variables.

Other research has found relationships between psychopathic traits and outcomes related to prejudice. Those with elevations in psychopathic traits had a reduced empathetic reaction when out-group members were punished compared to in-group members (Molenberghs et al., 2014). This reduced reaction may reflect prejudicial attitudes and likely represents a lowered inhibition towards acting against out-groups.

A more conflicted literature exists surrounding psychopathic traits and anxiety. While psychopathy and absence of anxiety were originally proposed (Cleckley, 1941/1982), they appear to have a much more complex relationship. PCL-R and more modern measures of anxiety appear to have a weak or non-existent relationship (Hale et al., 2004). Schmitt and Newman (1999) found that in criminal offenders with elevated PCL-R scores there was almost no relationship between PCL-R and nine different measures of anxiety and neuroticism. Hare and

Neumann (2008) commented on this relationship noting that it is not well understood and pointed out a better understanding of the different facets or manifestations of anxiety might have explanatory value, particularly in understanding different motivational contexts. In addition, it there is evidence for a positive association between psychopathy and anxiety in youth samples (Neumann et al., 2013). Recent work utilizing a multi-method approach was able to link certain factors of psychopathy to lowered anxiety, but not other factors (Thomson et al., 2019). Interestingly, these other factors of psychopathy were linked to feeling less in control in response to a fear producing stimulus. These more recent findings help explain some of the mixed findings of past research that did not utilize a multi-factor approach. While lowered anxiety could serve as a buffer to prejudice (Stephan et al., 1999), the loss of control could trigger motivated social cognition (Greenberg et al., 2016).

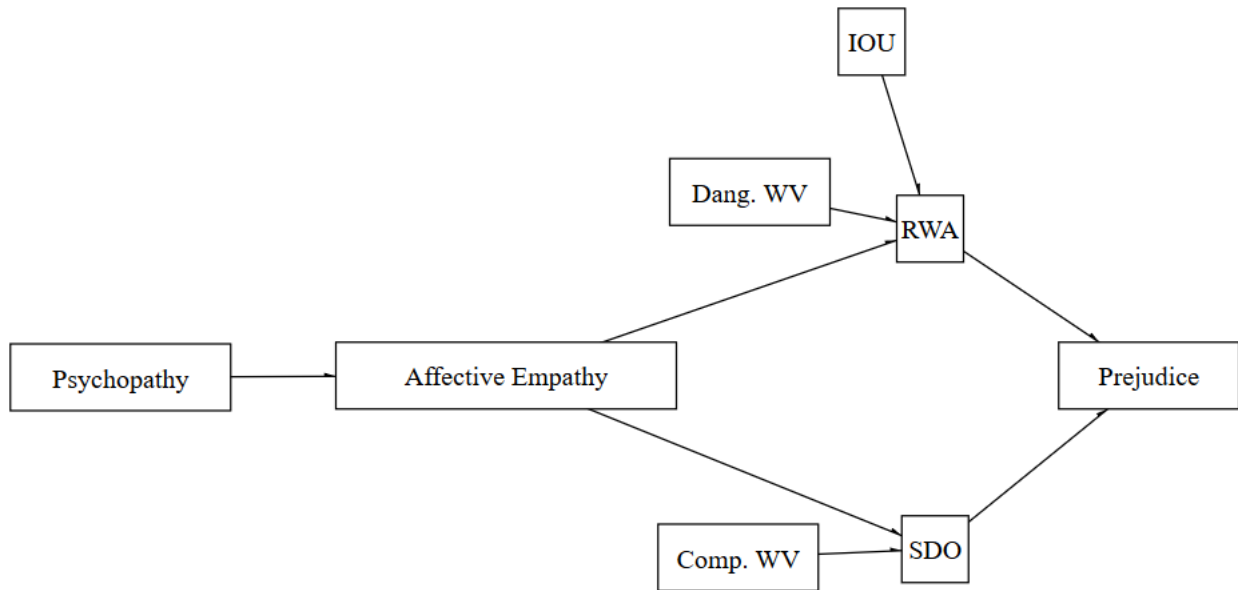
Given the considerable overlap that both psychopathy and prejudice have with the host of external correlates discussed previously, along with the limited research on the direct links between psychopathy and prejudice, it is clear that this is a very open area of inquiry. There is considerable room for additional research to uncover the nature of the association between psychopathy and prejudice as well as the external correlates that might mediate such an association. In addition to testing a number of hypothesized bivariate associations (discussed next), the current study will attempt to model the dynamic set of construct inter-relations that appear to be involved in prejudice. Specifically, a path analytic model will be utilized to map these relationships. Within this model, stable and early emerging constructs will successively lead to narrower and (developmentally) later developing constructs, based on the theoretical and empirical conceptualizations previously detailed above. Psychopathy, an early emerging and broad construct, will predict empathy. Empathy will predict SDO and RWA. SDO will also be



influenced by CW, while RWA will be influenced by DW and Intolerance of Uncertainty. Prejudice will be predicted by SDO and RWA, in keeping with the DPM. Figure 1 contains a broad conceptualization of this proposed model.

Figure 1

*Proposed Conceptual Model Relating Psychopathic Traits, Empathy, Social Cognitive Variables, and Prejudice*



### Study Goals and Hypotheses

The overall goal of the current study was to explore the relationships between personality traits (primarily psychopathy), social cognition, and prejudice. Within this broad goal, the current study had multiple specific aims. Prejudice is a complex construct; many different theories have been developed to try to better understand it and frequent calls are made to expand the scope of investigation (e.g. Greenberg et al., 1986; Cottrell & Neuberg, 2005). Despite these calls, however, personality traits have generally been underutilized or left out altogether (Ekehammar & Akrami, 2003; Sibley & Duckitt, 2008). The present study aimed to address this gap by

incorporating personality traits, primarily psychopathic, that have shown promise as predictors of prejudice in a limited literature (Jones, 2013; Griggs & Manderson, 2015; Jonason, 2015) into existing models of prejudice (Duckitt, 2001).

Many of the past studies of empathy, social cognition, and prejudice have suffered from limitations due to outdated or problematic measures. The present study aimed to use, and in some cases introduce, updated and statistically sound measures in each domain. A common approach in previous prejudice research involves the use of unitary measures for constructs, though emerging research provides evidence for inter-correlated multidimensional constructs. To address this issue, the current study utilized multi-factor measures of the underlying constructs when appropriate, but also examined the role of super-ordinate constructs in representing the domains of personality, empathy, and SDO/RWA in accounting for attitudes toward other (often derogated) groups of individuals. In addition, given that different measures of psychopathy have been employed and debate exists about the merits of each, the current study will utilize two measures of psychopathy, the SRP and EPA. In additional analyses, the current project also explored aspects of the Dark Triad and the recently proposed Light Triad in understanding prejudice.

Finally, previous studies have been limited by including only a small number of constructs at a time in the study of prejudice. Yet, it is apparent that a large number of constructs play a role in the expression of prejudicial attitudes and behaviors. By including a more expansive set of constructs, those uncovered in this review, the current study sought to provide a broader understanding of the dynamic construct inter-relations involved in the expression of psychopathic personality and prejudice. The specific bivariate hypotheses of the study were as follows (and can be found in Table 1).

It was hypothesized that results from the current study would support the DPM and its associated relationships, consistent with previous research (Duckitt, 2001). Specifically, that the SDO and RWA domains would be positively correlated, and both would be significantly associated with prejudicial attitudes.

Regarding psychopathy, as measured by the SRP, it was expected that the four factors of psychopathy will conform to the well-established four-factor model (Neumann et al., 2015a). It was predicted that the antisocial factor of psychopathy would positively correlate with RWA. Conversely, it was predicted that each factor of psychopathy would be correlated with SDO (Jones & Figueredo, 2013). It was hypothesized that the affective factors of the ACME would be correlated with each factor of psychopathy (Vachon & Lynam, 2016). Finally, it was predicted that the interpersonal, affective, and antisocial factors would predict prejudicial attitudes.

In more cursory aspects of the current study, it was hypothesized that the DT model of positive inter-correlations would be found with both measures of psychopathy. It was also hypothesized that Light Triad variables would have small to medium correlations with Dark Triad variables. However, it was hypothesized that the Dark and Light trait measures would not be redundant (i.e., opposite versions of one another), and rather would show some independence in their underlying constructs (Kaufman et al., 2019).

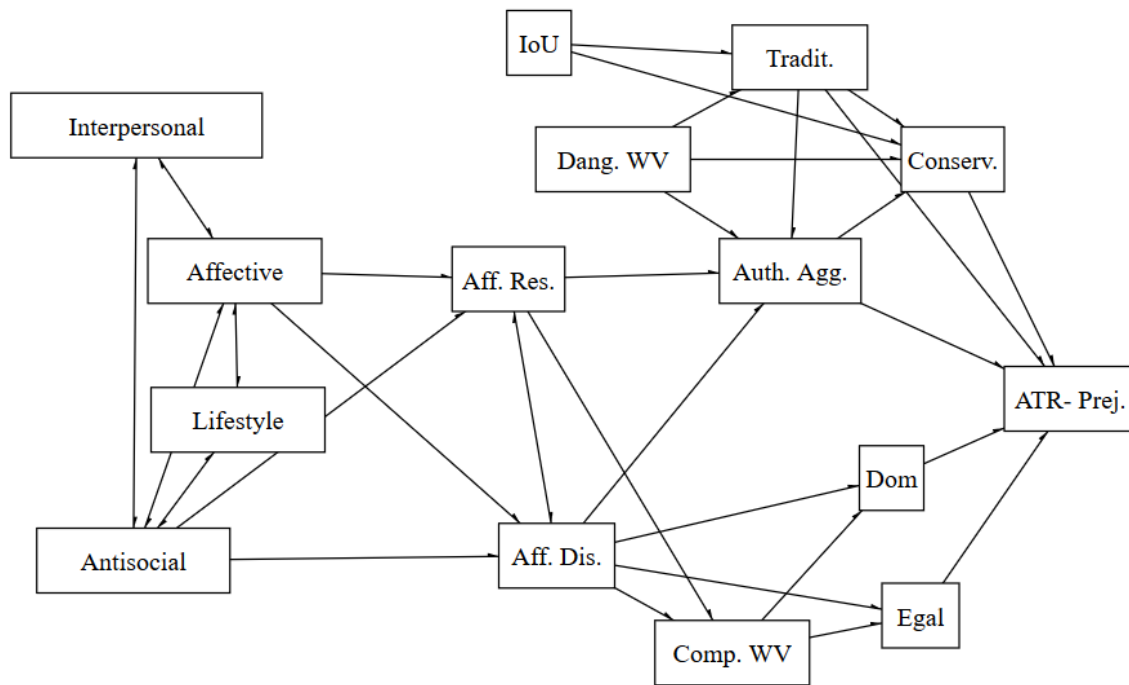
It was hypothesized that the affective factors of the ACME would predict SDO, RWA, and GP, while the cognitive factor would be unrelated (Bäckström & Björklund, 2007; McFarland, 2010).

Finally, it was hypothesized that the following relationships would exist via a path analytic model (a visualization of these relationships can be seen in Figure 2): The affective and antisocial factors of psychopathy would negatively predict the affective (and not cognitive)

factors of empathy. Both affective empathy factors would negatively predict the authoritarian aggression FWA factor as well as CW. Affective empathic dissonance would negatively predict both factors of SDO. All three factors of RWA would be positively predicted by DW, while intolerance of uncertainty would positively predict the traditionalism and conservatism factors. All three factors of RWA and two factors of SDO would positively predict prejudice.

Figure 2

*Hypothesized Path Model Showing Variable Relations among Predictors of Prejudice*



The current study also sought to explore the relationships between some of the included motivated social cognition variables, namely dangerous/competitive worldview (DW/CW) and intolerance of uncertainty, to psychopathic traits for the first time in a North American sample. Therefore a priori hypotheses were not made about their relation to psychopathic traits.

However, it was predicted that CW would be significantly related to SDO while DW would be

significantly related to RWA (Perry & Sibley, 2010). It was further predicted that intolerance of uncertainty would predict RWA.

## Method

### Design

The current study was designed to be a cross-sectional analysis of the relationships between personality traits, social cognition, and prejudice. The current study was part of a larger ongoing study exploring these areas in conjunction with other constructs related to psychopathic traits, vocation, and political attitudes. The study utilized a self-report survey administered to a large male sample. A dimensional and multi-factor approach was used for all appropriate variables. The ultimate goal of the study was to investigate the relationships between psychopathic personality traits and other potential predictors of prejudice. As an exploratory study, the relationships between previously untested construct associations or specific construct factors were examined. As such, initial data exploration and analyses were used to designate which variable associations were appropriate to be entered into a path analytic framework to generate models of the included constructs.

### Participants

One thousand individuals were recruited for this study through the Prolific crowd-sourcing platform ([www.prolific.co](http://www.prolific.co)), a website for human intelligence tasks. Online platforms have been increasingly used for collecting data for a number of reasons. It has been demonstrated that they increase the diversity of samples across multiple domains relative to undergraduate samples (Casler, Bickel, & Hacklett, 2013). Among these types of platforms, participants on Prolific have been found to have particularly high-quality responses (Peer, Brandimarte, Samat, & Acquisti, 2017). It has also been found that these participants are generally more measure

naïve, honest, and diverse than other platforms. The sample consisted of 1,000 adult men living in the U.S. who were between the ages of 18 and 55. Every participant was required to be fluent in English. Participants were recruited from the platform and directed to a Qualtrics survey with 320 questions. They were compensated \$2.45 for completing the survey, which took an average of 30 minutes. Participants were excluded for failing to complete the survey, for going too quickly through the survey (less than 10 minutes), or for failing 2 or more attentional checks.

The present study focused on men for several reasons. One primary reason is that the measurement of psychopathic traits appears to vary by gender (Leon-Mayer et al., 2019). Women are consistently found to score lower and endorse fewer traits than men (Neumann et al., 2021). As a secondary concern, men appear to express prejudice at higher levels than women (Bäckström and Björklund, 2007; Choi, Lee, Lee, & Kim, 2017).

Funding for the survey was provided by a grant given by The William H. Donner Foundation.

## Measures

A demographic questionnaire was included at the end of the survey to prevent priming or stereotype threat. It included questions about race, education, current state residency, occupation, and income. Questions related to age and gender were asked at the beginning of the survey for screening purposes.

The Affective and Cognitive Measure of Empathy (ACME; Vachon & Lynam, 2016) is a self-report measure of empathy with 36-items. As previously mentioned, it has a cognitive factor and two affective factors (resonance and dissonance). Each factor has 12 items. Each item is rated on a 5-point Likert scale ranging from “strongly disagree” (1) to “strongly agree” (5). Certain items need to be reverse scored, including the majority of the dissonance subscale (to

maintain conceptual directionality). High scores reflect empathetic qualities. The initial validation of the ACME showed it to be internally consistent and structurally reliable. The ACME displays good convergent validity and strong associations with many external correlates. Preliminary confirmatory factor analysis (CFA) indicated acceptable fit the three-factor ACME model (CFI = .91, RMSEA = .07), with generally strong inter-correlations ( $r$ 's = .45 - .70), except a moderate association (.27) between the dissonance and cognitive empathy factors.

The Authoritarian-Conservative-Traditionalism Scales Short Form (ACT-SF; Duckitt et al., 2010) is an updated self-report of RWA. It conceptualizes RWA as three interrelated factors: Authoritarian aggression (acting against outliers and threats), Conservatism (authoritarian submission or aligning with established power structures), and traditionalism (conventionalism or maintaining the status quo). Each factor has 12 questions, which was reduced to 6 items each in the shortened form. Each item is rated on a 9-point Likert scale (ranging from “Very strongly disagree” to “Very strongly agree”). Some items are reverse scored, such that higher scores on each subscale indicate more RWA related attitudes. The ACT-SF was validated across 4 different countries and shows high internal consistency with strong convergent validity. Further, it shows improved performance beyond previous univariate measures of RWA. Preliminary CFA indicated acceptable fit the three-factor ACT model (CFI = .92, RMSEA = .12), with strong inter-correlations ( $r$ 's = .74 - .82), providing evidence for a single super-ordinate ACT factor.

The Affective Thermometer Ratings of Social Groups (ATR; Duckitt & Sibley, 2007) is a series of scales that assess attitudes towards assorted groups. The scales have three loose factors: Derogated (groups generally of lower social status), dangerous (groups associated with threat), and dissident (groups that do not conform to societal norms). Across 24 items, participants rate their warmth towards a specified group on a 7-point Likert scale (from “Very cold” to “Very

warm”). Broadly, these scales have been found to have differential relationships with SDO and RWA and they allow for the creation of a GP factor. Notably, the ATR can be customized by substituting different groups and has been used in a wide variety of settings. Preliminary CFA indicated generally adequate fit the three-factor ATR model (CFI = .88, RMSEA = .09), with modest to moderate inter-correlations ( $r$ 's = .20 - .48), suggesting these domains are best represented by three separable domains.

The Elemental Psychopathy Assessment- Super Short Form (EPA-SSF; Collison et al., 2016) is a measure of psychopathy based in the Five Factor Model of personality. The EPA-SSF consists of 18 questions, one question each from its 18 subscales. These subscales exist across three factors: Antagonism (acting against others), Disinhibition (impulsivity and low behavioral control), and Emotional Stability (high anger and low anxiety). Each item is rated on a 5-point Likert scale (ranging from “Disagree strongly” to “Agree strongly”). Higher scores on each reflect more psychopathic traits. The EPA-SSF was validated in both community and forensic samples in the U.S. It has shown excellent convergent validity with other measures of psychopathy and external correlates. One item (from the Antagonism scale) was not properly encoded into the survey and thus was not included among the data set. Unfortunately, preliminary CFA indicated generally poor fit the three-factor EPA model (CFI = .54, RMSEA = .15), indicated the EPA does not possess coherent unidimensional factors. Nevertheless, to be comprehensive, some analyses included the EPA, though caution should be used when interpreting results for this measure.

The Frequency Estimation Index of Dual Social Worldviews (FEI-DSW; Perry & Sibley, 2010) is a self-report of the social worldviews associated with the DPM. In this measure, individuals are asked to estimate the percentage of people (0-100%) that would engage in an



assortment of behaviors if there were no consequences (e.g. rob someone, abuse their children, treat poor people as if they were scum). The FEI-DSW has two factors, dangerous worldview (DW) and competitive worldview (CW), which have been described above. These factors have been found to differentially predict SDO and RWA, which showing good reliability and internal consistency. The FEI-DSW was validated in two samples of New Zealanders. Preliminary CFA indicated generally adequate fit the two-factor DW-CW model (CFI = .88, RMSEA = .11), with strongly correlated factors ( $r = .68$ ).

The Intolerance of Uncertainty Scale-12 (IUS-12; Carleton et al., 2006) is a shortened version of the Intolerance of Uncertainty Scale. It has two factors, prospective anxiety (7 items) and inhibitory anxiety (5 items), which reflect the anxiety and avoidance generated by uncertainty. Each item is rated on a 5-point Likert scale (“Not characteristic of me at all” to “Entirely characteristic of me”). Higher scores indicate higher avoidance and anxiety. The shortened measure was validated in two North American samples and is highly correlated to the original measure, as well as external measures of anxiety and worry. Preliminary CFA indicated support for a two-factor IUS model (CFI = .94, RMSEA = .11), with a strong factor correlation ( $r = .69$ ).

The Light Triad Scale (LTS; Kaufman et al., 2019) is a set of 12 questions across the three factors previously described: Kantianism, Humanism, and Faith in Humanity. Each factor has 4 questions rated on a 5-point Likert scale (ranging from “Strongly disagree” to “Strongly agree”). As noted, this measure appears to show promise through its high convergent validity and extensive links to external correlates. Preliminary CFA indicated good fit the three-factor LTS model (CFI = .96, RMSEA = .07), with strong inter-correlations ( $r$ 's = .42 - .77).

The SDO<sub>7</sub> Scale Short Form (Ho et al., 2015) is a two-factor conceptualization of SDO.

The two factors are dominance and anti-egalitarianism and were previously detailed above. Each domain has 8 items, but both can be shortened to 4 items each. Each item is rated on a 7-point Likert scale (ranging from “Strongly disagree” to “Strongly agree”). After reverse scoring appropriate items, higher scores indicate prototypical SDO traits. Notably, this measure was tested only in native Black and White adults from the United States. The SDO<sub>7</sub>-SF was shown to have good predictive validity of prejudice and strong correlations to other expected external factors. Preliminary CFA indicated adequate fit the two-factor SDO model (CFI = .96, RMSEA = .13), with a very strong factor correlation ( $r = .90$ ).

The Short Dark Tetrad (SD4; Paulhus, Curtis, Jones, 2018) is a short version of an expanded model of the DT that includes sadism. For this study, the Machiavellianism and Narcissism scales were used. Each scale has 7 items rated on a 5-point Likert scale (ranging from “Strongly Disagree” to “Strongly Agree”). As previously mentioned, these items are stated in less clinical language and thus may appear less pejorative to participants. The family of measures has been used broadly across the globe. However, the conceptual and statistical limitations discussed previously also apply to this iteration of the measure. Preliminary CFA indicated good fit a two-factor MAC-NAR model (CFI = .91, RMSEA = .08), with a moderate factor correlation ( $r = .31$ ).

The Self-Report Psychopathy Scale- Short Form (SRP-SF- 4<sup>th</sup> edition; Paulhus et al., 2016) consists of 29 self-report items measuring psychopathic traits. Each item is rated on a 5-point Likert scale (ranging from “Strongly Disagree” to “Strongly Agree”), with higher scores indicating the presence of psychopathic traits. As previously discussed, it is based on the same model as the PCL-R, thus has four subfactors that load onto a superordinate factor. It has been found to reliably create this factor structure globally (Neumann et al., 2015a). It has a noted

history of moderate to strong correlations with a range of external correlates. Preliminary CFA indicated adequate fit the four-factor SRP model (CFI = .90, RMSEA = .08), with strong inter-correlations ( $r$ 's = .70-.88), providing evidence for a super-ordinate SRP factor.

## Procedure

After indicating interest on the online platform, participants were given a link directing them to a Qualtrics survey. Participants were first presented with the screening questions (in which they indicated their age, gender, and English fluency), which came paired with a statement about voluntary participation and confidentiality. After passing the screening questions, participants were presented with the informed consent. After providing consent, participants entered their Prolific ID code for crediting purposes. Participants were then presented with each measure, both those included in this study and those outside the scope of the current work. For any given measure, its standardized instructions were presented, along with a key for answering. The measures were presented in randomized order. Built among the measures were three attentional checks. After completing the set of measures, participants were then presented with the demographic questionnaire. Upon finishing the survey, participants were given the opportunity to request payment via the Prolific platform.

No active deception was used as part of the study. However, the title of the informed consent and debriefing were titled "Survey of Personality Traits and Social Perception" to reduce response bias and ensure more valid responding. Terms such as psychopathy and prejudice may lead to socially desirable responding or distress the participants, therefore an accurate but less pejorative title was used.

## Analysis

Of the 1,113 participants who began the survey, 1,000 passed the three attentional checks

and completed the survey, for a completion rate of 89.8%. One individual was removed as only a small fraction of his data were either entered or retained through the survey platform, well below the criterion of 90% completion that was set a priori. Outside of this individual, only 51 item responses were not marked across all the included responses from all other participants (representing approximately .02% of the total number of responses). Due to this highly infrequent occurrence, no steps were taken for missing data imputation or correction. For a summary of descriptives and reliability analyses of the included variables, see Table 3.

Using Q-Q plots, histograms, and skewness and kurtosis values, normality was assessed for all variables against available information provided by each measure's authors. Broadly, each variable was found to be normally distributed to an acceptable degree, given the sample size, such that it would not interfere with the planned analyses (Dugard, Todman, & Staines, 2010). Consistent with available literature, several variables were not observed to be perfectly normally distributed. The SRP factors, particularly Criminal Tendencies, EPA-SSF, and SDO<sub>7</sub>-SF factors skewed positively as expected, since these are traits and behaviors that are not widely distributed among the population (Paulhus et al., 2016; Collison et al., 2016; Ho et al., 2015). The EPA-SSF was more normally distributed than the SRP, perhaps reflecting its less pejorative language and item content. The ACT-SF Traditionalism factor skewed positively, again reflecting that the construct is not a commonly found trait, although the other factors were fairly normally distributed (Duckitt et al., 2010). The ACME and LTS scales each skewed negatively, in keeping with the patterns noted by its authors (Vachon & Lynam, 2017; Kaufman et al., 2019). On the ACME, both the affective resonance and dissonance factors (as a reminder, the dissonance factor is reverse scored such that high scores indicate low levels of the antagonistic trait) clustered near the ceiling as they did in the developmental sample. On the ATR, participants expressed

particularly negative attitudes towards dangerous groups (e.g., drunk drivers, violent criminals, etc.) which clustered near the floor and thus skewed positively, although the other scales were more normally distributed. The Dangerous Worldview scale of the FEI-DSW was positively skewed with many participants clustered near the floor.

To assess for the homogeneity of variance across the different ethnic groups, a series of one-way ANOVAs were conducted with each of the variables of interest being compared across the five major ethnic groups (Asian, Black, Latino, Multiracial, and White). Of note, the multiracial group was heterogeneous and included individuals with a variety of bi- and multi-racial identities. Of the included variables/factors the following had significant Levene's statistics indicating different variances as a function of ethnic group status: SRP Criminal Tendencies, SDO Antiegalitarian, ACT Traditionalism, ACME Affective Dissonance, ATR Derogated groups, Dangerous Worldview, and Machiavellianism. Further, the results of a series of corrected ANOVAs indicated that several variables/factors differed significantly based on ethnic group. The results of these analyses can be found in Table 4. Notably, the  $\eta^2$  for each of these was very modest, indicating essentially minor differences as a function of ethnic group status.

The study variables were also examined in terms of White participants ( $n = 677$ ) versus the non-White participants ( $n = 323$ ). ANOVA analyses again revealed little substantive differences between these two groups (i.e.,  $\eta^2$ 's = .00-.01). In addition, the proportion of White vs. non-White participants with elevated psychopathy scores (~24%) did not differ between these two groups ( $\chi^2(1) = 0.98, p > .05$ ). Nevertheless, the grouping of participants provided an opportunity to examine the path model results separately for White versus non-White participants. Visual representations of the similarity between these two groups can be found in

Figures 3-5, highlighting very similar mean item endorsement rates across all of the primary variables. Lastly, multiple group CFAs testing for evidence of strong invariance across the White vs. non-White participants provided good evidence for equivalent measurement across these two groups (CFI's = .90-.97; RMSEA's = .05-.08). Model fit improved slightly when the models for each measure accounted the separate White vs. non-White subsamples (e.g., SRP; CFI = .91, RMSEA = .06), highlighting the importance of recognizing race/ethnicity in the overall sample, especially for research on prejudice. Notably for these analyses after a strong measurement invariance approach evidenced sufficient performance, other methodologies were not pursued.

To assess for multivariate outliers, Mahalanobis distance chi-square values were calculated for each of the participants, using a critical value of .001 for the chi-square distribution (Tabachnick & Fidell, 2007). Eighteen potential outliers were identified through this method. Each of the 18 participants successfully completed all three attention checks, as well as entered coherent and valid content for the appropriate free response items. All 18 entered 100% of their responses. Sixteen were within one standard deviation of the average completion time, while two took longer than average to complete the survey. Thus, there were no overt indications that any of these participants was randomly or carelessly responding. Of note, each of these participants had elevated scores in the corresponding scale of at least one of the following constructs: psychopathy, SDO, or RWA. As previously noted, each of these are traits that skew positively, thus natural elevations could contribute to the appearance of being a multivariate outlier. Due to the nascent nature of this line of inquiry, there are nearly no guidelines as to what would constitute a non-natural combination of traits. Therefore, the decision was made to retain these participants within the dataset as they could be natural outliers, rather than exclude participants that could reflect authentic variance.

As partially discussed above, scale properties of the measures used in this study were compared to their established literature. Cronbach's alpha and mean item correlations for each measure and can be found in Table 3. While slight deviations were noted, such as the mean interitem correlations being higher for the ACT-SF than in their original samples, the measures broadly aligned with their established norms. Contrastingly, the EPA-SSF had low Cronbach's Alpha and Mean Item Correlations, which in addition to its poor CFA performance, limited its use in further analyses.

### *Regression Analyses*

To better explore the basic hypothesized relationships between the primary constructs, a series of multiple regressions were conducted. The first set were performed to establish the relationship between the included personality (psychopathy and Light Triad), empathy, and social cognitive (SDO and RWA) constructs with prejudicial attitudes towards derogated groups. This factor of the ATR was selected as it represents a variety of traditional targets of prejudice (Greenberg et al., 2016). Included among these analyses was the dual process model (SDO & RWA predicting prejudice) with the four factors of psychopathy added as predictors. A trimmed version of this model (dropping the non-significant predictors) was also conducted.

Additional multiple regressions were conducted to test the other hypothesized relationships. Namely, two regressions were conducted in which the four factors of psychopathy predicted each of the affective empathy factors (the cognitive factor was not hypothesized to meaningfully contribute to the overall model). The affective empathy factors were then used to predict each factor of both SDO and RWA. Dangerous worldview was used to predict each of the RWA factors in a series of simple regressions. Competitive worldview was then used to predict both of the SDO factors in another set of simple regressions.

### *Path Analyses and Structural Equation Modeling (SEM)*

To ensure that the planned analyses would be sufficiently powered and their intended methodology were appropriate for the conditions of the data set, several sources were consulted (Fan et al., 1999; Li, 2016; Wolf et al., 2013). To provide an in-depth examination of all the variable domains involved in the current study (personality, empathy, social cognitive & prejudicial attitudes), a comprehensive path model was specified and tested jointly for the White and non-White subsamples in accordance with study hypotheses. In addition, given evidence for super-ordinate factors in the preliminary CFAs for each measure, a supplemental SEM was specified and tested for the White and non-White participants (via multiple group-SEM). Specifically, as opposed to using separate first-order domains, broad psychopathy (SRP), empathy (ACME), and social-cognitive (SDO, ACT) super-ordinate factors were employed to examine how well they predicted the affective ratings towards the three groups represented by ATR scales. The Mplus (Muthén, & Muthén, 2012) program was employed for all model analyses since it offers robust weighted least squares (WLSMV) estimation when using ordinal data (e.g., Likert-based items), as well as robust maximum likelihood for handling non-normal data. Another advantage of Mplus is that a strong measurement invariance approach is used when running models with multiple groups, thus ensuring that any differences in variable relations between groups are not due to differences in measurement (Roy et al., 2021).

### Results

Of the five largest ethnic groups, the White participants made up approximately two-thirds of the sample (age range 18-55;  $M = 33.0$ ;  $SD = 9.0$ ). The group of Asian (age range 18-49;  $M = 27.5$ ,  $SD = 7.2$ ) participants skewed towards the highest education and income, compared to the other groups. The Latino/Hispanic group was the youngest and reported the



lowest level of education on average (range 18-51;  $M = 27.3$ ,  $SD = 6.9$ ). This group also contained the largest proportion of participants reporting that their families made less than \$40,000 a year. The Black group reported a similar level of average income to the Latino/Hispanic group, which were the lowest of the five groups (age range 19-54;  $M = 30.7$ ,  $SD = 9.3$ ). The multiracial group, likely due to its heterogenous nature, gravitated towards the average of the overall sample in both education and income (age range 18-54;  $M = 30.7$ ,  $SD = 9.0$ ). Table 2 has a breakdown of education and income by group.

### Bivariate Correlation Analyses

A bivariate correlation table reporting Pearson correlation coefficients was constructed between all predictors to allow for the analysis of which predictors were significantly related. This table also provided the basis for confirmation (or rejection) of the hypothesized variable associations. Table 5 contains the results of these analyses. Many of the hypothesized relationships were found. Table 6 shows the bivariate correlations of many of the potential predictor variables to the outcome variables (the three ATR factors). Briefly, the SRP factors showed moderate relationships with the factors of SDO and strong relationships with the affective factors of the ACME. Several SRP factors had small negative relationships with different ATR factors. Of note, each of the SRP factors had a significant positive correlation with the ATR Dangerous group (indicating positive perceptions of that group), while all other significant correlations to other ATR groups were negative. The IUS and Dangerous and Competitive Worldview factors either had weak or non-significant relationships with their hypothesized constructs. The significant correlational relations were also used to help inform subsequent regression and path analyses.

## Multiple Regression Analyses

A series of multiple regressions were run and these results can be found in Tables 7 & 8. These analyses served to first test the relationships between personality, empathy, and social cognition with prejudicial attitudes. The analyses then helped confirm the hypothesized relationships of the proposed path model.

Table 7 contains a series of multiple regressions predicting variance in the ATR derogated group factor. To test the DPR, the factors of SDO and RWA (as measured by the ACT-SF) were entered as predictors. They were found to account for a medium amount of variance ( $R^2_{adj} = .17$ ). The four factors of the SRP were found to account for a small amount of variance on their own ( $R^2_{adj} = .10$ ), and when added to the DPM predictors, resulted in an  $R^2$  change (.04) that was significant ( $p < .001$ ) indicating that they accounted for a small amount of variance outside of the more established DPM predictors. If the non-significant predictors were removed (Model 4 within Table 7) there was a marginal improvement in the variance accounted for. Next, a regression testing the ACME factors predictive strength in accounting for variance in the ATR derogated factor scores was conducted. This model significantly predicted a small amount of variance ( $R^2_{adj} = .12$ ), which was primarily done through the affective factors. The Light Triad was also able to account for a medium amount of variance ( $R^2_{adj} = .14$ ), indicating these positive traits may help understand the endorsement (or lack thereof) of prejudicial attitudes.

Table 8 contains additional multiple regressions relevant to other portions of the hypothesized model. These analyses reveal that several of the SRP factors predict a large amount of variance in the ACME Affective Resonance scale ( $R^2_{adj} = .35$ ), while serving as an even stronger predictor of the ACME Affective Dissonance scale ( $R^2_{adj} = .54$ ). The ACME Affective

factors in turn predict a medium amount of variance in both the SDO Dominance ( $R^2_{adj} = .19$ ) and Anti-Egalitarian factors ( $R^2_{adj} = .16$ ) and were poor predictors of the ACT scales. Further, the Dangerous and Competitive Worldview factors were also poor predictors of their hypothesized constructs (RWA and SDO, respectively), and as such they were not included in the path analyses (and similarly for the IUS).

Finally, a series of regression were employed to test if the LT moderated the relationship between SRP and ATR Derogated Group scores. First, SRP total scores and LT total scores were mean centered and an interaction term was created by multiplying them together. The total scores were entered into a hierarchical regression as a group predicting ATR Derogated Group scores, with the interaction term added in the next step. While the  $R^2$  change was significant ( $p = .003$ ) indicating LT scores moderated the relationship between SRP and a measure of prejudice, the  $R^2$  was only increased .01. Therefore, this did not appear to represent a meaningful relationship.

#### Path Model Analyses

A comprehensive path model examined the dynamic relations among the scale scores for the psychopathy (SRP), empathy (ACME), and social-cognitive domains (SDO & ACT), along with their direct and indirect prediction of affective warmth toward the three groups represented by ATR scales (dangerous, derogated, dissident). Path model results with standardized parameters and model fit are presented in Figures 6 and 7.

There were a number of similar direct associations across the White and non-White samples. In line with previous research (Seara-Cardoso et al., 2019), the interpersonal and affective psychopathy (SRP) scales significantly predicted decreases in affective empathy (resonance, dissonance) across samples. In addition, the dissonance empathy scale similarly

predicted increases in both social dominance orientation scales (SDO; dominance, anti-egalitarian) for each sample. Also, and in line with theory, the SDO dominance scale predicted less warmth toward derogated groups, while the authoritarian ACT scale predicted less warmth toward dangerous groups across samples. Finally, the conservatism and traditionalism scales from the ACT predicted decreased warmth for dissident groups among both White and non-White participants.

There also were notable differences in path model results for the White vs. non-White samples. Overall, for the White participants, the psychopathy scales were more broadly associated with disturbances in empathy, and the right-wing authoritarian (ACT) scales had more substantial negative associations with the affective thermometer ratings. Also, the empathy scales had more robust associations with the social dominance (SDO) scales for the White participants. Surprisingly, for the White sample, dominance (SDO) and conservatism (ACT) predicted more warmth for dangerous groups, and conservatism also predicted more warmth for derogated groups. These latter results were not hypothesized and thus caution should be used when interpreting them.

The path modeling approach also provides an opportunity to interpret indirect effects (e.g., effect of X on Z through Y). The indirect effects of the factors of psychopathy and empathy on social dominance and ATR ratings, respectively, are presented in Table 9. These effects help emphasize the roles the specific factors play in connecting the constructs, which perhaps in some cases reflect common processes. For example, the links between the affective factor of the SRP, (lack of) the affective resonance scale of the ACME, and then both factors of SDO were relatively strong. These connections make intuitive sense as each can be associated with limited or antagonistic emotional processing. Or how the affective dissonance factor appears to play an

especially strong role connecting psychopathy and SDO within the non-White sample. Perhaps the most notable aspect of the indirect effects is the relatively pervasive role psychopathic traits had on the social dominance domains, through empathy, for the White participants. At the same time, the indirect effects also highlighted that psychopathic propensities also had an effect on social dominance for the non-White participants via disturbances in affective empathy.

#### Multi-Group Structural Equation Modeling (SEM)

An additional model was created mapping the first-order variables onto their respective super-ordinate factor for each construct domain. These super-ordinate factors were allowed to simply correlate with each other (i.e., no sequential factor regression paths), then used to predict the three ATR scales. Thus, this model is akin to stepwise regression whereby the incremental effects of the predictors are the primary focus, while accounting for predictor variable overlap. A strong measurement invariance multiple group approach was used again. Figure 8 displays the standardized parameters, which highlight considerable uniformity in factor loadings and correlations, as well as similar predictive effects, across samples. As would be expected, the empathy factor predicted increased warmth and the social dominance factor predicted decreased warmth for derogated groups. Also, for both samples, the authoritarian factor predicted decreased warmth for dissident groups. Perhaps somewhat surprisingly, the psychopathy factor predicted increased warmth for dangerous groups, though this was more pronounced for White participants. Also, only for White participants, the social dominance factor predicted decreased warmth for dissident groups. Given the use of latent variances, and thus the accounting of measurement error which can attenuate effects, the super-ordinate model was able to account for slightly more variance in affective thermometer ratings, compared to the path model results.

## Discussion

The body of work aimed at increasing our understanding of psychopathic traits and their external correlates is rapidly growing (Hare, 2016). One nascent area of growth has been the exploration of what role, if any, psychopathic personality traits play in the prediction of prejudice. During the last couple of years, the US, and world more broadly (Roy et al., 2021), have had an awakening to both the extent and range prejudice continues to affect our daily lives. Despite our increasing awareness of this pernicious force, the need to increase our understanding of the traits that underlie prejudice beyond the traditional factors and foci (Greenberg et al., 1986; Cottrell & Neuberg, 2005; Priest et al., 2014) remains large. Despite this need, and as demonstrated by this study's literature review, several promising social cognitive and personality variables remain unexplored. The current study sought to initiate and refine some of these potential lines of inquiry.

One area that has gained increased attention and work has been with developmental models of prejudice. Specifically, others have already begun the investigation of how factors such as temperament or attachment styles predict prejudice (Boag & Carnelley, 2016). Within such models, empathy has been conceptualized as a later developing mediating construct. Indeed, multiple longitudinal studies have now demonstrated a causal relationship with development in empathy and the expression of prejudice. One study found that deficits in empathy, such as perspective taking, led to the development of racial prejudice/anti-immigrant attitudes in adolescents (Miklikowska, 2018). Another study found that development in empathy changed both the expression and level of prejudice among adolescents (Trifiletti et al., 2019). Of note, this work also explored the role social dominance (SDO) had within a developmental model, although they conceptualized SDO as having a bidirectional relationship with empathy.

They found that SDO was negatively associated with empathy and positively associated with anti-immigrant attitudes. These researchers noted that established interventions, such as inter-group contact appeared to reduce SDO over time. While not only a positive note for intervention purposes, the results also demonstrated a degree of adjustability in SDO that may not be as easily done for personality traits.

While the links between personality and prejudice have been established for some time (Ekehammar & Akrami, 2003), there is still room for further exploration and development. One such area is in introducing personality into developmental models, as described above, and into other established prediction models (e.g., the DPM). A noteworthy synthesis of this work introduced both five factor personality facets and empathy into a modified dual-process model (Álvarez-Castillo et al., 2018). This work had moderate conceptual overlap with the current study. These researchers presented a model for expression of prejudice in which personality traits predicted empathy, SDO, and RWA, while empathy in turn predicted SDO and RWA. Unfortunately, and in keeping with a previously discussed trend, this study utilized unitary conceptualizations for empathy, SDO, and RWA. Nonetheless, it had findings consistent with the current study, including that empathy was more strongly associated with SDO than RWA. Such work bolsters the findings and goals of the current study.

The current study drew upon these developing lines of inquiry to extend psychopathic personality traits into the prejudice literature. Psychopathy can be conceptualized to fit within a developmental prediction model of prejudice in multiple regards. The emergence of psychopathic tendencies or precursors are evident even at very early ages (Viding & McCrory, 2012, 2018). These traits are associated with reduced empathy (Seara-Cardoso et al., 2013) and increased social dominance (Hodson et al., 2017). As other work has shown, personality can

meaningfully contribute to established prediction models of prejudice (Álvarez-Castillo et al., 2018), and thus it follows that psychopathic personality traits can as well.

Overall, the current study introduced a developmentally focused model of prejudice, incorporating the four-factor model of psychopathy, along with multifactor measures of empathy, SDO, and RWA. This theoretical model was directly tested via path model analyses. The modeling results demonstrated adequate fit and predictive power, but can certainly benefit from additional development and research. Underlining this claim, and as a marker of the relative strength of this model and approach, a simpler model utilizing super-ordinate factors had comparable fit and increased predictive power. These results demonstrate that in some regards a simple and elegant approach that employs broad construct domains has applicability as well.

Regardless of the model used, the current study demonstrated that psychopathic traits can be added to more established constructs (SDO/RWA) to aid in the prediction of prejudice. This was particularly clear when examining the path model's indirect effect and multiple regressions. The effect of psychopathy was perhaps not as strong as those seen for the more established SDO/RWA constructs. However, this would be expected, given psychopathic traits are more distal to prejudice than SDO/RWA, both conceptually and in terms of measurement. Nevertheless, the path model results provide evidence (as far as cross-sectional data can provide) that psychopathic propensities may contribute to SDO/RWA, and eventually prejudicial attitudes, via disruptions in empathic processes. Many other potential permutations of this process are possible in addition to other sources of input, such as considering what other factors could influence group identity formation or the development of social cognitive variables, and could meaningfully impact our understanding.

Thus, the current study adds to the growing body of work linking personality, social



cognition, and prejudice. Broadly, psychopathy does appear to have important relationships to both prejudicial views and multiple predictors of prejudice. The affective empathy factors similarly appear related to these other constructs. Both the affective empathy factors and light traits (LT Scale) were generally positively associated with warmth ratings for the three ATR groups (indicating positive views towards these groups). As an exception to this general trend, all three factors of the ACME and the Kantianism factor of the LTS had significant negative associations with the Dangerous group of the ATR (indicating negative perceptions of this group). Conversely between the factors of the two measures of psychopathy, the only significant *positive* relationships among the ATR groups were to the Dangerous group. Such trends demonstrate at a basic level the importance of using multi-factor approaches, as these trends would have otherwise confounded analyses.

Outside of prejudice, other interesting patterns were also noted. The Light Triad factors were broadly negatively correlated with all three components of the Dark Triad, but two of the LT factors had positive, albeit small, correlations with narcissism. In this way the bivariate correlations provide a contrast to the SEM results. While the super-ordinate factors performed better in the SEM, the first-order factors provided a more nuanced understanding of the constructs, and as demonstrated, revealed unexpected patterns that otherwise were not demonstrated by the super-ordinate factors.

In keeping with previous work and hypothesized results (Jones & Figueredo, 2013; Jonason, 2015), the factors of psychopathy were more strongly associated with SDO than RWA. This continues to demonstrate the strong relationship between SDO and psychopathy, which can have important implications for understanding prejudice. In contrast, the factors of the SRP had very little relationship to RWA consistent with some previous work (Hodson et al., 2009; Jones,

2013; Jonason, 2015), although these relationships have been found in previous studies (Gordts et al., 2015). This can potentially be explained by the use of the ACT-SF as the measure of RWA. As previously noted, previous measures of RWA had significant conceptual overlap with SDO. Therefore, it could be that the previous associations between psychopathy and RWA was in part driven by this overlap, as psychopathy has a much stronger relationship with SDO.

One unexpected finding from the current study was the relatively poor performance of the EPA-SSF. The measure did not perform as strongly as in the validation study (Collison et al., 2016). This poor fit seemed to be driven by the emotional stability factor, which had divergent relationships with the external correlates compared to its associated factors and those of the SRP. Or put another way, this factor did not perform similar to other factors of psychopathy (Jones & Figuerdo, 2013; Yokota, 2012; Glenn et al., 2017). This pattern is somewhat in line with the original study, in which the authors wrote, “we do not claim Emotional Stability to be a central feature of psychopathy. Its relatively weak relations to other measures of psychopathy and external criteria traditionally related with psychopathy support this argument (Collison et al., 2016).” Regardless, the measure did not perform well within this data.

The current study confirmed the hypothesized relationships between empathy and the dual process model constructs. These relationships were in line with previous research (Bäckström & Björklund, 2007; McFarland, 2010; Álvarez-Castillo et al., 2018). The cognitive scale of empathy largely had weak associations with many variables, although it did have modest relationships with the EPA-SSF and the LT scales. The psychopathy scales had particularly strong relationships with affective dissonance scale, relative to the affective resonance scale. The two affective scales had differential relationships among various variables, which again underscores the importance of a multi-factor approach. It may be that inclusion of these multiple

factors may continue to improve our understanding of the relationship between empathy and prejudice, as was done with aggression (Vachon & Lynam, 2016).

The continued finding that the factors of the SRP have more robust relationships with affective than cognitive empathy is notable (although the SRP affective factor did show a negatively association with cognitive empathy in the path model results for White participants). A relationship between psychopathy and empathy has long been recognized (Cleckley, 1941/1982; Hare, 1996). As more nuanced measures of empathy are introduced, there has been an increased understanding in this relationship. Namely that psychopathy appears to be primarily related to the affective components of empathy (Seara-Cardoso et al., 2012, 2019; Lishner et al., 2015). Interestingly, this aligns well with intuitive observations of individuals high in psychopathic traits. It was once noted that these individuals know "... the words but not the music (Johns & Quay, 1962)." Through the lens of this current work, this line could reflect the idea that these individuals are cognitively capable of empathetic processes, but do not engage in the typical affective processes of empathy.

Broadly, the cognitive variables, IUS and FEI-DSW, did not relate to included constructs in any of the hypothesized manners. The inhibitory anxiety factor had some relation to the SRP factors and affective dissonance, but these relationships tended to be weak and were outside the hypothesized domains. The prospective anxiety factor had no meaningful relationships with most of the study variables. The dangerous worldview factor showed some relationship to psychopathy, and to a lesser extent empathy, while competitive worldview had some relationship to psychopathy. However, neither had significant relationships with their hypothesized social cognitive constructs, as evidenced through regression analyses. The relationships of the competitive and dangerous worldview factors to psychopathy may merit future investigation but

fell outside of the current study. Due to the lack of meaningful relationships of all the forementioned factors with their hypothesized constructs, they were not included in the generated path models.

One of the goals of this study was to further analyze a recently released model, the Light Triad, to better understand its relation to associated constructs (Kaufman et al., 2019). While it was developed as an inverse of the Dark Triad, the original authors noted that the measure was found to measure different, but related, constructs. Indeed, the current study found that the factors of the LT and DT (utilizing the SRP) had correlation coefficients between .05 and .45. These values alone suggest that these are separable constructs and in line with recent research on light versus dark trait person profiles (Neumann et al., 2020). Both measures showed differential, and not just mirrored, relations to external correlates. The Light Triad represents an intriguing and promising tool for investigating attitudes and behavior. Both the LT and empathy factors had significant positive relationships with most of the ATR groups (outside of the dangerous group). There is a growing body of work exploring how empathy is related to prejudice, while this study represents the first known work to examine the relationship between prejudice and the Light Triad. It was found that the factors of the LT could account for a modest amount of variance in prejudicial attitudes (as measured by the ATR). Further exploration of the associations of the LT with traditional predictors of prejudice will almost certainly continue to bear fruit.

The current study allowed for the analysis of the processes involved in prejudice, which were then compared between White and non-White participants (see the following section for further discussion of the limitations of this approach). Broadly, both participant groups endorsed prejudicial attitudes towards a wide variety of other groups at comparable levels. Further the underlying processes of this prejudice, as assessed through the path models and SEM, had

considerable similarities as well as a handful of notable differences. For example, both affective scales (resonance and dissonance) of empathy had significant relationships to the SDO factors within the White participants, while only the affective dissonance scale had significant relationships in the non-White participants. This same pattern (of affective resonance playing a diminished role in non-White participants) was also found when looking at the indirect effects of psychopathic traits on SDO (through empathy). Whereas in the non-White participants, but not the White participants, the affective resonance scale was related to the traditionalism factor of RWA. Another interesting pattern was that in the non-White participants the RWA scales had much more limited relationships to the ATR scales (and no significant relationships to the derogated groups scale). This may be a reflection of the tendency of White individuals to minimize or deny group differences in a manner that maintains discriminatory hierarchies (often called colorblind prejudice when seen in racial dynamics; Neville et al., 2000; Hartmann et al., 2017). These findings serve as an excellent entry point into further analysis of how these processes may relate across different group identities.

### Limitations and Future Directions

While the current study used improved methodology and measurement relative to some previous work, it was not without its own limitations. One primary limitation is that this study used cross-sectional methodology while in part trying to investigate potentially causal processes. While other work (e.g., Miklikowska, 2018; Trifiletti et al., 2019) has utilized longitudinal methodology to demonstrate some of these relationships, not all of the included constructs of this study have been included in such work. The currently proposed theoretical model for explaining these relationships remains a hypothetical one by necessity, although the simplified model demonstrates the utility of considering these constructs in conjunction with each other, even

outside a developmental lens.

Perhaps the largest shortcoming with the sample of the current study was that it only included men. As already previously mentioned, there are questions about the specific presentation of psychopathic traits in women (Dotterer et al., 2017; Leon-Mayer et al., 2019). It is possible that these differences are reflections of item language, but regardless can impact item endorsement. A secondary concern was that men appear to express prejudice at higher levels than women (Bäckström and Björklund, 2007; Choi, Lee, Lee, & Kim, 2017). Further, many studies have noted gender differences in constructs such as aggression and dominance (Ekehammar et al., 2003; Navarrete et al., 2010). As the current investigation was exploratory in many regards, this step was taken to minimize invariance. However, in a planned follow-up to this study a similar survey will be distributed to women.

Another concern related to the sample is the representation of different racial identities. While steps were taken to increase the diversity of the sample, over two-thirds of the sample was White. This resulted in the remaining racial groups being relatively underrepresented. This resulted in several difficult decisions with data analysis, as these group sizes were not sufficient for many of the analyses. Further, there were some indications that the measures did covary based on racial identity. To collapse all groups would ignore potentially meaningful differences, while excluding these data would leave the groups completely unrepresented. To balance these concerns, varied approaches were taken, such that at least partial representation could be achieved with certain analyses. The sum effect is that the data and conclusions from the current study is most applicable to White males. While the analyses conducted with other group identities did appear largely similar to the White sample, caution in interpretation is still warranted. Extending the conclusions to other identities must be done in a very conservative

manner.

As previously mentioned, this study demonstrated the utility of multi-factor measurements. The differential relationships observed within the current study perhaps offer insight into the mixed findings that have been previously observed, particularly between psychopathy and constructs of the DPM. Future work will benefit from continuing to utilize similar measures.

Future work in this domain can focus on improvement and diversification of the types of prejudice measures included. The current study included a direct and face-valid measure of prejudicial attitudes. Recent work has found that in models that include empathy, personality variables, and the DPM there were differential relationships between these constructs and blatant versus subtle measures of prejudice (Álvarez-Castillo et al., 2018). Jones (2013) demonstrated that even among self-report-based studies, innovative measures can be introduced to yield rich results. Ideally, future work will be able to expand beyond self-report and into behavioral and implicit measures of prejudice.

After similar models become more established, future work can also seek to increase the diversity, both racial and otherwise, of the samples. By garnering larger sample sizes for specific groups, models can be compared between groups and potential differences, or similarities, could then be used to inform intervention efforts.

While the cognitive constructs that were included in the current study did not meaningfully interact with the hypothesized constructs, these were only a very discrete representation. Many other cognitive constructs have been linked to personality and/or prejudice and might prove fruitful in future work.

Finally, the Light Triad appears to hold promise both in the study of “dark” personality

traits, as well as social cognition and prejudice. Future work will hopefully continue to adopt this measure in order to advance our understanding of these “light” traits. As previously mentioned, additional work can be directed towards looking into potential moderating or “buffering” roles that such traits might play in social cognition and prejudice.

Table 1

*Hypotheses for Bivariate Correlations and Established Models*

Hypotheses	Support
1.a. Dual Process model would be found	Fully Supported
1.b. SDO and RWA would be positively correlated	Fully Supported
1.c. SDO and RWA would negatively predict ATR scores	Fully Supported
2.a. The four factors of SRP would be positively correlated	Fully Supported
2.b. Each of the four factors would positively correlate with SDO	Fully Supported
2.c. Antisocial factor would positively correlate with RWA	Partial Support
2.d. All four factors of SRP would negatively correlate with the affective factors of the ACME	Fully Supported
2.e. The interpersonal, affective, and antisocial factors would predict ATR scores	Partial Support
3.a. The affective factors of the ACME would correlate to the factors of SDO, RWA, and ATR	Partial Support
3.b. The cognitive empathy factor would be unrelated to SDO, RWA, and ATR	Weak Support
4.a. CW would positively correlate to both of the SDO factors	Weak Support
4.b. DW would positively correlate with each of the RWA factors	Weak Support
4.c. Intolerance of uncertainty would positively correlate with RWA.	Not Supported
5. The DT and Light Triad would have small to medium correlations and differential correlations to external factors, indicating independence in the underlying constructs.	Fully Supported



Table 2

*Sample Demographics (N = 999)*

Variables	Asian ( <i>n</i> = 97)		Black ( <i>n</i> = 85)		Latino ( <i>n</i> = 59)		White ( <i>n</i> = 677)		Multiracial ( <i>n</i> = 73)		Totals
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	
<b>Education</b>											
High School/ GED	7	7.2%	18	21.2%	19	32.2%	100	14.8%	8	11.0%	152
Vocational School	0	0.0%	2	2.4%	0	0.0%	14	2.1%	2	2.7%	18
Some College	32	33.0%	31	36.5%	22	37.3%	166	24.5%	22	30.1%	273
College Graduate	41	42.3%	29	34.1%	15	25.4%	267	39.4%	29	39.7%	381
Graduate/ Professional	14	14.4%	2	2.4%	1	1.7%	78	11.5%	5	6.8%	100
Post-Graduate	3	3.1%	3	3.5%	2	3.4%	52	7.7%	7	9.6%	67
<b>Current Family Income</b>											
\$0-19,999	6	6.2%	16	18.8%	10	16.9%	88	13.0%	10	13.7%	130
\$20,000-39,999	8	8.2%	22	25.9%	19	32.2%	129	19.1%	17	23.3%	195
\$40,000-59,999	27	27.8%	19	22.4%	13	22.0%	130	19.2%	10	13.7%	199
\$60,000-79,999	19	19.6%	12	14.1%	4	6.8%	104	15.4%	14	19.2%	153
\$80,000-99,999	8	8.2%	8	9.4%	6	10.2%	79	11.7%	10	13.7%	111
\$100,000+	29	29.9%	8	9.4%	7	11.9%	147	21.7%	12	16.4%	203

*Note.* There were 2 participants who identified as Native American/American Indian/First Native, and 6 who identified as “Other.” This data is not included in demographic statistics in the table.

Table 3

*Descriptives and Reliability for Included Measures*

Measure	<i>M</i>	<i>SD</i>	Skewness	Kurtosis	$\alpha$	<i>MIC</i>
SRP- Total	58.92	16.72	.735	.548	.91	.27
SRP IPM	15.47	5.61	.556	.087	.83	.42
SRP CA	15.71	4.82	.473	.058	.71	.26
SRP ELS	15.75	5.12	.421	-.187	.76	.32
SRP CT	12.01	4.68	1.825	4.123	.76	.35
SDO- Total	20.96	10.09	.551	-.291	.88	.48
SDO Dom	10.22	5.47	.620	-.351	.80	.50
SDO Ante	10.73	5.40	.524	-.260	.80	.51
ACT- Total	69.82	26.33	.199	-.377	.93	.41
ACT Con	22.63	10.12	.265	-.505	.89	.57
ACT Trad	20.77	10.36	.743	.106	.85	.49
ACT Auth	26.42	9.29	-.104	-.213	.80	.40
ACME- Total	142.79	18.78	-.391	-.363	.93	.26
ACME Cog	44.50	8.08	-.466	.298	.91	.46
ACME Res	48.34	7.42	-.506	-.136	.87	.36
ACME Dis	49.94	8.82	-1.137	1.280	.91	.47
ATR- Total	76.65	14.06	.223	.953	.86	.22
ATR- Dangerous	16.97	6.53	2.008	6.184	.84	.40
ATR- Derogated	32.93	6.97	.489	1.683	.86	.45
ATR- Dissident	26.75	6.54	-.135	.209	.84	.47
IUS- Total	33.99	9.37	.238	-.335	.89	.40
IUS PA	22.24	5.50	.012	-.239	.84	.42
IUS IA	11.75	5.09	.537	-.500	.89	.62
EPA- Total	43.31	7.92	.393	.383	.65	.10
EPA Ant	15.67	4.42	.306	-.202	.64	.21
EPA Dis	12.39	4.06	.231	-.386	.66	.28
EPA ES	15.25	4.16	-.018	-.302	.69	.31
Light Triad-Total	63.64	10.99	-.717	.627	.81	.26
LT FiH	18.90	5.74	-.621	-.383	.79	.49

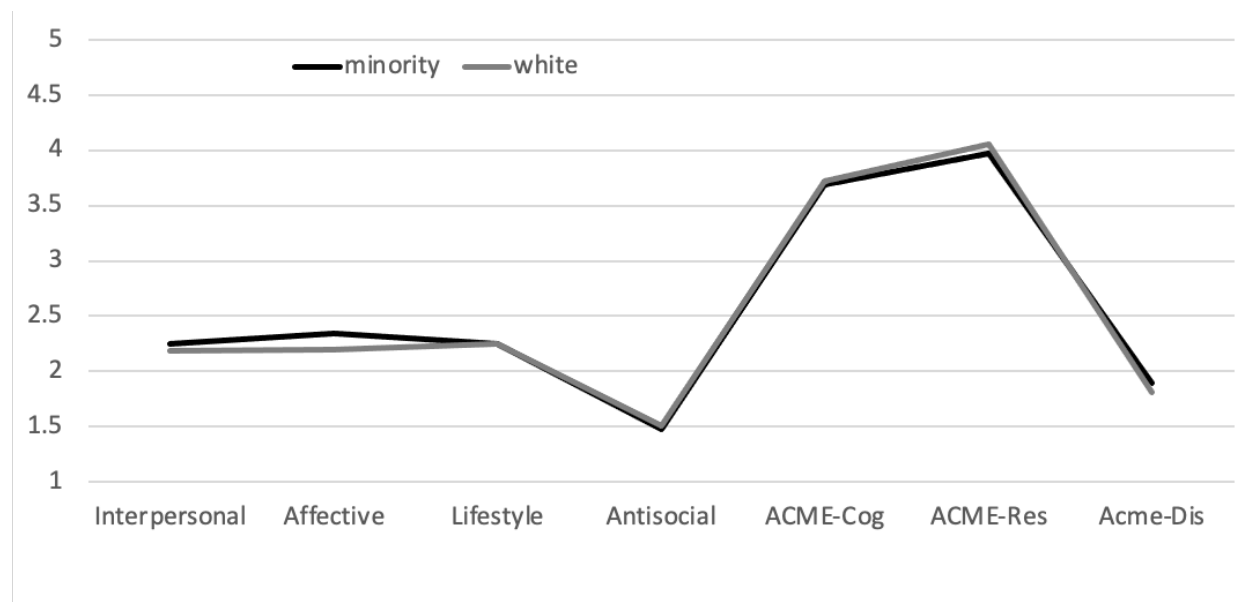
*(table continues)*

Measure	<i>M</i>	<i>SD</i>	Skewness	Kurtosis	<i>α</i>	<i>MIC</i>
LT Humanism	21.68	4.47	-1.062	1.339	.72	.39
LT Kantianism	23.05	4.00	-1.068	1.017	.62	.29
Dangerous World	158.11	134.83	1.885	4.567	.95	.67
Competitive World	330.56	165.26	.494	-.237	.93	.61
SDT Machiavellianism	23.90	4.50	-.344	.709	.74	.29
SDT Narcissism	20.04	5.45	-.083	-.154	.82	.40

*Note.* SRP = Self-Report Psychopathy Scale, with the Interpersonal Scale (IMP), Affective Scale (CA), Lifestyle Scale (ELS), and Antisocial Scale (CT); SDO = SDO<sub>7</sub> Scale Short Form, with the Dominance (Dom) and Anti-Egalitarian (Ante); ACT = Authoritarian-Conservative-Traditionalism Scales Short Form; ACME = Affective and Cognitive Measure of Empathy, with the Cognitive Scale (Cog), Affective Resonance Scale (Aff), and Affective Dissonance Scale (Dis); Affective Thermometer Rating Scales (ATR), with the Dangerous (DG), Derogated (Dero), and Dissident (Dis) groups; IUS = Intolerance of Uncertainty Scale-12, with the Prospective Anxiety (PA) and Inhibitory Anxiety (IA) scales; EPA = Elemental Psychopathy Assessment- Super Short Form, with the Antagonism subscale (Ant), Disinhibition subscale (Dis), and Emotional Stability subscale (ES); LT = Light Triad Scale, with the Faith in Humanity (FiH), Humanism, and Kantianism scales; Dangerous and Competitive Worldviews come from the Frequency Estimation Index of Dual Social Worldviews; SDT = Short Dark Tetrad

Figure 3

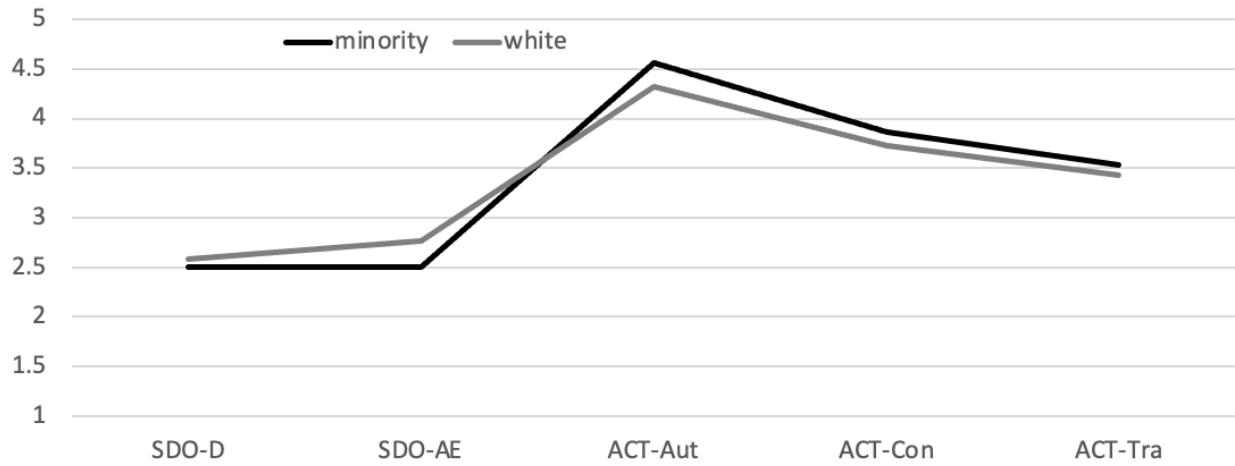
*Visual Representation of Between-Group Similarities on the SRP and ACME*



*Note.* Average item endorsement across associated facets between the largest group (White participants) and all other participants (labeled minority). SRP = Self-Report Psychopathy Scale, with the Interpersonal Scale, Affective Scale, Lifestyle Scale, and Antisocial Scale; ACME = Affective and Cognitive Measure of Empathy, with the Cognitive Scale (Cog), Affective Resonance Scale (Aff), and Affective Dissonance Scale (Dis).

Figure 4

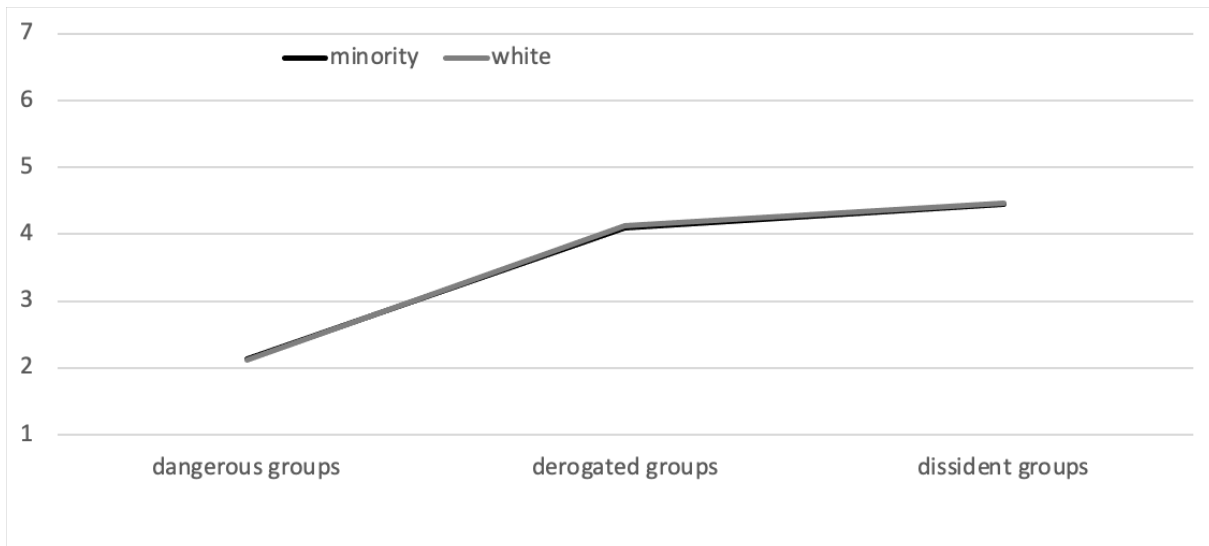
*Visual Representation of Between-Group Similarities on the SDO<sub>7</sub>-SF and ACT-SF*



*Note.* Average item endorsement across associated facets between the largest group (White participants) and all other participants (labeled minority). SDO = SDO<sub>7</sub> Scale Short Form, with the Dominance (D) and Anti-Egalitarian (AE) scales; ACT = Authoritarian-Conservative-Traditionalism Scales Short Form, with the Authoritarian (Auth), Conservative (Con), and Traditionalism (Tra) scales.

Figure 5

*Visual Representation of Between-Group Similarities on the ATR*



*Note.* Average item endorsement across associated facets between the largest group (White participants) and all other participants (labeled minority). ATR= Affective Thermometer Ratings of Social Groups

Table 4

*ANOVA Testing for Differences by Race/Ethnicity*

Variable	ANOVA Values			Asian		Black		Latino		White		Multiracial	
	<i>F</i>	<i>p</i>	$\eta^2$	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
SRP CA	2.80	.025	.011	16.69	5.15	16.47	4.79	16.42	5.46	15.36	4.70	15.93	4.51
SDO Total	2.67	.032	.011	20.70	9.10	17.67	9.75	20.56	9.43	21.39	10.23	21.22	9.90
SDO Ante	3.58	.007	.014	10.47	4.68	8.80	5.10	10.56	4.75	11.07	5.51	10.38	5.49
ACT Trad	3.09	.015	.012	19.55	9.09	24.34	10.52	19.80	9.68	20.57	10.59	20.73	9.40
IUS Total	2.47	.043	.010	36.59	9.39	34.67	10.28	34.56	10.70	33.56	9.20	33.42	8.36
IUS IA	2.46	.044	.010	13.21	5.02	11.59	5.26	12.25	6.03	11.55	4.99	11.56	4.94
EPA ES	2.44	.045	.010	14.34	3.94	16.23	4.25	15.24	4.06	15.24	4.10	15.51	4.69
DW	7.76	.001	.031	149.1	105.6	234.6	161.7	153.1	126.4	149.3	133.9	165.8	127.4
Mach	3.92	.004	.016	25.12	4.08	24.72	5.38	24.36	5.63	23.52	4.37	24.12	3.96

*Note.* All other ANOVAs for the remaining variables of interest were non-significant. SRP CA= Self-Report Psychopathy Scale- Short Form- 4<sup>th</sup> Edition, Affective Scale; SDO = SDO<sub>7</sub> Scale Short Form, with the Anti-Egalitarian (Ante) scale; ACT = Authoritarian-Conservative-Traditionalism Scales Short Form, Traditional scale; IUS= Intolerance of Uncertainty Scale-12, Inhibitory Anxiety (IA) scale; EPA= Elemental Psychopathy Assessment- Super Short Form, Emotional Stability subscale (ES); DW= Frequency Estimation Index of Dual Social Worldviews, Dangerous Worldview scale; Mach= Short Dark Tetrad, Machiavellianism scale. There were 2 participants who identified as Native American/American Indian/First Native, and 6 who identified as “Other,” which are not included in table data.

Table 5

*Bivariate Pearson Correlation Table for Included Variables*

	1	2	3	4	5	6	7	8	9	10	11	12
1. SRP_TOT	1											
2. SRP_IPM	.856**	1										
3. SRP_CA	.839**	.674**	1									
4. SRP_ELF	.833**	.581**	.608**	1								
5. SRP_CT	.772**	.529**	.496**	.563**	1							
6. SDO_TOT	.323**	.323**	.278**	.184**	.282**	1						
7. SDO_DOM	.332**	.331**	.275**	.206**	.285**	.929**	1					
8. SDO_ANTE	.267**	.268**	.240**	.136**	.239**	.927**	.724**	1				
9. ACT_TOT	0.018	0.023	0.044	-.113**	.115**	.505**	.465**	.472**	1			
10. ACT_CON	-0.005	-0.012	0.023	-.126**	.112**	.445**	.417**	.408**	.915**	1		
11. ACT_Trad	0.022	0.025	0.035	-.107**	.130**	.463**	.411**	.449**	.877**	.712**	1	
12. ACT_Auth	0.032	0.051	0.060	-.062*	0.058	.429**	.404**	.392**	.859**	.709**	.594**	1
13. ACME Tot	-.571**	-.508**	-.561**	-.388**	-.433**	-.374**	-.372**	-.323**	-.141**	-.120**	-.138**	-.115**
14. ACME Cog	-.101**	-.066*	-.135**	-0.054	-.091**	-.128**	-.129**	-.109**	-.071*	-.074*	-.064*	-0.047
15. ACME Res	-.510**	-.435**	-.561**	-.330**	-.362**	-.364**	-.345**	-.330**	-.136**	-.108**	-.137**	-.116**
16. ACME Dis	-.695**	-.655**	-.599**	-.500**	-.534**	-.375**	-.385**	-.311**	-.121**	-.097**	-.120**	-.103**
17. ATR_TOT	0.031	-0.047	-.069*	.143**	.090**	-.359**	-.325**	-.342**	-.471**	-.390**	-.404**	-.461**
18. ATR_DG	.303**	.200**	.190**	.258**	.371**	0.062	.085**	0.029	-0.058	-0.015	-0.013	-.133**
19. ATR_Dero	-.180**	-.227**	-.234**	-0.047	-.075*	-.339**	-.337**	-.292**	-.224**	-.156**	-.178**	-.266**
20. ATR_Diss	-0.041	-0.060	-.085**	.099**	-.096**	-.473**	-.425**	-.453**	-.715**	-.654**	-.662**	-.574**

*(table continues)*

	1	2	3	4	5	6	7	8	9	10	11	12
21. IUS_TOT	.159**	.214**	.171**	0.047	.081*	.085**	.114**	0.044	0.061	0.033	0.045	.088**
22. IUS_PA	.080*	.151**	.112**	-0.011	0.002	0.034	0.055	0.008	0.034	0.008	0.004	.086**
23. IUS_IA	.205**	.232**	.195**	.099**	.148**	.121**	.151**	.073*	.076*	0.052	.080*	.070*
24. EPA_TOT	.683**	.529**	.564**	.651**	.513**	.324**	.322**	.279**	.094**	0.056	.109**	.085**
25. EPA_ANT	.604**	.567**	.579**	.426**	.418**	.305**	.312**	.253**	.070*	0.022	.087**	.078*
26. EPA_DIS	.641**	.458**	.459**	.720**	.479**	.198**	.210**	.158**	-0.011	-0.046	0.015	0.003
27. EPA_ES	0.032	-0.043	0.011	.083**	.065*	.099**	.076*	.108**	.115**	.129**	.100**	.075*
28. LT_TOT	-.359**	-.418**	-.411**	-.190**	-.147**	-.245**	-.234**	-.220**	-0.059	0.002	-.067*	-.096**
29. LT_FiH	-.233**	-.281**	-.317**	-.107**	-0.050	-.141**	-.130**	-.132**	-0.032	0.043	-0.049	-.083**
30. LT_Human	-.234**	-.265**	-.320**	-.114**	-0.062	-.153**	-.141**	-.144**	-0.026	0.027	-0.054	-0.042
31. LT_Kant	-.390**	-.449**	-.317**	-.243**	-.262**	-.299**	-.300**	-.255**	-.088**	-.086**	-0.053	-.097**
32. DW	.348**	.267**	.288**	.265**	.337**	.190**	.202**	.150**	.212**	.190**	.190**	.183**
33. CW	.320**	.306**	.285**	.263**	.193**	.142**	.139**	.124**	.068*	0.045	.064*	.072*
34. MACH	.372**	.452**	.346**	.258**	.149**	.217**	.241**	.162**	0.045	0.029	0.004	.092**
35. Nar	.338**	.258**	.197**	.387**	.276**	.246**	.255**	.201**	.124**	.115**	.094**	.121**
	13	14	15	16	17	18	19	20	21	22	23	24
13. ACME Tot	1											
14. ACME Cog	.677**	1										
15. ACME Res	.844**	.378**	1									
16. ACME Dis	.800**	.208**	.609**	1								
17. ATR_TOT	.119**	0.020	.175**	.088**	1							
18. ATR_DG	-.236**	-.149**	-.150**	-.240**	.590**	1						
19. ATR_Dero	.300**	.128**	.311**	.259**	.765**	.135**	1					

(table continues)

	13	14	15	16	17	18	19	20	21	22	23	24
20. ATR_Diss	.172**	0.056	.193**	.153**	.744**	.127**	.444**	1				
21. IUS_TOT	-.210**	-.113**	-.112**	-.249**	-0.060	0.003	-.104**	-0.022	1			
22. IUS_PA	-.091**	-0.023	-0.052	-.129**	-0.060	-.064*	-.063*	0.003	.894**	1		
23. IUS_IA	-.288**	-.183**	-.151**	-.318**	-0.046	.076*	-.123**	-0.044	.875**	.564**	1	
24. EPA_TOT	-.503**	-0.051	-.514**	-.591**	-0.025	.245**	-.192**	-.094**	0.018	-0.033	.069*	1
25. EPA_ANT	-.647**	-.252**	-.623**	-.622**	-.111**	.187**	-.282**	-.123**	.316**	.182**	.384**	.714**
26. EPA_DIS	-.409**	-.102**	-.313**	-.515**	.095**	.233**	-0.061	0.036	.145**	0.061	.202**	.745**
27. EPA_ES	.130**	.270**	-0.010	0.038	-0.024	0.040	-0.006	-.084**	-.443**	-.317**	-.474**	.418**
28. LT_TOT	.492**	.224**	.553**	.378**	.267**	0.038	.345**	.168**	-.162**	-.126**	-.163**	-.243**
29. LT_FiH	.324**	.143**	.405**	.218**	.237**	.101**	.253**	.139**	-.165**	-.174**	-.116**	-.140**
30. LT_Human	.413**	.219**	.499**	.260**	.239**	.066*	.298**	.130**	-.122**	-.081*	-.136**	-.147**
31. LT_Kant	.427**	.166**	.379**	.437**	.127**	-.113**	.253**	.115**	-.072*	-0.005	-.128**	-.304**
32. DW	-.280**	-.111**	-.200**	-.326**	-.067*	.150**	-.117**	-.170**	.172**	.116**	.191**	.334**
33. CW	-.219**	-0.050	-.168**	-.280**	-0.057	0.056	-.113**	-0.058	.206**	.161**	.205**	.273**
34. MACH	-.198**	0.024	-.176**	-.296**	-.125**	-0.025	-.184**	-0.047	.243**	.243**	.185**	.282**
35. Nar	-0.051	.222**	-.066*	-.257**	0.012	.099**	-0.036	-0.035	-0.039	-0.010	-0.062	.503**
	25	26	27	28	29	30	31	32	33	34	35	
25. EPA_ANT	1											
26. EPA_DIS	.457**	1										
27. EPA_ES	-.150**	-0.044	1									
28. LT_TOT	-.504**	-.171**	.240**	1								
29. LT_FiH	-.375**	-.121**	.250**	.845**	1							
30. LT_Human	-.388**	-.076*	.208**	.806**	.545**	1						

(table continues)



	25	26	27	28	29	30	31	32	33	34	35
31. LT_Kant	-.414**	-.211**	.067*	.636**	.276**	.314**	1				
32. DW	.284**	.305**	0.037	-.106**	-.089**	-0.029	-.133**	1			
33. CW	.273**	.272**	-0.037	-.167**	-.165**	-.082**	-.131**	.657**	1		
34. MACH	.311**	.223**	-0.011	-.182**	-.119**	-.083**	-.236**	.171**	.261**	1	
35. Nar	.146**	.317**	.493**	.112**	.139**	.225**	-.143**	.143**	.132**	.224**	1

*Note.* Results for the total sample ( $N = 999$ ). Tot= Total. SRP = Self-Report Psychopathy Scale, with the Interpersonal Scale (IMP), Affective Scale (CA), Lifestyle Scale (ELS), and Antisocial Scale (CT); SDO = SDO<sub>7</sub> Scale Short Form, with the Dominance (Dom) and Anti-Egalitarian (Ante); ACT = Authoritarian-Conservative-Traditionalism Scales Short Form; ACME = Affective and Cognitive Measure of Empathy, with the Cognitive Scale (Cog), Affective Resonance Scale (Aff), and Affective Dissonance Scale (Dis); Affective Thermometer Rating Scales (ATR), with the Dangerous (DG), Derogated (Dero), and Dissident (Dis) groups; IUS= Intolerance of Uncertainty Scale-12, with the Prospective Anxiety (PA) and Inhibitory Anxiety (IA) scales; EPA= Elemental Psychopathy Assessment- Super Short Form, with the Antagonism subscale (Ant), Disinhibition subscale (Dis), and Emotional Stability subscale (ES); LT= Light Triad Scale, with the Faith in Humanity (FiH), Humanism (Hum), and Kantianism (Kant) scales; Dangerous (DW) and Competitive Worldview (CW) come from the Frequency Estimation Index of Dual Social Worldviews; Machiavellianism (Mach) and Narcissism (Nar) scales from the Short Dark Tetrad measure. \*  $p < .05$ . \*\*  $p < .01$

Table 6

*Select Bivariate Correlation Relationships*

	ATR Total	ATR Dangerous	ATR Derogated	ATR Dissident
SRP_TOT	0.031	.303**	-.180**	-0.041
SRP_IPM	-0.047	.200**	-.227**	-0.060
SRP_CA	-.069*	.190**	-.234**	-.085**
SRP_ELF	.143**	.258**	-0.047	.099**
SRP_CT	.090**	.371**	-.075*	-.096**
SDO_TOT	-.359**	0.062	-.339**	-.473**
SDO_DOM	-.325**	.085**	-.337**	-.425**
SDO_ANTE	-.342**	0.029	-.292**	-.453**
ACT_TOT	-.471**	-0.058	-.224**	-.715**
ACT_CON	-.390**	-0.015	-.156**	-.654**
ACT_Trad	-.404**	-0.013	-.178**	-.662**
ACT_AUTH	-.461**	-.133**	-.266**	-.574**
ACME_TOT	.119**	-.236**	.300**	.172**
ACME_COG	0.020	-.149**	.128**	0.056
ACME_RES	.175**	-.150**	.311**	.193**
ACME_DIS	.088**	-.240**	.259**	.153**
EPA_TOT	-0.025	.245**	-.192**	-.094**
EPA_ANT	-.111**	.187**	-.282**	-.123**
EPA_DIS	.095**	.233**	-0.061	0.036
EPA_ES	-0.024	0.040	-0.006	-.084**
LT_TOT	.267**	0.038	.345**	.168**
LT_FiH	.237**	.101**	.253**	.139**
LT_Human	.239**	.066*	.298**	.130**
LT_Kant	.127**	-.113**	.253**	.115**
DW	-.067*	.150**	-.117**	-.170**

*(table continues)*

	ATR Total	ATR Dangerous	ATR Derogated	ATR Dissident
CW	-0.057	0.056	-.113**	-0.058
Mach	-.125**	-0.025	-.184**	-0.047
Nar	0.012	.099**	-0.036	-0.035

*Note.* Results for the total sample ( $N = 999$ ). Tot= Total. SRP = Self-Report Psychopathy Scale, with the Interpersonal Scale (IMP), Affective Scale (CA), Lifestyle Scale (ELS), and Antisocial Scale (CT); SDO = SDO<sub>7</sub> Scale Short Form, with the Dominance (Dom) and Anti-Egalitarian (Ante); ACT = Authoritarian-Conservative-Traditionalism Scales Short Form; ACME = Affective and Cognitive Measure of Empathy, with the Cognitive Scale (Cog), Affective Resonance Scale (Aff), and Affective Dissonance Scale (Dis); Affective Thermometer Rating Scales (ATR), with the Dangerous (DG), Derogated (Dero), and Dissident (Dis) groups; EPA= Elemental Psychopathy Assessment- Super Short Form, with the Antagonism subscale (Ant), Disinhibition subscale (Dis), and Emotional Stability subscale (ES); LT= Light Triad Scale, with the Faith in Humanity (FiH), Humanism (Hum), and Kantianism (Kant) scales; Dangerous (DW) and Competitive Worldview (CW) come from the Frequency Estimation Index of Dual Social Worldviews; Machiavellianism (Mach) and Narcissism (Nar) scales from the Short Dark Tetrad measure. \*  $p < .05$ . \*\*  $p < .01$

Table 7

*Multiple Regression Analyses Predicting Affective Thermometer Rating Scales Derogated Group Factor Scores*

Model Predictors	$\beta$	$R^2$	$R^2_{adj}$	$F$	$p$
Model 1		.17	.17	28.34	< .001
SDO Dom	-.25**				
SDO AntE	-.08				
ACT Con	.21**				
ACT Trad	-.04				
ACT Auth	-.30**				
Model 2		.10	.10	18.74	< .001
SRP IMP	-.20**				
SRP CA	-.26**				
SRP ELF	.20**				
SRP CT	.04				
Model 3		.22	.21	20.63	< .001
SRP IMP	-.12*				

(table continues)

Model Predictors	$\beta$	$R^2$	$R^2_{adj}$	$F$	$p$
SRP CA	-.21**				
SRP ELF	.15*				
SRP CT	.07				
SDO Dom	-.22**				
SDO AntE	-.03				
ACT Con	.19*				
ACT Trad	-.05				
ACT Auth	-.28**				
Model 4		.24	.23	25.72	< .001
SRP CA	-.15*				
SRP ELF	.14*				
SRP CT	.08				
SDO Dom	-.21**				
ACT Con	.17*				
ACT Auth	-.29**				
ACME Res	.17**				
Model 5		.12	.11	29.78	< .001
ACME Cog	-.03				
ACME Res	.28**				
ACME Dis	.10*				
Model 6		.15	.14	38.80	< .001
LT Fih	.14*				
LT Human	.19**				
LT Kant	.18**				

*Note.* SRP = Self-Report Psychopathy Scale, with the Interpersonal Scale (IMP), Affective Scale (CA), Lifestyle Scale (ELS), and Antisocial Scale (CT); SDO = SDO<sub>7</sub> Scale Short Form, with the Dominance (Dom) and Anti-Egalitarian (Ante); ACT = Authoritarian-Conservative-Traditionalism Scales Short Form; ACME = Affective and Cognitive Measure of Empathy, with the Cognitive Scale (Cog), Affective Resonance Scale (Aff), and Affective Dissonance Scale (Dis); LT= Light Triad Scale, with the Faith in Humanity (FiH), Humanism (Hum), and Kantianism (Kant) scales. \*  $p < .05$ . \*\*  $p < .01$

Table 8

*Multiple Regression Analyses*

Outcome Variable	$\beta$	$R^2$	$R^2_{adj}$	$F$	$p$
ACME Res		.35	.35	90.39	< .001
SRP IMP	-.06				
SRP CA	-.51**				
SRP ELF	.06				
SRP CT	-.12*				
ACME Dis		.54	.54	198.04	< .001
SRP IMP	-.29**				
SRP CA	-.27**				
SRP ELF	-.04				
SRP CT	-.28**				
SDO Dom		.20	.19	82.59	< .001
ACME Res	-.22**				
ACME Dis	-.28**				
SDO Ante		.17	.16	66.51	< .001
ACME Res	-.29**				
ACME Dis	-.16**				
ACT Con		.02	.02	6.58	.001
ACME Res	-.06				
ACME Dis	-.09				
ACT Trad		.02	.02	7.76	< .001
ACME Res	-.07				
ACME Dis	-.09				
ACT Auth		.03	.02	8.48	< .001
ACME Res	-.09				
ACME Dis	-.09				

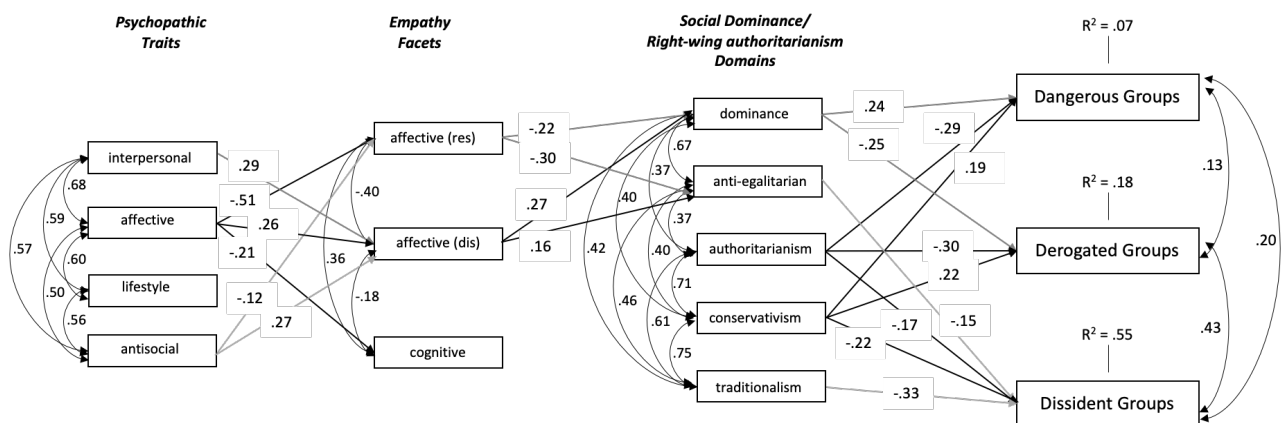
*(table continues)*

Outcome Variable	$\beta$	R <sup>2</sup>	R <sup>2</sup> <sub>adj</sub>	F	p
ACT Con		.04	.04	25.67	< .001
DW	.19**				
ACT Trad		.03	.03	20.32	< .001
DW	.17**				
ACT Auth		.03	.03	22.51	< .001
DW	.18**				
SDO Dom		.02	.02	12.12	.001
CW	.13*				
SDO Ante		.01	.01	7.50	.006
CW	.11*				

Note. SRP = Self-Report Psychopathy Scale, with the Interpersonal Scale (IMP), Affective Scale (CA), Lifestyle Scale (ELS), and Antisocial Scale (CT); SDO = SDO<sub>7</sub> Scale Short Form, with the Dominance (Dom) and Anti-Egalitarian (Ante); ACT = Authoritarian-Conservative-Traditionalism Scales Short Form; ACME = Affective and Cognitive Measure of Empathy, with the Affective Resonance Scale (Aff) and Affective Dissonance Scale (Dis); Dangerous (DW) and Competitive Worldview (CW) from the Frequency Estimation Index of Dual Social Worldviews. \*  $p < .05$ . \*\*  $p < .01$ .

Figure 6

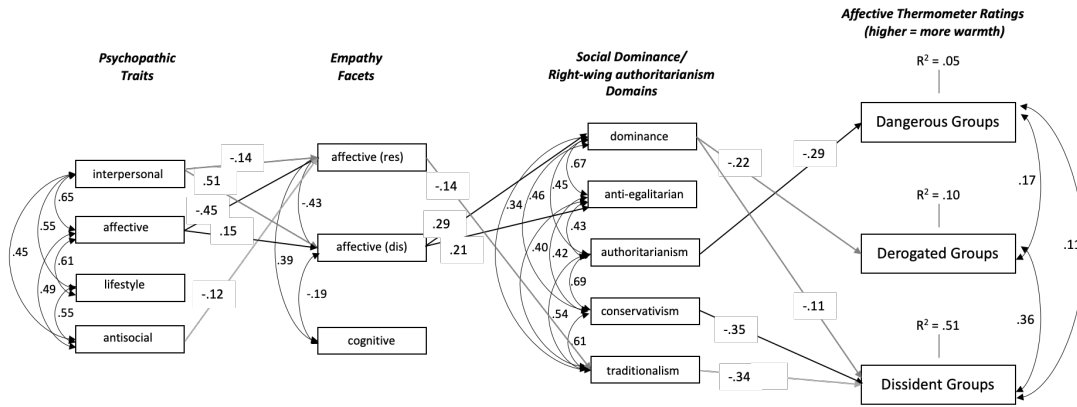
*Proposed Path Model – White sample*



Note. Results for the White sample ( $N = 677$ ). Psychopathic Traits = Self-Report Psychopathy Scale, with the Interpersonal Scale (IMP), Affective Scale (CA), Lifestyle Scale (ELS), and Antisocial Scale (CT); ACME = Affective and Cognitive Measure of Empathy, with the Cognitive Scale, Affective Resonance Scale (Aff) and Affective Dissonance Scale (Dis); Social Dominance = SDO<sub>7</sub> Scale Short Form, with the Dominance (Dom) and Anti-Egalitarian (Ante); Right-wing Authoritarianism = Authoritarian-Conservative-Traditionalism Scales Short Form; Affective Thermometer Rating Scales Dangerous, Derogated, and Dissident Groups. Model Chi-Square 439.62 ( $df = 82$ ),  $p < .001$ , CFI = .94, RMSEA = .08

Figure 7

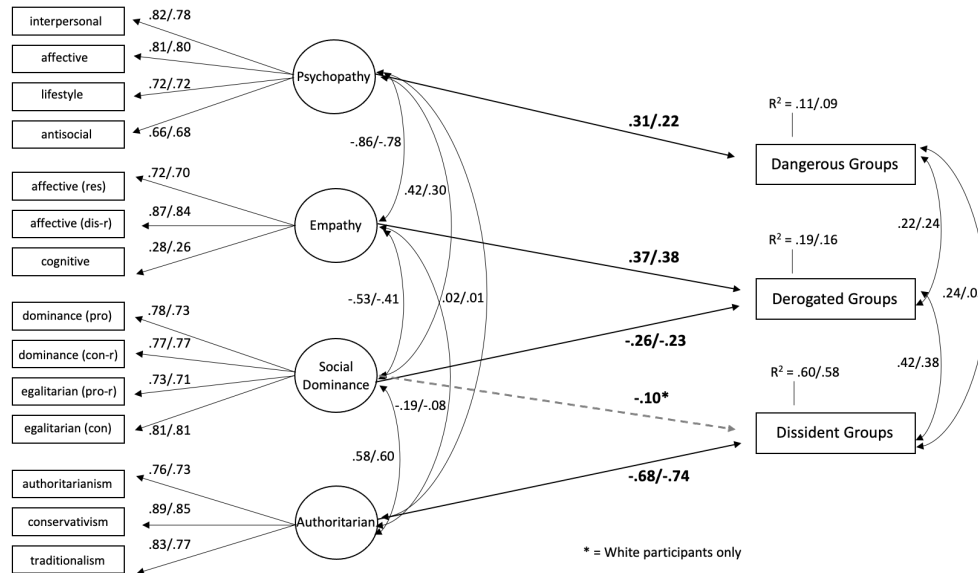
*Proposed Path Model – Non-White sample*



*Note.* Results for all the non-White participants grouped together ( $N = 323$ ). Psychopathic Traits = Self-Report Psychopathy Scale, with the Interpersonal Scale (IMP), Affective Scale (CA), Lifestyle Scale (ELS), and Antisocial Scale (CT); Empathy = Affective and Cognitive Measure of Empathy, with the Affective Resonance Scale (Aff) and Affective Dissonance Scale (Dis); Social Dominance = SDO<sub>7</sub> Scale Short Form, with the Dominance (Dom) and Anti-Egalitarian (Ante); Right-Wing Authoritarianism = Authoritarian-Conservative-Traditionalism Scales Short Form; Affective Thermometer Rating Scales Dangerous, Derogated, and Dissident Groups. Model Chi-Square 439.62 ( $df = 82$ ),  $p < .001$ , CFI = .94, RMSEA = .08

Figure 8

*Unidimensional Construct Structural Equation Model: Multi-Group Analysis*



*Note.* Parameters and results listed for the White sample/non-White sample. Psychopathy = Self-Report Psychopathy Scale, with the Interpersonal Scale (IMP), Affective Scale (CA), Lifestyle Scale (ELS), and Antisocial Scale (CT); Empathy = Affective and Cognitive Measure of Empathy, with the Cognitive Scale, Affective Resonance Scale (Aff), and Affective Dissonance Scale (Dis); Social Dominance = SDO<sub>7</sub> Scale Short Form, with

the Dominance and Anti-Egalitarian scales- with each split into the method dimensions (pro-trait and con-trait dimensions), as presented by the authors (Ho et al., 2015); Authoritarian = Authoritarian-Conservative-Traditionalism Scales Short Form; Affective Thermometer Rating Scales Dangerous, Derogated, and Dissident Groups. Model Chi-Square 949.96 ( $df = 222$ ),  $p < .001$ , CFI = .91, RMSEA = .07.

Table 9

*Standardized Indirect Effects in Path Models*

<b>Psychopathy Facets</b>		<b>Empathy Facets</b>		<b>Social Dominance Facets</b>	<b>Effect</b>
White Sample					
interpersonal (+)	→	dissonance (+)	→	dominance	.08
affective (-)	→	resonance (-)	→	dominance	.12
affective (+)	→	dissonance (+)	→	dominance	.07
antisocial (-)	→	resonance (-)	→	dominance	.03
antisocial (+)	→	dissonance (+)	→	dominance	.08
interpersonal (+)	→	dissonance (+)	→	anti-egalitarian	.05
affective (-)	→	resonance (-)	→	anti-egalitarian	.15
affective (+)	→	dissonance (+)	→	anti-egalitarian	.04
antisocial (-)	→	resonance (-)	→	anti-egalitarian	.03
affective (+)	→	dissonance (+)	→	anti-egalitarian	.04
Non-White Sample					
interpersonal (+)	→	dissonance (+)	→	dominance	.15
affective (+)	→	dissonance (+)	→	dominance	.04
interpersonal (+)	→	dissonance (+)	→	anti-egalitarian	.11
affective (+)	→	dissonance (+)	→	anti-egalitarian	.03
<b>Empathy Facets</b>		<b>Social Dominance Facets</b>		<b>Affective Thermometer</b>	<b>Effect</b>
White Sample					
dissonance (+)	→	dominance (+)	→	dangerous groups	.07
resonance (-)	→	dominance (-)	→	derogated groups	.05
dissonance (+)	→	dominance (-)	→	derogated groups	-.07
resonance (-)	→	anti-egalitarian (-)	→	dissident groups	.05
dissonance (+)	→	anti-egalitarian (-)	→	dissident groups	-.03
Non-White Sample					
dissonance (+)	→	dominance (-)	→	derogated groups	-.07

*Note.* Psychopathic Traits = Self-Report Psychopathy Scale, with the Interpersonal Scale (IMP), Affective Scale



(CA), Lifestyle Scale (ELS), and Antisocial Scale (CT); Empathy = Affective and Cognitive Measure of Empathy, with the Affective Resonance Scale (Aff) and Affective Dissonance Scale (Dis); Social Dominance = SDO<sub>7</sub> Scale Short Form, with the Dominance (Dom) and Anti-Egalitarian (Ante); Right-Wing Authoritarianism = Authoritarian-Conservative-Traditionalism Scales Short Form; Affective Thermometer Rating Scales Dangerous, Derogated, and Dissident Groups.

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