THE RELATIONSHIP OF PRIMARY AND SECONDARY PSYCHOPATHY TO

DIFFERENT TYPES OF EMPATHETIC DEFICITS

Thesis

Submitted to

The College of Arts and Sciences of the

UNIVERSITY OF DAYTON

In Partial Fulfillment of the Requirements for

The Degree of

Master of Arts in Psychology

By

Alyssa Paige Gretak

UNIVERSITY OF DAYTON

Dayton, Ohio

December, 2015

THE RELATIONSHIP OF PRIMARY AND SECONDARY PSYCHOPATHY TO

DIFFERENT TYPES OF EMPATHETIC DEFICITS

Name: Gretak, Alyssa Paige

APPROVED BY:

_____

Catherine J. Lutz-Zois, PhD
Faculty Advisor

_____

Erin M. O'Mara, PhD
Committee Member

_____

Jackson A. Goodnight, PhD
Committee Member

Concurrence:

_____

Keri J. Brown Kirschman, PhD
Chair, Department of Psychology

ABSTRACT

THE RELATIONSHIP OF PRIMARY AND SECONDARY PSYCHOPATHY TO

DIFFERENT TYPES OF EMPATHETIC DEFICITS

Name: Gretak, Alyssa Paige
University of Dayton

Advisor: Dr. Catherine Lutz-Zois

The present study examined the relationship between the constructs of psychopathy and

empathy in 180 undergraduate students. This study addressed discrepancies in previous

research concerning these constructs (Blair, Jones, Clark, & Smith, 1997; Lishner, 2012).

Assessing different types of psychopathy and empathy did this, as participants completed

measures of primary and secondary psychopathy, implicit and explicit cognitive and

affective empathy, social desirability, and anxiety. Analyses did not support the part of

Hypothesis 1, stating that primary psychopathy would be positively related to explicit

cognitive empathy, as a negative association was found. However, as hypothesized,

primary psychopathy was unrelated to implicit cognitive empathy. Further mixed results

were yielded for Hypothesis 2, that secondary psychopathy would be negatively related

to both implicit and explicit cognitive empathy, as a significant negative interaction was

found only for secondary psychopathy and implicit cognitive empathy. Finally, when

looking at the use of implicit affective physiological measurements, the current study

found secondary psychopathy to be significantly negatively related to implicit affective empathy while there was no relation between primary psychopathy and implicit affective empathy. Limitations, directions, and implications for future research of these mixed results are discussed.

Keywords: primary psychopathy, secondary psychopathy, implicit empathy, affective empathy.

ACKNOWLEDGEMENTS

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I

INTRODUCTION

Psychopathy is characterized as a pattern of disregard for others and their rights that begins early in life and continues through adulthood (American Psychiatric Association, 2013). Although other categorization systems have been proposed, one of the most common and well-accepted distinctions in the literature is between primary and secondary psychopathy (Karpman, 1941; Skeem, et al., 2003). Primary psychopathy is often what one thinks when hearing the word "psychopath," as individuals high in primary psychopathic attributes are often calculating and indifferent to the feelings and needs of others. In contrast, those high in secondary psychopathic attributes are thought to display an anxious, impulsive temperament with a disposition to lie and steal (Karpman, 1941; Vidal, Skeem, & Camp, 2010).

Due to the significant role that empathy plays in psychopathy, a multitude of research has examined the relationship between these two variables. Similar to psychopathy, the construct of empathy is thought to be multidimensional in nature. While there are other models of empathy, the distinction between cognitive and affective empathy is relevant to this study. Affective empathy is an emotional experience of an individual in response to the emotional reaction of another (Eisenberg & Fabes, 1990). Cognitive empathy, however, is the ability of an individual to mentally recognize the

emotions of others without actually experiencing these emotions (Wait & Tiliopoulos, 2006). Another distinction often made in the empathy literature is between explicit and implicit empathy. Explicit empathy is the deliberate and conscious processing of an individual and is typically assessed by self-report measures. Implicit empathy is the spontaneous, effortless, and unconscious reaction of individuals to emotional situations or others' emotions.

The proposed study builds directly from the work of Glaser and Lutz-Zois (2014), who attempted to predict participants' standing on implicit cognitive, explicit affective and explicit cognitive empathy from their scores on primary and secondary psychopathy measures. Glaser and Lutz-Zois (2014) reported that those with primary psychopathic tendencies reported no less empathy than those without psychopathic tendencies. Individuals displaying secondary psychopathic tendencies scored lower on measures of empathy than did primary psychopathic and pathology free counterparts (Glaser & Lutz-Zois, 2014). Using the methods of Glaser and Lutz-Zois (2014), with the addition of an implicit affective empathy measure (i.e., heart rate), the current study tests the hypotheses that primary psychopathy will be uncorrelated to implicit measures of cognitive empathy and positively related to explicit measures of cognitive empathy. In contrast, it is hypothesized that primary psychopathy will be negatively related to implicit measures of affective empathy. Finally, it is expected that secondary psychopathic attributes will be negatively correlated with all empathy measures.

Psychopathy

While Cleckley (1964) originally conceptualized psychopathy as we are familiar with it today, this interpersonal pattern has been adjusted countless times over the past

several centuries. A student of Aristotle describes "The Unscrupulous Man," which depicts our current conceptualization of an antisocial individual in terms of interpersonal inappropriateness and impulsivity (Millon, Simonsen, & Birket-Smith, 1998). In the late 18th to early19th centuries, researchers continue to be puzzled by individuals who display psychopathic tendencies. Phillippe Pinel referred to this "madness" as "*la folie raisonnate*" and described such patients as impulsive and self-destructive, but also able to retain reasoning abilities and to grasp the irrationality of their behavior (Millon et al., 1998). Many ideas surfaced throughout the centuries of what to call this "madness." Emil Kraepelin labeled individuals who suffered from the inability to restrain themselves from impulsivity in socially undesirable ways as "morally insane" (Millon et al., 1998). Throughout history, research has provided a strong foundation for the current literature, and the ever-evolving field of psychopathy.

Currently, psychopathy is defined in terms of a collection of affective, interpersonal, and behavioral characteristics. These characteristics include, but are not limited to, impulsivity, lack of empathy and guilt, pathological lying, and manipulativeness (Hare, 1996). Hare (2003) more recently goes on to describe individuals with psychopathy as being interpersonally charming, but affectively shallow and prone to commit a variety of antisocial acts. Likewise, Hakkanen-Nyholm and Nyholm (2012) describe individuals with psychopathy as convincing, charming, and able to act without a sense of emotion while manipulating another individual for their own personal benefit. Hare (2003) describes individuals with psychopathic tendencies to be lacking in conscience and feelings for others, while regularly violating social norms without a sense of guilt, and leading impulsive and parasitic lifestyles.

Psychopathy has become closely affiliated with personality disorders, specifically those in Cluster B personality disorders. According to the DSM 5 (2013) a personality disorder is an enduring characteristic of an individual in which his or her behavior goes against the social norms, is pervasive and inflexible, and is stable over time therefore leading to distress or impairment in daily life. The Cluster B personality disorders include antisocial, borderline, histrionic, and narcissistic personality disorders, each of which causes an individual to appear dramatic, emotional, or erratic (APA, 2013). The characteristics of manipulation and a lack of empathy that Cleckley (1964) used to define psychopathy are found in narcissistic personality disorder (NPD) and borderline personality disorder (BPD). Features of secondary psychopathy, such as impulsivity and aggression, can be found in the diagnostic criteria for BPD, as well (APA, 2013).

Antisocial personality disorder (ASPD) has often been compared to psychopathy, as both include the central feature of a pattern of disregard for others and their rights. For instance, the diagnosis of ASPD requires that the pattern of disregard, which is characteristic of psychopathy, be present in an individual since the age of 15. The criteria also include specific disregard and violations of others, as well as an age criteria of 18 years or older for diagnosis (APA, 2013). That is, the specific set of criteria in the DSM 5 for ASPD are behavioral in features, such as irritability and aggressiveness indicated by physical fights or assault and consistent irresponsibility (e.g., failure to sustain work or honor financial obligations; APA, 2013). Features of psychopathy however, include more interpersonal features such as the manipulation of others or lack of empathy. Due to these additional behavioral criteria for ASPD, an individual high in psychopathy may not

necessarily be diagnosed with ASPD, as they may never fulfill specified, behaviorally based criteria.

Society often assumes that persons exhibiting high levels of psychopathy are primarily present in clinical or forensic populations. It has been noted, however, that some individuals with these psychopathic, antisocial tendencies operate in mainstream society and learn to demonstrate their characteristics in socially acceptable ways (Millon, 1981). Salekin, Trobst, and Krioukova (2001) sought to observe how prevalent the construct of psychopathy was in non-forensic settings. As the two dimensions of psychopathy (primary and secondary) are continuous, psychopathic tendencies can be found in the community, specifically college samples, at a higher rate than expected (Board & Fritzon, 2005; Mullins-Nelson, Salekin & Leistico, 2006). This supports the rationale for using a college sample for the current study.

Primary and Secondary Psychopathy

Research has recently indicated several ways to distinguish psychopathy types, and while previous systems have been proposed, primary and secondary variants of psychopathy are most commonly examined and are the focus of the current study (Karpman, 1941; Poythress & Skeem, 2006; Skeem & Poythress, 2003). Primary and secondary psychopathy are both categorized by the likeliness to act irresponsible, hostile, or in an antisocial fashion (Karpman, 1948b). The distinctions between these two categories of psychopathy are often based on the etiology of, and motivation for, the psychopathic behavior of the individual (Karpman, 1941; Porter, 1996). For example, traits of a "primary psychopath" are thought to be rooted in inherent deficits (e.g., lack of positive emotions) within the individual, and could not be attributed to psychosocial

5

factors (Karpman, 1941). Karpman (1948b) suggested that features of the secondary psychopath are due to environmental influences that cause a character fixation, such as negative family influence. Karpman (1941) made the initial distinction between primary and secondary psychopathy in relation to susceptibility to negative emotions. He stated that those with primary psychopathic traits demonstrate the absence of a conscience and are essentially unable to experience emotions like anxiety, empathy, or guilt (Blackburn, 1975). Individuals with secondary psychopathic traits however, have a conscience, but it is disrupted due to the hostility created by an anxious and emotional disposition, and is often expressed through aggressive behaviors as there is increased impulsivity present (Blackburn, 1975). Individuals with secondary psychopathy are therefore prone to experience these human emotions including guilt, depression, and anxiety but it may not be evident based on their behavior (Karpman 1941).

More recently Fowles & Dindo (2006) proposed a Dual Deficit Model of psychopathy in which inherent deficits may not be the only explanation for the different traits between psychopathy subtypes. The model highlights the potential role that biological or neurological mechanisms play in the differences found between primary and secondary psychopathy. Fowles & Dindo (2006) suggest that individuals with primary psychopathy have reduced fear sensitivity, which would explain why these individuals are often calm in the presence of danger or exciting stimuli. The deficit makes an individual with primary psychopathy more prone to risky and sensation-seeking behaviors, as they are less likely than others to experience emotional exhilaration at lower levels of stimulation. This model also suggests that individuals with traits of secondary psychopathy could be experiencing executive functioning deficits. This would point to a

deficit in the employment of cognitive strategies to control their behavior (i.e., planning and focus). This supports the distinction made between the subtypes of psychopathy in that the model suggests that individuals with traits of secondary psychopathy experience impulse control problems more so than those with primary psychopathy (Fowles & Dindo, 2006). Secondary psychopathy has been suggested to be the result of environmental causes such as parental abuse or harsh punishment; therefore, it is thought to be an acquired disturbance that is not inherent within the individual (Karpman, 1941; Poythress & Skeem, 2006).

Karpman (1948) suggested that those with secondary psychopathy exhibit an underlying emotional disorder that influences an individual's antisocial behavior. As noted, this emotional disorder likely stems from the developmental precursors such as parental neglect, abuse, or harshness. Karpman (1948b) also suggests that the differences between primary and secondary psychopathy are crucial due to the treatments for each. While lack of empathy, or empathetic dysfunction, is considered a defining characteristic of psychopathy, theoretically this lack is most associated with primary psychopathy (Blair, 2007). Because of the suggested deficits in primary psychopathy, Karpman (1948b) thought individuals with primary psychopathy to be incurable. Due to the psychosocial influence on the development of secondary psychopathy, it was suggested that these individuals would be more likely to respond to psychotherapy than those high is primary psychopathy (Karpman, 1948b).

Karpman's view of primary psychopathy has been noted to align closely with Cleckley's original concept of psychopathy, which stated that callous/unemotional traits define psychopathy (Lykken, 1995; Murphy & Vess, 2003). While a lack of empathy, or

empathetic dysfunction, is considered a defining characteristic of psychopathy, this deficit, as well as traits such as insincerity and incapacity for love, are most associated with primary psychopathy (Blair, 2007). Cleckley (1964) further describes an individual with psychopathy as having antisocial traits that include poor judgment, uninviting behavior (such as lying), and criminal behavior. However, as will be discussed in more detail, research suggests that those with secondary psychopathy have more difficulty correctly recognizing the emotions of others when compared to those with primary psychopathy (Grieve & Mahar, 2010).

Empathy

Empathy is often difficult to define in an all-encompassing fashion. It is commonly defined as an emotional response that is experienced by an individual in response to the emotion of another (Eisenberg & Fabes, 1990); however, this definition highlights an affective type of empathy. The overall construct of empathy has been discussed as multidimensional and can be divided into many sub-categories, of concern in the current study is the distinction between cognitive and affective empathy and explicit and implicit empathy (Mullins-Nelson, Salekin, & Leistico, 2006). Cognitive empathy is defined as the ability to recognize the emotional states of others without actually experiencing the states for oneself (Wai & Tiliopoulos, 2006). This form of empathy requires the individual to be able to recognize emotion and to differentiate the affective cues of another, but does not necessitate an empathic response (Mullins-Nelson et al., 2006). For example, individuals can differentiate between cues that signal positive affect such as smiling, and cues that signal negative affect such as frowning. Also included in cognitive empathy is perspective taking, in which an individual can

understand why a person is expressing a specific affective cue and emotion (e.g., happiness due to getting a desired gift; crying because someone has been hurt) (Mullins-Nelson et al., 2006).

Similar to cognitive empathy, affective empathy requires an individual to first recognize the emotional state of another (Reniers, Corcoran, Drake, Shryane, & Vollm, 2011). However, in contrast to cognitive empathy, the person also experiences an emotional response to another's emotions (Eisenberg & Fabes, 1990; Wait & Tiliopoulos, 2006). In other words, affective empathy is not about only recognizing the emotions of another, but feeling something oneself when the emotion is recognized. This can lead to empathic concern and personal distress for an individual.

Another distinction often made in the empathy literature is between explicit and implicit empathy. Explicit empathy involves the deliberate and conscious processing of information on the part of an individual and is typically assessed by self-report measures. Self-report measures of empathy are often easy and quick to administer, but they also allow individuals to answer questions in socially desirable ways (Eisenberg & Fabes, 1990; Kampfe, Penzhorn, Schikora, Dunzl, & Schneidenback, 2009). It can be particularly difficult to use these measures when attempting to gauge empathy reports of an individual who has psychopathic tendencies due to the individual's possible inclination toward pathological lying and deception. Thus, people with psychopathic traits would be more prone to answer in socially desirable ways instead of honestly on self-report measures of empathy (Hare, 1996).

Implicit empathy is the spontaneous and unconscious reaction of individuals to emotional situations or others' emotions. Physiological indices are often used to measure

implicit empathy (affectively), as they are less likely to elicit a self-presentational bias from individuals because it is difficult to feign a physiological response. These measures, such as measures of heart rate, are used as an indicator of empathetic emotions (e.g., affective empathy), and allow researchers to assess changes in those emotions over time (Eisenberg & Fabes, 1990). Research indicates that different heart rates can be associated with certain emotional reactions to stimuli or situations. For example, a decrease in heart rate is associated with a reaction such as sadness, while an increase in heart rate is often an indication of an aversive reaction such as anxiety or apprehension that may cause personal distress (Eisenberg & Fabes, 1990; Verona, Patrick, Curtin, Bradely, & Lang, 2004).

Affective empathy involves an emotional response such as concern or distress (Kerem, Fishman, & Josselson, 2001); therefore researchers studying this construct first need to be able to evoke empathy. Batson, Early, and Salavarani (1997) conducted a study in which they had undergraduates listen to a pseudo news broadcast. The broadcast covered the story of a senior student in her undergraduate studies at a local university who had recently experienced tragedy. In this study, one third of participants were told to remain objective, one third were told to imagine how the young woman felt, and one third were told to imagine how they would feel in her situation while listening to the broadcast. This encouraged some of the students to adopt an empathic listening style, therefore assessing the situational or contextual influence on the empathetic responses. The results suggested that imagining how the other person may feel produced empathy, and imagining how you would feel produces empathy, as well as personal distress (Batson et al., 1997). The proposed study will use this same broadcast to evoke empathy

in participants. In line with the Batson et al., some participants will be asked to adopt an empathic listening style in order to address additional research questions beyond the study's primary hypotheses.

The Relationship between Psychopathy and Empathy

As stated previously, lack of empathy is considered to be one of the primary features of psychopathy (Cleckley, 1964; Hare, 2003; Lykken, 1995). Only recently, however, have the distinctions between primary and secondary psychopathy (Ali, Amorim, & Chamorro-Premuzic, 2010) and cognitive and affective empathy (Kirsch & Becker, 2007) been considered. Therefore, much of the research based on the relation of psychopathy and empathy has been inconclusive (Mulllins-Nelson, Salekin, & Leistico, 2006) or yielded mixed results (e.g., Blair, 2007; Domes et al., 2013; Lishner et al., 2012). There is an important distinction not only between understanding the emotions of others (cognitive empathy) and being able to actually feel what another individual is feeling (affective empathy), but also the type of psychopathic tendencies a person displays. The current study intends to highlight those differences.

Vidal et al. (2010) researched the relationship between both primary and secondary psychopathy types and emotional skills. Relevant to the current study are two of the aims of Vidal et al. The first was to assess the relationships between psychopathy type and emotional intelligence, and the second was to compare emotional intelligence of low-anxious (primary) and high-anxious (secondary) psychopathy. This study used self-report measures of psychopathic traits, anxiety, and aggression as well as a performance-based test of emotional intelligence on a sample of male undergraduates. The emotional intelligence test included the branches of perceiving emotions, facilitating thoughts,

11

understanding emotions, and measuring emotions. Vidal et al. found an association between primary psychopathy and affective empathy such that those with characteristics of primary psychopathy were more likely to demonstrate a deficit in empathy that restricts them from experiencing another's emotion than those without such characteristics; however, while those high in primary psychopathy exhibited the basic emotional deficit, their ability to recognize, use, and understand emotions (cognitive empathy) did not appear to be impaired. Vidal et al. (2010) also found that those in the secondary psychopathy group had significantly lower emotional intelligence (cognitive empathy) than those with primary psychopathy. The negative affect and impulsivity of those with secondary psychopathy could explain the impairment in ability to evaluate and learn feelings and regulate emotional states (Vidal et al., 2010). The use of self-report measures may help to explain why results revealed the ability to experience cognitive empathy, but not affective, for those with primary psychopathic tendencies, as they may have learned to recognize an emotion without understanding of it. This learning process could provide individuals with the tools needed to respond in a socially desirable, although not necessarily honest, fashion.

Bagley, Abramowitz, and Kosson (2009) studied whether those high in primary or secondary psychopathy displayed varying vocal affect recognition deficits (which can also be studied as empathy deficits). In order to explain the variability in previous research on the topic, they suggested that individuals with psychopathy may experience different types of emotional deficits. In addition they suggested that by using different methods of looking at this process (vocal affect recognition versus self-report empathy measures), it could provide evidence for different types of deficits in affect recognition (a

potential component of empathy) (Bagley et al., 2009). Bagley et al. found that those with

primary or secondary psychopathy were less accurate than participants without

psychopathic tendencies at classifying emotion in a semantic condition. This means that

they attempted to understand the emotional impact of the meaning of the words they

heard. The results also suggested that individuals with both primary and secondary

psychopathy are similar in their emotional processing deficits such that they are impaired

at recognizing sadness. Bagley et al. found that participants with psychopathic tendencies

were unable to comprehend the sadness of the story; therefore evidence of implicit

affective empathy is not expected for individuals with psychopathy. In addition, Bagley

et al. suggested that dividing psychopathy into primary and secondary types was useful,

but research is still needed to examine other affective and cognitive tasks. Therefore,

categorizing individuals into psychopathy types and measuring implicit and explicit,

cognitive and affective empathy would be beneficial in this area of research.

Lishner et al. (2012) conducted a study in which they examined the relationship

between psychopathy and impairment in experiencing affective empathy. The researchers

attempted to manipulate the state experience of empathic concern and emotional

deviances. This was done in order to avoid respondents' biased assessments of their own

experiences. In addition, they tried to measure the states in a way that would lessen the

motivation to give socially desirable responses. Participants (60 male institutionalized

forensic inpatients) read two news articles; one was empathy evoking and one neutral,

and viewed pictures consisting of three everyday objects, three places, and three faces

that were ranked by participants by category and then by liking. The ranking of image

preference was done to distract them from the manipulation and measurement of affective

empathy. Participants then used self-report means to state their feelings (explicit empathy) after reading the articles and viewing the faces. Following the completion of the affective empathy tasks, researchers had participants rate each emotion (happiness, sadness, anger, fear, and empathetic concern). In contrast to previous research, Lishner et al. found no significant correlations between psychopathy scores and affective empathy in either college undergraduates or in the forensic inpatient men. In fact, according to Lishner et al., the only relation found indicated higher explicit affective empathy in individuals with psychopathy. As Vidal et al. (2010) noted, explicit affective empathy appeared to be impaired for those with primary psychopathic tendencies (based on research using strictly self-report), so it is possible that not differentiating between psychopathy types could have affected the results. Further, although Lishner et al. attempted to decrease participants' motivation to answer in socially desirable ways; the use of self-report does not entirely eliminate socially desirable responses. This may also account for the lack of support for the hypothesis that those with psychopathy lack affective empathy.

As stated above, while lack of empathy, or empathetic dysfunction, is considered a defining characteristic of psychopathy, theoretically, this lack is most strongly associated with primary psychopathy (Blair, 2007). The inconsistencies in findings that support the assumption that a lack of empathy is most strongly associated with primary psychopath may be due to the type of measures being used to assess empathy, as well as the type of empathy that is being studied. In addition, a lack of attention to the primary versus secondary psychopathy distinctions could help explain the conflicting results. Individuals with primary psychopathy are described as manipulative and intelligent

(Cleckley, 1964). This makes it possible that individuals with traits of primary psychopathy respond in socially desirable ways on self-report measures of empathy. Further, individuals with primary psychopathy may have an inability to feel emotions as others feel them (affective empathy), but over years of experience they may have learned how to recognize emotion without understanding it. It may not be an inherent implicit ability, but instead a learned ability to "fake it," in order to compensate for their deficiency (Vidal et al., 2010). In other words, individuals with primary psychopathic traits are able to participate in perspective taking, and thus will perform well on measures of cognitive empathy. However, they will likely still be deficient in affective empathy.

Additionally, Mullins-Nelson et al. (2006) noted that even though individuals high in primary psychopathy may report concern about others and their well-being, their behaviors do not tend to match their reported empathetic concern. As Karpman (1948) suggested, individuals with secondary psychopathy may be able to experience emotions such as empathy. However, research shows that individuals with secondary psychopathic traits may actually perform worse on all measures of empathy (implicit, explicit, cognitive, and affective). This has been attributed to the conscious disruption that occurs in these individuals when they experience emotional dysregulation (Vidal et al., 2010). In other words, individuals with secondary psychopathy have lower emotional intelligence; therefore they experience a basic emotional disturbance that can impair their ability to evaluate and recognize feelings and regulate their emotional state (Vidal et al., 2010).

In order to address the multiple potential limitation of past research, the current study will measure affective empathy, physiologically. Heart rate is a physiological measure that is hypothesized to gauge implicit affective empathy (instead of explicit

affective empathy) with a lower probability that participants with psychopathic tendencies can fake their responses by tapping into their unlearned, unconscious reactions. Blair, Jones, Clark, and Smith (1997) avoided the use of self-report measures and instead looked to physiological measures, which produced results that conflicted with those of Lishner and colleagues. Blair et al. (1997) found that psychopathy was associated with a lower physiological reactivity, measured using skin conductance response measures, after individuals observed interpersonally distressed images such as crying faces. Individuals without, or very low in, psychopathic tendencies often have higher physiological reactivity when looking at emotional stimuli, such as an increase in heart rate, which can indicate feelings of distress. The low rate of such reactivity found by Blair, et al. indicates impairment in individuals with psychopathy when processing fearful, sad, or disgusted faces and a potential lack of affective empathy. While this study did find results to suggest physiological reactivity is related to psychopathy, there was no distinction made between individuals with primary and secondary psychopathic traits. The descriptions of the characteristics of primary and secondary psychopathy in the literature suggest there should be a difference in physiological measures (implicit affective empathy measures), such that the latter scores low on all types of empathy (explicit cognitive, implicit cognitive, and implicit affective) and the former scores low only on implicit affective empathy.

Glaser and Lutz-Zois (2014) aimed to investigate the discrepancy between findings and theory by suggesting that the discrepancy in previous research were due to the way empathy had been measured. To test this, both implicit and explicit measures of empathy were studied in relation to psychopathy. The results of the study yielded no

significant correlations between primary psychopathy and any measure of empathy (Glaser & Lutz-Zois, 2014). This result is inconsistent with our knowledge of psychopathy, as primary psychopathy is characterized by a lack of remorse and indifference to others (Karpman, 1941). While Glaser and Lutz-Zois (2014) included measures of explicit affective empathy and implicit and explicit cognitive empathy, implicit affective empathy was not assessed. Therefore, the current study aims to use the methods presented by Glaser and Lutz-Zois (2014) to measure cognitive empathy implicitly and explicitly and measure affective empathy explicitly. Additionally, heart rate measurements (taken while the participants listen to an empathy evoking stimuli) will be used to measure implicit affective empathy in the current study. Implicit affective empathy is often overlooked in research, and to my knowledge has not been combined, in heart-rate measurement form, with the psychopathy-type distinction. As stated previously, individuals high in primary psychopathic attributes often lie, manipulate, and demonstrate a lack of remorse. Because of this, socially desirable responses are given and low levels of empathy are not reported on explicit cognitive measures (self-reports). Individuals high in secondary psychopathic traits may show positive emotion such as guilt, which indicates likeliness for more accurate responses, resulting in lower levels of empathy than people with primary psychopathic traits. Additionally, persons high in primary psychopathic traits are more cunning and less impulsive than those high in secondary psychopathic traits, therefore they may be better able to understand and mimic normal human emotions (cognitive empathy). A quote by Johns and Quay (1962) aptly describes this ability, stating that persons with primary psychopathic attributes may "know the words, but not the music" of emotions. Thus, cognitive and explicit measures

17

would be less able to detect the deficits experienced by those high in primary psychopathic tendencies. The combination of implicit and affective empathy will be measured by a physiological response (heart rate), which is difficult to feign, even for an individual high in primary psychopathic traits and well-versed in normal emotions.

Current Study

The current study aimed to resolve inconsistencies found in the research on the relation between psychopathy and empathy, specifically as it pertains to a lack of empathy defined as the primary characteristic of psychopathy. As the constructs of psychopathy and empathy have been distinguished into different dimensions (primary and secondary, implicit and explicit, cognitive and affective) in recent years, an eminent opportunity has been presented for researchers to delve into a deeper understanding of psychopathy and empathy on several levels. Previous research has cited significant and non-significant relations between psychopathy (both primary and secondary) and empathy (implicit, explicit, cognitive, and affective). The current study examined each of these constructs simultaneously, such that implicit and explicit cognitive empathy as well as implicit affective empathy were measured to best answer the basic question of what the relation is between psychopathy and empathy. Further, primary and secondary psychopathic tendencies were distinguished from one another to study how the two types of psychopathy differ in their relation to the various subtypes of empathy. In addition, the current study aimed to implicate implicit affective empathy as the key deficit in the relationship between primary psychopathy and empathy.

Based on previous literature, the hypotheses for the current study are as follows:

H1: Primary psychopathy will be uncorrelated to implicit measures of cognitive empathy and positively related to explicit measures of cognitive empathy, such that individuals high in primary psychopathic tendencies will score higher on self-report measures of cognitive empathy than those low in these attributes.

H2: Secondary psychopathy will be negatively related to both implicit and explicit measures of cognitive empathy. In other words, individuals with secondary psychopathic tendencies will score lower on both implicit and explicit cognitive empathy than those low in these attributes.

H3: Both primary and secondary psychopathy will be negatively related to implicit measures of affective empathy. That is, individuals with psychopathic tendencies will demonstrate less of a physiological reaction to empathy provoking stimuli, such that they will not experience as much of a change in heart rate while listening to the news broadcast recording in comparison to those low in psychopathic attributes.

Research question Do response patterns of individuals with primary and secondary psychopathic traits vary in different contexts (created by different listening styles)? Batson and colleagues (1997) found that perspective taking has proved effective in inducing empathy in a "normal" population as well as for convicted murders. As noted, primary psychopathy is thought to be inherent in an individual, while those with traits of secondary psychopathy are thought to have the ability to show positive human emotion. Therefore, the current study expected to find an effect of context on those with secondary psychopathic traits (such that we see evidence of empathy for those with traits of secondary psychopathy), but not for those with primary psychopathic traits.

CHAPTER II

METHOD

Participants

Undergraduate participants (N = 185; 125 female and 60 male), majority

freshman (N=63.4%), ranging in age from 17 to 37 years old (*M*=18.92 year, SD=1.72),

were recruited using an online computer system. Participants identified as 82.8%

Caucasian; 5.4% Hispanic; 4.8% African American; 2.7% Asian; 1.6% Middle Eastern;

and 1.6% multiethnic. Participants received class credit for their participation in the study

toward an introductory psychology course.

Materials

Implicit affective empathy was induced in participants by using a recorded radio

broadcast depicting an emotion-laden story. A pilot study ensured the ability of the

broadcasts to evoke empathy in participants. For the current study, a broadcast originally

created and used by Batson et al. (1997) was rerecorded. This pseudo broadcast, first

used at the University of Kansas, features a news story as well as an interview with a

female student, Katie Banks. In this broadcast, a male reporter narrates Katie's story of

being an undergraduate senior, attempting to complete her final year of undergraduate

studies, while also having been awarded temporary guardianship of her surviving

younger siblings (a brother and a sister) after a car accident killing her parents and other

sibling. Katie is struggling both financially and academically and is worried she may not

be able to complete her degree while also supporting her siblings. The broadcast continued with an interview with the student, further evoking empathy.

For the current study there were two versions of the broadcast, one in which Katie Banks is the student and the announcer is male and another in which a male, named Kyle Banks, is the student with a female announcer. The Broadcast was transcribed and a script identical to that used by Batson et al. (1997) was rerecorded, replacing the name of the university and town to portray the broadcast as coming from the area in which the current study takes place. An additional identical script was made for Kyle Banks, only switching gender pronouns (i.e., her to his; See appendices A and B for copies of the transcripts). Batson et al. (1997) had participants listen to this pseudo broadcast while adopting various listening styles and the current study will have a similar method. Participants were randomly assigned to conditions in which they were instructed to adopt one of the two listening styles: (1) to imagine how the young student felt, or (2) or simply to listen to the broadcast (See appendices C and D for listening style instructions).

Measures

Implicit Affective Empathy. Changes in participants' heart rate were assessed using a Zephyr Bluetooth wireless heart rate sensor. This heart rate sensor included a chest strap that was worn under the participants clothing. This sensor wirelessly transmits the heart rate measurements to an android or Macintosh-based application that was downloaded onto apple or android products (i.e. Smartphone, iPods). Many heart rate sensors include a chest strap and wrist strap, however, wrist equipment would have required the researcher to approach the participant several times to check the heart rate. Using this wireless chest strap, the researcher was able to keep a reasonable distance

from the participant, avoiding additional stress induction. This also allowed researchers to record data more frequently.

Researchers recorded the heart rate in 30-second intervals for the five-minute baseline task; the two minutes and 30 second broadcast time; and the two-minute rest period following the broadcast. When scoring this measure for analysis, residual scores were calculated using absolute values. The residual scores were derived from the difference between the recorded baseline heart rate intervals from six to ten, and the recorded heart rate during the broadcast intervals from two to five. These intervals were chosen after examining the means for each interval and finding that the selected intervals displayed the most consistency with that set of heart rate measurement intervals (i.e., for baseline or for broadcast). Absolute values were used, as the direction of change (increase or decrease) in heart rate did not matter as so much as that there was a detectable change.

Implicit Cognitive Empathy.

The Reading the Mind in the Eyes Test (RMET) revised is a 36-item (α=.45) implicit measure of cognitive empathy measuring the ability to identify a mental state based on viewing only the eye region (Baron-Cohen, Wheelwright, Hill, Raster, and Plumb, 2001). This test includes 36 pictures of the eye region, and the participants are given four words that depict complex mental states. The participants then have to choose which of the words best describes the pictures (1 target, 3 foils). Correct answers receive 1 point, and incorrect answers receive 0; therefore, the range of scores is 0 to 36.

The RMET required that the pictures were viewed by eight judges (four male and four female) who were told to complete the task of a participant; choosing a word from a

group of target and foil words. In order for the stimulus to be accepted, at least five of the eight judges had to agree and no more than two judges could pick a single foil word (Baron-Cohen, Wheelwright, and Jolliffe, 1997). This test was used on college students who were shown to be able to classify the correct emotion at a significantly greater rate than chance. The pictures of only the eyes did not differ from those with the whole face for complex emotions. This suggested that emotions could be determined from just the eyes (Baron-Cohen et al., 1997). Test-retest reliability for the Italian version of the RMET-revised was high (.83) (Vellante, et al., 2012). Construct validity of the RMET-revised is demonstrated in that it is negatively related to the Autism Spectrum Quotient (r = -.53), as was expected (considering those with autism are thought to have difficulty in reading social cues; Baron-Cohen, et. al., 2001). Further, Vellante and colleagues (2012) found internal consistency to be acceptable (r = .61). The RMET revised can be found in Appendix E.

Explicit Affective Empathy

Interpersonal Reactivity Index (IRI; Davis, 1980). The Interpersonal Reactivity Index (IRI) is a self-report measure consisting of four 7-item subscales that each target an aspect of the global empathy constructs (Davis, 1980). The index contains 28-items (α=.80) total that are answered on a 5-point Likert scale ranging from "Does not describe me well" (0) to "Describes me very well" (4). Scores on each subscale range from 0-35, with a total score ranging from 0-196. The four subscales are: Perspective Taking, Fantasy, Empathic Concern, and Personal Distress (Davis 1980). Fantasy, Empathic Concern, and Personal Distress measure explicit affective empathy. The Fantasy Scale (FS) includes 7 items (α=.82) and taps into the participants' tendency to put themselves

23

into the feelings and actions of fictitious characters imaginatively (e.g., "After seeing a play or movie, I have felt as though I were one of the characters."). The Empathetic Concern (FC) subscale assesses "other-oriented" feelings for inopportune others (e.g., "I often have tender, concerned feelings for people less fortunate than me.") with 7 items (α=.73). The Personal Distress (PD) subscale, including 7 items (α=.76), measures self-oriented feelings of anxiety and ease in tense settings (e.g., "In emergency situations, I feel apprehensive and ill-at-ease."). For the current study the Empathetic Concern and Personal Distress subscale scores were used to test the study's hypotheses involving explicit affective empathy.

The IRI was found in previous research to demonstrate satisfactory test-retest reliability (.71) and internal reliability (.77) (Mullins-Nelson et al., 2006). Davis (1980) found, in terms of validity, theoretically predicted patterns of relationships between the IRI subscales and other constructs. Specifically, the FS was unrelated to social functioning but related to emotionality. EC was related to emotionality as well and PD was strongly associated with low self-esteem, poor interpersonal functioning, and emotional vulnerability (Davis, 1980). The IRI can be found in Appendix F, with specific subscales indicated in parentheses following each item.

Explicit Cognitive Empathy.

Interpersonal Reactivity Index (IRI; Davis, 1980). Again, the Interpersonal Reactivity Index (IRI) is a self-report measure consisting of four 7-item subscales that each target an aspect of the global empathy constructs (Davis, 1980). Scores on each subscale range from 0-35, with a total score ranging from 0-196. The four subscales are: Perspective Taking, Fantasy, Empathic Concern, and Personal Distress (Davis 1980). The

Perspective-Taking (PT) subscale is a cognitive measure of empathy as it assesses the tendency to adopt the point of view of others (e.g., "Before criticizing somebody, I try to imagine how I would feel if I were in their place.") and includes 7 items (α=.75). For this reason, the Perspective Taking (PT) subscale of the IRI was used to test the hypotheses involving explicit cognitive empathy.

To reiterate, in terms of validity, theoretically predicted patterns of relationships have been found between the IRI subscales and other constructs (Davis, 1980). Specifically, the PT scale was negatively related to social dysfunction and unrelated to emotionality measures. Additional information on the IRI can be found in the previous section discussing explicit affective empathy. The IRI can be found in Appendix F with subscales indicated in parentheses following the item.

Trait Emotional Intelligence Questionnaire-Short Form (TEIQue-SF; Petrides & Furnham, 2006) is a 30-item (α=.82), self-report subscale of the TEIQue that assesses explicit, cognitive empathy. It measures trait emotional intelligence and emotional self-efficacy. Trait emotional intelligence is described as a hierarchical structure that is divided into four factors, containing 15 facets total. These factors include: Emotionality (i.e., the ability to recognize and express one's own emotions and recognize the emotions of others), Self-control (i.e., control over one's urges and desires), Sociability (i.e., social relationships and social influence) and Well-being (i.e., positive self-regard). Emotionality consists of the facets: Emotion Perception, Trait Empathy, Emotion Expression, and Relationships. Emotionality is the most related to cognitive empathy and the least likely to create an overlap in content with the measures of psychopathy, therefore it is the only subscale of the TEIQue-SF used for the current study and contains

8 items (α=.56) (e.g. "I find it difficult to see other things from another person's viewpoint.").

The TEIQue-SF uses a 7-point Likert scale that ranges from completely disagree (1) to completely agree (7) (e.g., "Expressing my emotions with words is not a problem for me."). Scores for the Emotionality subscale range from 8-56, and internal consistency was found to be .84 for men and .89 for women (Petrides & Furnham, 2006). The TEIQue-SF was created by choosing two items from each of the 15 subscales of the TEIQue, based on correlations of the items with the total subscale scores. Internal consistency for the total score was .76 (Petrides, Perez-Gonzales, & Furnham, 2007). Petrides and colleagues (2007) also found the TEIQue to have good criterion validity. The TEIQue has also shown convergent validity by being positively associated with the Big-Five personality traits of Agreeableness, Conscientiousness, and Openness (Mikolajczak, Luminent, Leroy, and Toy, 2007). Mikolajczak et al. (2007) found that the Emotionality subscale was negatively related to alexithymia and in terms of discriminate validity, the TEIQue was found to be unrelated to cognitive ability. The TEIQue-SF can be found in Appendix G.

Primary and secondary psychopathy. To distinguish between psychopathy types, I assessed primary and secondary psychopathy in two ways. First, the Levenson Self-Report Psychopathy Scale, which contains both a primary and a secondary subscale, was administered (LSRP; Levenson et al., 1995). Individuals with primary psychopathic tendencies are thought to be low in anxiety, while those with secondary psychopathic tendencies are thought to be highly anxious. Therefore, as a second way to measure the distinction between primary and secondary psychopathy, a combination of scores on the

Psychopathic Personality Inventory – Revised (PPI-R; Lilienfeld & Widows, 2005) and the State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, & Lushene, 1970) were used, as has been done in previous studies (Glaser & Lutz-Zois, 2014; Vassileva, Kosson, Abramowitz, & Conrad, 2005). In previous studies, high PPI-R scorers were defined as those scoring above the median and low PPI-R scores were defined as those scoring below the median. The same procedure was used to distinguish between high and low scores on the STAI. For the current study however, the interaction of the continuous variables of the PPI and STAI was used rather than the creation of four discrete groups as has been done in the past.

  Levenson Self-Report Psychopathy scale (LSRP). The LSRP is a self-report measure of psychopathy that includes 26 items (α=.73) and two subscales; one for primary psychopathy and one for secondary psychopathy (Levenson et al., 1995). Items on the LSRP are reported on a 4-point Likert scale ranging from 1 (disagree strongly) to 4 (agree strongly), thus resulting in a score range of 26 to 104 (Levenson et al., 1995). Of the 26 items, 16 (α=.83) are designed to assess traits of primary psychopathy, including manipulation, with items such as "In today's world, I feel justified in doing anything I can get away with to succeed." The remaining 10 items (α=.66) are intended to assess features of secondary psychopathy such as impulsivity, and include items such as, "I am often bored." The primary psychopathy subscale scores can result in a range from 16 to 64 and the secondary psychopathy subscale scores can range from 10 to 40 (Levenson et al., 1995). The subscales were used to test the hypotheses of the current study.

  Research by Lynam, Whiteside, and Jones (1999) suggests that the LSRP is a reliable and valid measure to assess psychopathy in noninstitutionalized populations. The

internal consistency for the primary psychopathy subscale was .84, and the internal

consistency for the secondary psychopathy subscale was .68 (Lynam et al.). Good

convergent validity was found in that the LSRP is positively correlated with lifetime drug

use ($r = .25$), alcohol use pattern in the past year ($r = .31$), history of arrest ($r = .19$), and

a variety of serious antisocial behavior in the past year ($r = .31$; Lynamet al.). Convergent

validity was also found with the individual scales (primary and secondary subscales) and

the Big-Five personality traits. The primary psychopathy subscale was negatively related

to Agreeableness and was slightly (not significantly) related to Neuroticism. The

secondary psychopathy subscale was negatively related to Agreeableness as well, in

addition to Conscientiousness, and positively related to Neuroticism. According to

Lynam, et al., this is consistent with the distinction between primary and secondary

psychopathy. The LSRP has also shown a moderately high correlation with the self-

report version of the Psychopathy Checklist (PCL), Hare's Self-Report Psychopathy scale

($r = .64$). Levenson et al. (1995) found the primary and secondary scales to be positively

correlated with one another ($r = .40$). They found that test-retest reliability of the LSRP

across an average of eight weeks was high ($r = .83$). This measure can be found in

Appendix F.

     Psychopathic Personality Inventory – revised (PPI –R). The PPI-R (Lilienfeld &

Widows, 2005) is a 154-item ($\alpha=.93$) measure of psychopathy which includes 8

subscales, organized into two factors. These factors parallel Hare's two-factor model of

psychopathy: Fearless Dominance (PPI –R –I) includes 45 items and Self-Centered

Impulsivity (PPI-R-II). Each item on the PPI-R is answered on a 4-point Likert scale

ranging from false (1) to true (4) (e.g., "When people are mad at me, I usually win them

over with my charm."). The Fearless Dominance Scale assesses affective/interpersonal traits that are predominately associated with primary psychopathy and consists of the following subscales: Social Influence (18 items, α=.88), Fearlessness (14 items, α=.89), and Stress Immunity. The Stress Immunity scale was not used in the current study, as it may overlap with the State-Trait Anxiety Inventory. The Self-Centered Impulsivity scale assesses the behavioral-lifestyle traits with generally associated with secondary psychopathy and consists of the following subscales: Machiavellian Egocentricity (20 items), Rebellious Nonconformity (16 items), Blame Externalization (15 items), and Carefree Non-planfulness (19 items), with alphas ranging from .85 to .82 (Machiavellian Egocentricity-Rebellious Nonconformity). Coldheartnedness is an eighth subscale, but does not contribute to either of the two main factors, as it is considered its own factor (Uzieblo, Verscheure, Van den Bussche, & Crombez, 2010). The total score on the PPI-R ranges from 154 to 616. As the Stress Immunity scale was not included, the possible ranges of values for the total psychopathy score were 141-564.

Lilienfeld and Widows (2005) found acceptable reliability for the PPI-R with internal consistency of the PPI-R scales that ranged from .78 to .92. Good test-retest reliability was also found for the PPI-R scales (r = -.82 to.95; Lilienfeld & Widows, 2005). Internal consistency was high for the total score (α=.93), the Fearless Dominance subscale (α = .87), the Self-Centered Impulsivity subscale (α = .95), and the Coldheartedness subscale (α=.85). The PPI-R shows good construct validity, as the total score has shown a positive association to antisocial behavior (Edens, Poythress, Lilienfeld, & Patrick, 2008). Uzieblo and colleagues (2010) found that Fearless

Dominance factors (PPI-R-I) is positively related to measures of alcohol use, delinquent behavior, cognitive empathy, and social skills. However, the PPI-R-I is negatively associated with emotional reactivity. The Self-Centered Impulsivity factors (PPI-R-II) were found to be positively associated with anxiety and antisocial behavior. Overall, the PPI-R demonstrates good convergent validity, as total scores significantly correlate with scores on self-report measures related to psychopathy such as the LSRP (Uzieblo et al., 2010) and other psychopathy measures like the PCL-R (Copestake, Gray, & Snowden, 2011). The PPI-R can be found in Appendix G.

Anxiety.

The State-Trait Anxiety Inventory (STAI; Spielberger et al., 1970) distinguishes between trait anxiety (A-Trait) and state anxiety (A-State). The STAI is a 40-item inventory that includes 20 items for trait anxiety ($\alpha=.87$) and 20 for state anxiety (Hedberg, 1972). For the purpose of the current study, as has been done for previous studies (Glaser & Lutz-Zois, 2014; Vassileva, Kosson, Abramowitz, & Conrad, 2005), only the trait anxiety (A-Trait) scale was used as it instructs the participants to note how they generally feel (e.g., "I am a steady person;" Hedberg, 1972). Items for the A-Trait trait anxiety include seven reverse scored items and are answered on a four-point Likert scale ranging from 1 (Almost Never) to 4 (Almost Always). Scores on this subscale range from 20 to 80, and participants scoring above the median of the sample were categorized as high anxious while those scoring below the median were categorized as low anxious.

According to Hedberg (1972) both the A-State and the A-Trait scales exhibit good internal consistency, with the A-Trait scale generating coefficients between .86 and .92 and the A-State generating internal consistency coefficients between .83 and .92. Test-

retest coefficients are found to be higher for A-Trait ($r = .73$ to $.86$) than for A-State ($r = .16$ to $.62$; Spielberger, 1983). The A-Trait items have demonstrated good construct validity (Gaudry, Vagg, & Speilberger, 1975) and concurrent validity with other measures such as the Manifest Anxiety Scale and the Anxiety Scale Questionnaire with correlations between .73 and .85 for college students (Spielberger & Sydeman, 1994). The STAI can be found in Appendix H.

Social Desirability. *The Balanced Inventory of Desirable Responding* (BIDR; Paulhus, 1988) is a 40-item ($\alpha=.77$) instrument that measures the two factors of socially desirable responding: 20 items measure self-deceptive enhancement (SDE) ($\alpha=.62$) and 20 items measure impression management (IM) ($\alpha=.76$). Self-deceptive enhancement is described as the tendency to provide self-reports believed by the individual that include a positive bias (Paulhus, 1984). Impression management is described by Paulhus (1984) as the intentional self-presentation to an audience, such that the individual is consciously answering incorrectly with the goal of being perceived positively. Participants respond to the 40-items on a 7-point Likert scale according to their level of agreement with items for both self-deceptive enhancement (e.g., "I don't care to know what people really think of me.") and impression management (e.g., "I never swear.").The Likert scale for the BIDR ranges from "1" (not true) to "7" (very true). When scoring this measure, the negatively keyed items are first reverse scored, and then one point is given for each extreme response (6 or 7) and 0 points are given for all other responses. Each subscale score can range from 0 to 20 (all 40-items can be summed for an overall measure of socially desirable responses); therefore, those who give exaggeratedly desirable responses attain high scores.

The BIDR has shown sufficient internal consistency for the total measure (Cronbach's alpha = .83), for self-deceptive enhancement (.68 to.80), and for impression management (.75 to.86). Test-retest correlations are reported at .69 for self-deceptive enhancement and .65 for impression management over a 5-week span, respectively (Paulhus, 1988). The BDIR demonstrated concurrent validity as a measure of socially desirable responding that correlated .71 with the M-C SDS and .80 with the Multidimensional Social Desirability Inventory (Paulhus, 1988). The BIDR can be found in Appendix I.

Demographics. Demographic variables collected for the current study included age, gender, ethnicity, and year in school. The demographic form can be found in Appendix J.

Procedure

Participants were recruited to the current study from an online system linked to the University. Participants were able to complete the Levenson Self-Report Psychopathy Scale (LSRP) prior to the current study during mass testing in order to help divide participants into conditions; however, this was only completed in the initial stages of data collection. In the second wave of data collection, the LSRP was administered along with all other measures. After agreeing to participate, participants were first instructed on how to put on the chest strap heart rate monitor and then left to do so alone. While wearing the heart rate monitor, participants completed a mundane, non-emotional task (i.e., a word search; see Appendix M) for five minutes to determine baseline heart rate.

Participants then listened to the mock broadcast, approximately two-minutes and 30 seconds long, re-recorded based on the broadcast created by Batson et al. (1997) that

depicts an empathy-evoking scenario. Participants were randomly assigned to one of two conditions in which approximately half were instructed to imagine how the young woman felt, and the other half were instructed to simply to listen to the broadcast (See Appendices C and D for instructions). Participants were then instructed to remain seated for an additional two minutes. During this time researchers continued to collected heart rate information at 30-second intervals to check if the fluctuation (or lack of) in heart rate quickly returned to normal or remained steady. Next, participants completed seven measures assessing explicit cognitive empathy, implicit cognitive empathy, implicit affective empathy, primary and secondary psychopathy, anxiety, and social desirability in a counterbalanced order using a random starting order with rotation. Finally participants completed a demographic questionnaire asking for information such as age, gender, race/ethnicity, grade, etc. They were then thanked for their time and compensated by receiving course-required credit.

CHAPTER III

RESULTS

Preliminary Analyses

The means, standard deviations, ranges and Cronbach's alpha values of the

study's continuous variables are summarized in Table 1. Preliminary analyses were

conducted to examine the relationship between the criterion variable of empathy and

social desirability and demographic variables.

Correlations. I first calculated zero-order correlations between the criterion

variable of empathy and both social desirability and age. These results are summarized in

Table 2.

Implicit affective and cognitive empathy. There were no significant correlations

found between measures of implicit affective empathy and those of socially desirable

responding or age. There were also no significant correlations found between measures of

implicit cognitive empathy and measures of socially desirable responding or age.

Explicit affective empathy. With respect to explicit affective empathy and social

desirability, there was a significant, positive relationship between explicit affective

empathy (IRI-EC) and self-deceptive socially desirable responding (BIDR). Those

reporting higher levels of empathetic concern were also responding in a more self-deceptive manner. A significant, negative relationship was found between explicit affective empathy (IRI-PD) and self-deceptive socially desirable responding (BIDR). Those who reported higher personal distress responded in a less self-deceptive manner. No significant correlations were found between the criterion variable of explicit affective empathy and age. Therefore, self-deceptive socially desirable responding, but not age, will be controlled for in the analysis involving explicit affective empathy.

     Explicit cognitive empathy. *S*ignificant, positive correlations were found between measures of explicit cognitive empathy (TEIQ-E and IRI-PT) and socially desirable responding (BIDR). Explicit cognitive empathy (TEIQ-E) was significantly, positively correlated with self-deceptive and impression management socially desirable responding (BIDR). Those who reported higher emotionality scores tended to respond to questions in a more self-deceptive fashion and tended to more closely manage the impression they make on others. Further, explicit cognitive empathy (IRI-PT) was significantly, positively correlated with impression management socially desirable responding (BIDR). Individuals who reported higher perspective taking abilities had a tendency to respond in a way that reflected higher impression management. No significant correlations were found between the criterion variable of explicit cognitive empathy and age. Thus, self-deceptive and impression management socially desirable responding, but not age, will be controlled for in the analysis involving explicit cognitive empathy.

     Analysis of Variance. A series of one-way ANOVAs were calculated in order to assess for any group difference in ethnicity on empathy. The results revealed that explicit affective empathy (IRI-EC/PD) scores significantly varied as a function of ethnicity,

35

$F(5,173) = 3.00$, $p<.05$. A post-hoc Tukey test indicated that Asian participants ($M=23.00$, $SD=5.72$) exhibited lower explicit affective empathy scores when compared with Caucasian participants ($M=28.61$, $SD=3.74$). A one-way ANOVA also indicated that explicit cognitive empathy (IRI-PT and TEIQ-E) scores significantly varied as a function of ethnicity, $F(5,179) = 3.05$, $p<.05$. Post-hoc Tukey tests indicated that those Asian participants ($M=34.25$, $SD=7.68$) exhibited lower explicit cognitive empathy when compared with Caucasian participants ($M=40.28$, $SD=6.28$). Implicit cognitive empathy (RMET) also varied as a function of ethnicity, $F(5,177) = 3.47$, $p=.005$. Post-hoc Tukey tests suggested that Asian participants ($M=18.51$, $SD=8.64$) displayed lower implicit cognitive empathy when compared with Caucasian participants ($M=25.86$, $SD=4.92$). No group differences were found in ethnicity for implicit affective empathy. In summary, ethnicity will be controlled for in the analysis involving explicit affective, explicit cognitive, and implicit cognitive empathy.

Independent-samples t-test. A series of independent-samples t-test were calculated in order to assess for any group difference in gender on empathy. The results revealed significant group differences between all measures of explicit affective empathy on the Interpersonal Reactivity Index (fantasy subscale, $t(174)=-2.56$, $p<.05$; empathetic concern subscale, $t(173)=-3.31$, $p=.001$; and personal distress subscale, $t(174)=-3.25$, $p=.001$). Males demonstrated explicit affective empathy scores lower ($M=24.19$, $SD=6.03$) than females ($M=26.42$, $SD=5.02$) on the fantasy subscale; males scored lower ($M=26.86$, $SD=4.26$) than females ($M=28.93$, $SD=3.61$) on the empathetic concern subscale; and males scored lower ($M=18.03$, $SD=4.51$) than females ($M=20.52$, $SD=4.82$) on the personal distress subscale. Overall, these results suggest that males reported

experiencing less explicit affective empathy (IRI-EC/PD) than females. Trends were found for explicit cognitive empathy measures (IRI-PT and TEIQ-E) and gender $t(179)$=-1.94, p=.054, such that males demonstrated a trend toward lower (M=38.34, SD=6.90) scores than females (M=40.27, SD=6.02). An additional trend was found for implicit affective empathy and gender $t(178)$=-1.65, p=.17, such that males demonstrated a trend toward lower (M=-.17, SD=1.35) scores than females (M=.09, SD=.76). Therefore, gender will be statistically controlled only in the analyses involving explicit affective (IRI-EC/PD) and explicit cognitive (IRI-PT and TEIQ-E) empathy.

Primary Analyses

Hypothesis 1. The first hypothesis (i.e., that primary psychopathy will be positively related to explicit measures of cognitive empathy and unrelated to implicit measures of cognitive empathy) was analyzed in two different ways, depending on the assessment of psychopathy. To begin, hierarchical multiple regression equations were computed using either explicit or implicit cognitive empathy as the criterion variable and psychopathy type (as determined by the continuous interaction of the STAI and PPI) as the predictor variable (such that high levels of psychopathy and low levels of anxiety indicates primary psychopathy, while high levels of psychopathy and high anxiety indicates secondary psychopathy). Demographic and social desirability variables that were significantly correlated with implicit and explicit cognitive empathy were entered into the first step of the regression equations. The second step included the centered STAI and PPI and the interaction effect of the STAI and PPI (PsyAnx).

When using explicit cognitive empathy as the criterion variable, the results suggested that there were significant main effect for anxiety, as well as for psychopathic

37

tendencies (See Table 3). These main effects were qualified by a significant interaction of anxiety by psychopathic tendencies. As the interaction was significant, it was then decomposed using the method outlined in Cohen, Cohen, West and Aiken (2003) to determine the association between explicit cognitive empathy and psychopathy at low levels of anxiety. The results suggested a significant main effect for psychopathy at low levels of anxiety (β =-.184, p<.001). Thus, in contrary to the hypotheses, those with tendencies of psychopathy at low levels of anxiety reported experiencing significantly less explicit cognitive empathy than those low in psychopathy. As high levels of anxiety are theorized to be associated with secondary psychopathy, the decomposed results for high levels of anxiety are described in Hypothesis 2.

I also predicted that there would be no difference between those with primary psychopathy and psychopathy free groups in implicit measures of cognitive empathy. The results suggested a non-significant main effect for anxiety (STAI), and a marginally significant main effect for psychopathic tendencies (PPI) (See Table 4). These main effects were qualified by the interaction of anxiety by psychopathic tendencies. As the interaction was significant, it was then decomposed to determine the association between implicit cognitive empathy and psychopathy at low levels of anxiety. When decomposed, results suggested a non-significant main effect for psychopathy at low levels of anxiety (β =.004, p>.05). Thus, as predicted, there is no difference between those with psychopathic tendencies at low levels of anxiety and those with low levels of psychopathy for implicit measures of cognitive empathy. Again, because high levels of anxiety are suggested to be associated with secondary psychopathy, the decomposed results for high levels of anxiety are described in Hypothesis 2.

When using the LSRP to assess primary psychopathy, a series of stepwise multiple regressions were computed using either explicit or implicit cognitive empathy as the criterion variable. Demographic and social desirability variables that were significantly correlated with implicit and explicit cognitive empathy were entered into the first step of the regression equations. Both the primary and secondary psychopathy subscales of the LSRP were entered in the second step of the regression equation. I hypothesized that a significant, positive relationship would be found between primary psychopathy and explicit cognitive empathy. The results indicated that the association between primary psychopathy and explicit cognitive empathy was not significant, such that explicit cognitive empathy scores did not increase for each unit increase for primary psychopathy scores (See Table 5). I also hypothesized that no association would be found between primary psychopathy and implicit cognitive empathy. The stepwise regression supports the hypothesis, as there was no significant association found between primary psychopathy and implicit cognitive empathy (β=-.159, p>.05), such that increases in primary psychopathy scores did not predict a change in empathy scores (See Table 6).

Hypothesis 2. The second hypothesis (i.e., that secondary psychopathy will be negatively related to both explicit and implicit measures of cognitive empathy) was also analyzed in two different ways, depending on how psychopathy was assessed. The same hierarchical regressions described in Hypothesis 1 (using either implicit or explicit cognitive empathy as the criterion variable and psychopathy type determined by STAIxPPI as the predictor variable) were also used to test Hypothesis 2.

When using explicit cognitive empathy as the criterion variable, as stated previously, the results suggested that there was a significant main effect for psychopathy

39

that was qualified by a significant interaction of anxiety by psychopathic tendencies (See Table 3). As the interaction was significant, it was then decomposed to determine the association between explicit cognitive empathy and psychopathy at high levels of anxiety. Inconsistent with Hypothesis 2, these results suggested a non-significant main effect for psychopathy (β =.045, p>.05), such that individuals with psychopathic tendencies, at high levels of anxiety, were not less likely to report experiencing explicit cognitive empathy than those low in psychopathy.

When measuring implicit cognitive empathy as the criterion variable, as stated previously the results suggested a non-significant main effect for anxiety (STAI), and a marginally significant main effect for psychopathic tendencies (PPI) (See Table 4). These main effects were qualified by a significant interaction of anxiety by psychopathic tendencies. As the interaction was significant, it was decomposed. The results suggested a significant main effect for psychopathy at high levels of anxiety (β=-.299, p<.01). Therefore, consistent with Hypothesis 2, individuals with tendencies of psychopathy at high levels of anxiety reported experiencing significantly less implicit cognitive empathy than those low in psychopathy.

Using the LSRP to assess secondary psychopathy, the same regression equations used to test Hypothesis 1 were used. I hypothesized that a significant negative association would be found between secondary psychopathy and implicit and explicit cognitive empathy (See Tables 5 and 6). The results suggested that there were no significant associations between secondary psychopathy and explicit cognitive empathy or implicit cognitive empathy. Therefore, the hypothesis was not supported using the LSRP to assess secondary psychopathy.

Hypothesis 3. The last hypothesis (i.e., that both primary and secondary psychopathy will be negatively related to implicit measures of affective empathy) was also analyzed in two different ways, depending on how psychopathy was assessed. Regressions were run using implicit, affective empathy as the criterion variable and psychopathy type (as determined by the combination of the STAI and PPI) as the predictor variable. As there were no demographic or social desirability variables correlated to implicit affective empathy, none were controlled for in the regression. I hypothesized that both primary and secondary groups would exhibit more implicit affective deficits than those low in psychopathic attributes.

The results indicated a non-significant main effect for anxiety (STAI), but a significant main effect for psychopathic tendencies (PPI). The main effects were qualified by the significant interaction effect (See Table 7). As the interaction was significant, it was decomposed by looking at the effect of psychopathy at both high and low levels of anxiety. When determining the association between primary or secondary psychopathy and implicit affective empathy at low levels of anxiety, there was a non-significant main effect for psychopathy (β =-.104, p>.05).

In decomposing the interaction for psychopathy at high levels of anxiety, there was a significant main effect for psychopathy (β =-.252, p<.05). Therefore, results suggested that those with psychopathy, at high levels of anxiety, appear to experience significantly less implicit affective empathy than other groups. Therefore, Hypothesis 3 is supported for secondary psychopathy when using the PPI x STAI interaction as an index of psychopathy.

Using the LSRP to assess primary and secondary psychopathy, a multiple regression analysis was computed using implicit affective empathy as the criterion variable (Table 8). There were no demographic or social desirability variables that were significantly correlated with implicit affective empathy. Therefore, only the primary and secondary psychopathy subscales of the LSRP were entered in the regression equation. The results suggested that there were no significant associations between primary or secondary psychopathy and implicit affective empathy, such that for each unit increase in psychopathy scores, there was not a significant change in implicit affective measurements. Therefore, Hypothesis 3 was not supported when using the LSRP to assess primary and secondary psychopathy.

Research question. To answer the research question (Do the response patterns of individuals with primary and secondary psychopathic traits vary depending on the context created by listening styles?) a series of hierarchical stepwise regressions were run. For these analyses, the specific empathy type under examination served as the criterion variable. Variables to control for were entered in the first step of the regression equation, while the experimental listening style (empathy evoking instructions) and psychopathy were entered as main effects in the second step. The third step included the interaction effect for listening style by psychopathy type (LSRP) as the predictor variable. Primary and secondary psychopathy (LSRPP/LSRPS) were run in separate regression equations. For the research question, psychopathy was only measured using the primary and secondary subscales of the LSRP.

When using the LSRPP (primary) with the criterion variable of implicit cognitive empathy, there were no significant main effects for listening condition or for primary

psychopathy (LSRPP). The overall model also suggests a non-significant interaction (See Table 9). Therefore, it was not decomposed.

When using the LSRPS (secondary) with the criterion variable of implicit cognitive empathy, a significant main effect was found for secondary psychopathy (LSRPS), but not for listening condition. The significant main effect was qualified by a significant interaction of listening condition by secondary psychopathy (See Table 10). As the interaction was significant, it was then decomposed using the method described by Jaccard & Turrisi (2003). In the experimental listening condition, a non-significant main effect for psychopathy (β =-.027, p>.05) was found. Therefore, when individuals with secondary psychopathic traits were in the experimental listening condition, they were not more likely that those low in secondary psychopathy to score low in measures of implicit cognitive empathy.

When using the LSRPP (primary) with the criterion variable explicit cognitive empathy (See Table 11), there was a significant main effect for listening condition such that those in the experimental condition received lower scores on measures of explicit cognitive empathy. However, there was no significant main effect for secondary psychopathy. The overall model also suggested a non-significant interaction. As there was not a significant interaction, follow up analyses were not necessary.

When using the LSRPS (secondary) with the criterion variable explicit cognitive empathy (See Table 12), there were significant main effects for listening condition and for secondary psychopathy. These main effects were qualified by a significant interaction. As the interaction was significant, it was then decomposed. In analyzing the experimental listening condition, the main effect for psychopathy was non-significant (β

=.034, *p*=>.05). Thus, when individuals with secondary psychopathic traits are placed into either the control or experimental listening condition, they were not more likely than those low in secondary psychopathy to score low in measures of explicit cognitive empathy.

When using the LSRPP (primary) with the criterion variable implicit affective empathy there were no significant main effects for listening condition, or for psychopathy (See Table 13). The overall model was also non-significant. No follow up analyses were necessary as the interaction was not significant. When using the LSRPS (secondary) with the criterion variable of implicit affective empathy, there was a significant main effect for listening condition, but not for psychopathy (See Table 14). The main effect was not qualified by a significant interaction, therefore, follow up analyses were not performed.

When using the LSRPP (primary) with the criterion variable explicit affective empathy there was a significant main effect for primary psychopathy, but not for listening condition. The significant main effect was qualified by a significant interaction of listening style by primary psychopathy (See Table 15). As the interaction was significant, it was then decomposed. When analyzing the experimental listening condition, the main effect for psychopathy was non-significant (β =-.114, *p*>.05). Therefore, when individuals with primary psychopathic tendencies are placed into either the control or experimental listening condition, they were not more likely than those low in primary psychopathy to score low on measures of explicit affective empathy.

When using the LSRPS (secondary) with the criterion variable explicit affective empathy (See Table 16), there were no significant main effects for listening conditions, or for secondary psychopathy. However, the overall model was a significant for the

interaction of secondary psychopathy and listening condition. As the interaction was significant, it was then decomposed. The main effect of psychopathy in the experimental listening condition was significant ($\beta =.246$, $p<.01$). Therefore, when individuals with secondary psychopathic tendencies are placed in the experimental listening condition, their scores on measures of explicit affective empathy significantly increased.

Overall, the answer to the proposed research question (Do the response patterns of individuals with primary and secondary psychopathic traits vary depending on the context created by listening styles?) is that those with secondary psychopathic traits are more likely to have significant interactions found for the experimental listening condition by psychopathy type for all forms of empathy tested, with the exception of implicit affective empathy. However, a significant main effect was found only for explicit affective empathy such that only the explicit affective responses of individuals with secondary tendencies were changed when they were placed in the experimental, additional empathy evoking, condition. For all other conditions, the current study was unable to differentiate, when decomposed, the degree to which psychopathy and empathy varied as an effect of the listening condition.

No significant interactions were found for those with primary tendencies, except for explicit affective empathy in which no significant main effect was determined. This is in alignment with our expectations that those with primary tendencies would be less affected than those with secondary tendencies in the listening condition intended to evoke further empathy.

CHAPTER IV

DISCUSSION

A lack of empathy has traditionally been considered to be the primary feature of

psychopathy (Cleckley, 1964; Hare, 2003; Lykken, 1995). While some studies have

found results suggesting an empathetic deficit (Bagley, Abramowitz, and Kosson, 2009;

Vidal, Skeem and Camp, 2010), others have yet to do so (Glaser & Lutz-Zois, 2014,

Lishner et al., 2012; Mulllins-Nelson, Salekin, & Leistico, 2006). Using a large

undergraduate sample, the present study aimed to do what previous studies had not, by

parsing out the different empathy types (implicit and explicit cognitive and affective

empathy), while adding the implicit affective measure of heart rate, as well as parsing out

the two most commonly defined psychopathy types; primary and secondary (Karpman,

1941; Skeem, et al., 2003).

The present study yielded mixed results for the hypotheses. As hypothesized,

there was no association between primary psychopathic tendencies and implicit cognitive

empathy, but individuals with secondary psychopathic tendencies appeared to experience

less implicit cognitive and affective empathy. However, these results were only found

when psychopathy was assessed as an interaction between the PPI and STAI. Moreover,

associations were not found between primary psychopathy and explicit cognitive

empathy or implicit affective empathy, nor were associations found between secondary psychopathy and explicit cognitive empathy. I will now discuss each of the hypothesized results and the research question, followed by the limitations of the current study, directions for future research, and implications of the current findings. Because each of the main hypotheses was tested using two different measurements of psychopathy (through the PPIxSTAI and the LSRP), the results for each are discussed separately, as needed.

Hypothesis 1: Primary Psychopathy and Explicit or Implicit Cognitive Empathy

The current study hypothesized that there would be a positive relationship between primary psychopathy and explicit cognitive empathy, such that those with primary tendencies would be more able to use their emotional intelligence to recognize emotions within themselves and others, as well as identifying empathetic concern for others. Contrary to this hypothesis, the results suggested that individuals with psychopathic tendencies at low levels of anxiety (indicating primary psychopathic tendencies; as determined by a combination of the PPIxSTAI) were less able to consciously process and recognize such emotional factors (explicit cognitive). When using the LSRP as the psychopathy measure, individuals were no more or less likely to express such emotional intelligence when compared to those with low psychopathy. Overall, the current study expected the learned emotional intelligence of individuals with primary tendencies to be exaggerated with higher scores on measures of explicit cognitive empathy, as they have been in the past, possibly due to years of practice compensating for their inherited deficit (Lishner, et al., 2007).

In alignment with the second part of Hypothesis 1, primary psychopathy was unrelated to implicit cognitive empathy. That is, individuals with primary tendencies were no more or less able to implicitly recognize and label emotional states based on images of human eyes, regardless of how psychopathy was assessed. This result is similar to the findings by Vidal et al. (2010), suggesting that those with primary psychopathy were actually able to intellectually recognize and understand emotions.

Hypothesis 2: Secondary Psychopathy and Explicit or Implicit Cognitive Empathy

Individuals with secondary psychopathic tendencies (as determined by either the PPIxSTAI or the LSRP) were not more or less able to identify emotional states of themselves or others or take the perspective of others (using emotional intelligence in explicit cognitive assessments) when compared with those who had low psychopathic tendencies. This contradicted the first part Hypothesis 2, stating that individuals with secondary tendencies would experience less explicit cognitive empathy. This comes as a surprise, as Vidal et al. (2010) had suggested that those with secondary tendencies would exhibit lower levels of emotional intelligence than others.

In agreement with the second part of Hypothesis 2, individuals with secondary psychopathic tendencies (as determined by PPIxSTAI) were significantly less able to implicitly label the mental states of others based on images of eyes, than those with low levels of psychopathy (implicit cognitive). However, contradicting this hypothesis, when the LSRP was used to determine secondary psychopathy, there was no significant correlation between secondary psychopathy and implicit cognitive empathy.

The majority of these result were not expected, as previous research had suggested that those with secondary tendencies have significantly lower cognitive

empathetic abilities overall. It was thought that impulsivity and negative affect would impair their ability to learn the feelings of others and their ability to regulate any emotion (Vidal et al., 2010). However, as the current study's results suggest, individuals with secondary psychopathic tendencies display explicit cognitive empathetic abilities, and implicit cognitive empathetic abilities (depending on the psychopathy assessment) similar to those without psychopathic traits.

Hypothesis 3: Primary and Secondary Psychopathy and Implicit Affective Empathy

Contradicting the first part of the third hypothesis, those with primary psychopathic tendencies (as determined by PPIxSTAI and LSRP) did not experience significantly different physiological reactivity (implicit affective empathy) than to those low in psychopathy when exposed to an emotionally evocative broadcast. These results also contradict the work of Vidal et al. (2010), Bagley et al. (2009), and Blair, Jones, Clark, and Smith (1997), who suggested that there are empathetic deficits, both affective and implicit affective, for those with psychopathy.

However, in alignment with the second part of Hypothesis 3, individuals with secondary psychopathy (as determined by the PPIxSTAI) did experience less spontaneous emotional reactivity (i.e., implicit affective empathy) to an emotional broadcast than those low in psychopathy, but again, only when psychopathy was assessed using the PPIxSTAI. When using the LSRP, the second part of Hypothesis 3 was not supported.

Research question: Response Pattern Variation in Different Listening Conditions

Although Batson, Early, and Salvarani (1997) found that different listening contexts could affect an individual's response to a situation, the current study did not

49

fully support their findings. Although the current study was largely correct in the supposition that those with primary psychopathic tendencies would not be affected in the experimental, empathy evoking condition due to their ability to "keep cool" in stressful situations (Vidal et al., 2010), issues arose in findings for those with secondary tendencies. As noted, Batson et al. (1997) found that instructing individuals to imagine as if they were the victim and think about what the victim is going through enhanced personal distress and empathetic responses for non-clinical and clinical populations. For the current study, this result was only confirmed for individuals with secondary tendencies when reporting explicit affective empathy. It was highly anticipated that a change in implicit affective measures would involve the most significant change in response patterns for those with secondary tendencies, however, this was the only empathy type in which no significant results were found whatsoever in interactions or main effects. This will be further discussed in limitations and directions.

Summary of Results as an Aggregate

In looking at the overall results of the current study, many of the gaps in our understanding the relation of psychopathy to empathy remain. Bagley et al. (2009) suggested that those with psychopathy had lower cognitive empathetic abilities overall. While there may be some agreement in the literature this, it does not help to narrow down what cognitive empathetic deficits are experienced by whom. Vidal et al. (2010) found that those with secondary psychopathic tendencies had significantly lower emotional intelligence than those with primary tendencies. The current study suggests partial agreement, as those with secondary tendencies (as determine by STAIxPPI) were significantly less able to display implicit cognitive and affective abilities. However, those

50

with primary tendencies reported lower explicit cognitive abilities while those with secondary tendencies were not significantly different than those without psychopathic tendencies in explicit cognitive empathy.

In addition, more significant results stemmed from examining secondary tendencies with the PPIxSTAI versus the LSRP. This aligns with prior research suggesting that those with secondary tendencies are less successful at integrating into society than those with primary tendencies, as they are predisposed to anxious and impulsive temperaments, potentially making it easier to measure their empathetic deficits (Vidal et al., 2010). Those with primary tendencies on the other hand, are thought to be successful at keeping calm in pressure situations, which could also help to explain the current results. Unfortunately, the results still leave unsolved inconsistencies in the lack of significant results, even when empathy and psychopathy types are distinguished, and discrepancies in results when using the PPIxSTAI versus the LSRP.

Limitations and Directions for Future Research

The current study was limited to participation from undergraduate students, largely from introductory psychology classes. Mullins-Nelson et al. (2006) suggest that the continuous dimensions of psychopathy allow for psychopathic tendencies to be found in the community and college-age samples. It is also suggested that the LSRP is a reliable and valid measure to assess psychopathy in noninstitutionalized populations (Lynam, Whiteside, and Jones, 1999). However, it is always possible that using this non-clinical population could have had an effect on the results. Future research may benefit in using either a clinical or forensic sample to examine the types of empathetic deficits experienced by those with true psychopathic tendencies, as well as stronger effects for

51

listening context. From this, the research on "successful" (e.g., not incarcerated) and "non-successful" (e.g., incarcerated) psychopaths could be built upon (Ishikawa, Raine, Lencz, Bihrle, & Lacasse, 2011).

Further, the current study used a basic Zephyr Bluetooth wireless heart rate sensor to measure heart rate changes in examining implicit affective empathy. While this equipment was sufficient, studies that have found results suggesting that physiological reactivity is associated to psychopathy have used other, possibly more advanced, equipment such as skin conductance response measures (Blair et al., 1997). It is possible that we would see the implicit affective empathetic deficit in those with primary tendencies if more advanced equipment was used. The use of such equipment, along with multiple types of physiological measurements, would benefit future research by increasing the accuracy of the readings and lessening the chance of losing participants due to equipment malfunctions.

In addition, previous research has evoked empathy in ways different from the current study. For example, Blair, Jones, Clark, and Smith (1997) successfully used images such as crying faces, along with skin conductance response, while Lishner et al. (2007) used upsetting news articles that the participants had to read. Perhaps future research would benefit from using multiple media methods to evoke empathy and determine which is most effective (along with multiple physiological measures). It could be the case that while the news broadcast from the current study did evoke empathy, it did not evoke the level of empathy needed to address a variation in reactions between individuals with and without psychopathic tendencies. For example, if choosing to use the broadcast from the current study, perhaps future researchers could provide

participants with images of the family pre and post tragedy or (minimally graphic) images from the scene of the accident to enhance the differences between those without and with psychopathy. Additionally, if future research were to look at listening context effects it would be beneficial to add emphasis to the listening instructions in some way. While the current study simply had participants read the instructions, future studies could also have it stated verbally prior to the broadcast and provide examples. Further, when examining the effects of listening contexts, it would be beneficial to include a third listening condition as Batson et al. (1997) had. In the current study there was a control condition in which the participants were instructed to listen to the broadcast, and an experimental condition in which the listening instructions intended to evoke empathy. Batson and colleagues' had a third condition in which the participants were to remain objective. This objective condition could be critical, as it is telling individuals who may be naturally empathetic, to be less empathetic, therefore potentially increasing the chance of a listening context effect.

Finally, individuals with tendencies of secondary psychopathy may be prone to experience emotions such as anxiety. Therefore, it is reasonable to suggest that the current emotional state of individuals with secondary tendencies may affect their responses. For instance, if an individual is angry, they may be less likely to respond in an empathetic way; if they are happy, responses may resemble a 'normal' empathetic response. Therefore, it would be beneficial for future research to manipulate mood states by enhancing negative states such as distress. In doing this, the typical characteristics of secondary psychopathy may be highlighted.

Implications and Conclusions

  A notable strength of this study included the use of several empathy measures (including a physiological measure for implicit affective empathy) as well as measuring psychopathy in two different ways. As the findings of the current study suggest, measuring psychopathy with both the LSRP and the PPIxSTAI interaction resulted in some significant differences in results for primary psychopathy and explicit cognitive empathy and for secondary psychopathy and implicit cognitive and affective empathy results. As the current study stemmed from, and shares methods with the work of Glaser and Zois (2014), it is important to explore potential explanations for the differences in results. For example, the current study analyzed psychopathy using the PPIxSTAI as a continuous variable, instead of categorical as Glaser and Zois (2014) had done. As significant results were more often found in the current study when psychopathy was analyzed this way (versus the LSRP), there might be added benefit in examining psychopathy on a continuum instead of categorically.

  While the original conceptualization of psychopathy includes a callous lack of empathy for others (Cleckley, 1964), there are many questions left unanswered as to the specific empathetic deficits experienced by individuals with these tendencies. The current study found only some hypotheses to be supported by using a mixture of self-report and affective, physiological methods. Based on the current study, an implication for future research is to continue to utilize physiological measures as well as examining the need for the distinction between primary and secondary psychopathy to be examined continuously instead of categorically.

From a clinical perspective, the outlook of treatment (through therapy or other means) is dependent on the understanding of what deficits those with psychopathic tendencies experience. Harris and Rice (2006) detail a poor outlook on the treatments available for individuals with psychopathy, describing situations in which treatments that are effective for some, may actually promote recidivism for those with psychopathy. Treatments for Cluster B's Antisocial Personality Disorder (ASPD) don't fare much better, as they are described as difficult to implement in individual and group sessions, and studied less often (Kraus & Reynolds, 2001). Kraus and Reynolds suggest that prevention could be a key factor for ASPD; however, this could be difficult to implement depending on the psychopathy type.

If research were to enhance treatment with the distinction of psychopathy types and their respective and distinguished etiologies in mind, then treatments would also need to look different for each type. Based strictly off of the current study's findings, there would not be an instance where individuals' with primary or secondary tendencies are experiencing the same general empathetic deficits. This is where the implementation of treatment needs to begin, examining specific deficits and looking into, or creating, interventions and preventative measures that focus in on said empathetic deficits in a productive manner.

In summation, while results of the current study did not clearly delineate the empathetic deficits of those with psychopathic tendencies as it set out to do, it did provide the field with some significant results that both aligned and contradicted research from the past. The current study built upon the mistakes of past research to improve the field and suggested areas to look to next. In addition, it underscored the importance that lies

within the distinction between psychopathy and empathy types, specifically including a physiological, difficult to feign, measure of implicit affective empathy, to strengthen psychopathy research methodology, results, and treatment implementations.

REFERENCES

Ali, F., Amorim, I. S., & Chamorro-Premuzic, T. (2009). Empathy deficits and trait

      emotional intelligence in psychopathy and Machiavellianism. *Personality and*

      Individual Differences, *47*, 758-762. doi: 10.1016/j.paid.2009.06.016

American Psychiatric Association (2013). *Diagnostic and Statistical manual of disorders*

      (5th ed.). (DSM-V). Washington, DC: Author.

Bagley, A. D., Abramowitz, C. S., & Kosson, D. S. (2009). Vocal affect recognition and

      psychopathy: converging findings across traditional and cluster analytic

      approaches to assessing the construct. *Journal of Abnormal psychology*, *118*, 388.

      doi: 10.1037/a0015372

Baron-Cohen, S., Wheelwright, S., & Jollife, T. (1997). Is there a "language of the

      eyes"? Evidence from normal adults and adults with autism or Asperger

      Syndrome. *Visual Cognition*, *4*, 311-331. doi: 10.1080/713756761

Baron-Cohen, S., Wheelwright, S., Hill, J., Rosti, Y., & Plumb, I. (2001). The "Reading

      the Mind in the Eyes" Test Revised Version: A study with normal adults, and

      adults with Asperger syndrome or high-functioning autism. J*ournal of Child*

      Psychology and Psychiatry, 42, 241-251. doi: 10.1111/1469-7610.00715

Batson, C. D., Early, S., & Salvarani, G. (1997). Perspective taking: Imagining how

      another feels versus imaging how you would feel. *Personality and Social*

      Psychology Bulletin, *23*, 751-758. doi: 10.1177/0146167297237008

Blackburn, R. (1975). An empirical classification of psychopathic personality. *The British Journal of Psychiatry, 127*(5), 456-460. doi: 10.1192/bjp.127.5.45

Blair, R. J. R., Jones, L., Clark, F., & Smith, M. (1997). The psychopathic individual: A lack of responsiveness to distress cues? *Psychophysiology*, *34*, 192-198. doi: 10.1111/j.1469-8986.1997.tb02131.x

Blair, R. J. R. (2007). Empathic dysfunction in psychopathic individuals. In T. F. D. Farrow & P.W. R. Woodruff (Eds.) *Empathy in Mental Illness* (pp.3-16). New York: Cambridge University Press.

Board, B. J., & Fritzon, K. (2005). Disordered personalities at work. *Psychology, Crime & Law*, *11*(1), 17-32. doi: 10.1080/10683160310001634304

Cleckley, H. (1964). *The Mask of Sanity: Fourth Edition*. St. Louis, MO: The C. V. Mosby Company.

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). Applied multiple regression/ correlation analysis for the behavioral sciences (3rd ed.). Hillsdale, NJ: Erlbaum

Copestake, S., Gray, N. S., & Snowden, R. J. (2011). A comparison of a self-report measure of psychopathy with the psychopathy checklist-revised in a UK sample of offenders. *Journal of Forensic Psychiatry & Psychology*, *22*(2), 169-182. doi: 10.1080/14789949.2010.545134

Davis, M. H. (1980). A multidimensional approach to individual differences in empathy. *Catalog of Selected Documents in Psychology, 10*.

Domes, G., Hollerbach, P., Vohs, K., Mokros, A., & Habermeyer, E. (2013). Emotional empathy and psychopathy in offenders: An experimental study. *Journal of Personality Disorders*, *27*, 67-84. doi: 10.1521/pedi.2013.27.1.67

Edens, J. F., Poythress, N. G., Lilienfeld, S. O., & Patrick, C. J. (2008). A prospective

    comparison of two measures of psychopathy in the prediction of institutional

    misconduct. *Behavioral Sciences & the Law, 26*(5), 529-541. doi: 10.1002/bsl.823

Eisenberg, N., & Fabes, R. A. (1990). Empathy: conceptualization, measurement, and

    relation to prosocial behavior. *Motivation and Emotion*, *14*, 131-146.

    doi:10.1007/BF00991640

Fowles, D. C., & Dindo, L. (2006). A dual-deficit model of psychopathy. In *Handbook of*

    psychopathy, 14-34. New York, NY: Guilford Publications.

Gaudry, E., Vagg, P., & Spielberger, C. D. (1975). Validation of the state-trait distinction

    in anxiety research. *Multivariate Behavioral Research, 10*, 331-341. doi:

    10.1207/s15327906mbr1003_6

Glaser, M. K., & Lutz-Zois, C. J. (2014, August). *Primary and Secondary*

    Psychopathy in the Prediction of Explicit and Implicit Measures of Empathy.

    Poster Presented at 122nd Annual convention of the American Psychological

    Association, Washington, D.C.

Grieve, R., & Mahar, D. (2010). The emotional manipulation-psychopathy nexus:

    Relationships with emotional intelligence, alexithymia and ethical position.

    Personality and Individual Differences, *48*, 945-950.

    doi: 10.1016/j.paid.2010.02.028

Häkkänen-Nyholm, H., & Nyholm, J. O. (Eds.). (2012). *Psychopathy and Law: A*

    Practitioner's Guide. Malden, MA: John Wiley & Sons.

Hare, R. D. (1996). Psychopathy a clinical construct whose time has come. *Criminal*

    Justice and Behavior, *23*(1), 25-54. doi: 10.1177/0093854896023001004

Hare, R. D. (2003). *Hare psychopathy checklist-revised (PCL-R). Technical manual.* North Tonawanda, NY: Multi-Health Systems.

Harris, G. T., & Rice, M. E. (2006). Treatment of psychopathy. *Handbook of psychopathy*, 555-572. New York, NY: Guilford Press.

Hedberg, A. G. (1972). Review of the State-Trait Anxiety Inventory. *Professional Psychology, 3*(4), 389-390. doi: 10.1037/h0020743

Herpertz, S. C., & Sass, H. (2000). Emotional deficiency and psychopathy. *Behavioral Sciences & the Law*, *18*(5), 567-580.

Ishikawa, S. S., Raine, A., Lencz, T., Bihrle, S., & Lacasse, L. (2001). Autonomic stress reactivity and executive functions in successful and unsuccessful criminal psychopaths from the community. *Journal of abnormal psychology*, *110*(3), 423. doi: 10.1037/0021-843X.110.3.423

Jaccard, J., & Turrisi, R. (2003). Interaction effects in multiple regression. Thousan Oaks, CA: Sage Publications.

Johns, J.H., & Quay, H.C. (1962). The effect of social reward on verbal conditioning in psychopathic and neurotic military offenders. *Journal of Consulting and Clinical Psychology, 26,* 217-220. doi: 10.1037/h0048399

Kampfe, N., Penzhorn, J., Schikora, J., Dunzl, J., & Schneidenbach J. (2009). Empathy and social desirability: A comparison of delinquent and non-delinquent participants using direct and indirect measures. *Psychology, Crime & Law, 15*, 1-17. doi: 10.1080/10683160802010640

Karpman, B. (1941). On the need of separating psychopathy into two distinct types: The symptomatic and the idiopathic. *Journal of Criminal Psychopathology*, *3*, 112-

137.

Karpman, B. (1948a). The myth of the psychopathic personality. *American Journal of Psychiatry*, *104*, 523–534. doi: 10.1176/appi.aip.104.9.523

Karpman, B. (1948b). Conscience in the psychopath: another version. *American Journal of Orthopsychiatry*, *18*(3), 455–491. doi: 10.1111/j.1939-0025.1948.tb05109.x

Karpman, B. (1955). On the need of separating psychopathy into two distinct types: The symptomatic and the idiopathic. *Archives of Criminal Psychodynamics, 47*(1), 3–100.

Kerem, E., Fishman, N., & Josselson, R. (2001). The experience of empathy in everyday relationships: cognitive and affective elements. *Journal of Social and Personal Relationships, 18*, 709-729. doi: 10.1177/0265407501185008

Kirsch, L. G., & Becker, J. V. (2007). Emotional deficits in psychopathy and sexual sadism: Implication for violent and sadistic behavior. *Clinical Psychology Review, 27,* 904-922. doi: 10.1016/j.cpr.2007.01.011

Kraus, G., & Reynolds, D. J. (2001). The "AB-C's" of the Cluster B's: Identifying, understanding, and treating Cluster B personality disorders. *Clinical psychology review*, *21*, 345-373. doi: 10.1016/S0272-7358(99)00052-5

Levenson, M. R., Kiehl, K. A, & Fitzpatrick, C. M. (1995). Assessing psychopathic attributes in a noninstitutionalized population. *Journal of Personality and Social Psychology*, *68*, 151-158. doi: 10.1037/0022-3514.68.1.151

Lilienfeld, S.O., & Widows, M.R. (2005). *Psychopathic Personality Inventory – Revised: Professional Manual*. Lutz, FL: Psychological Assessment Resources, Inc.

Lishner, D. A., Vitacco, M. J., Hong, P. Y., Mosley, J., Miska, K., & Stocks, E. L.

    (2012). Evaluating the relation between psychopathy and affective empathy: Two

    preliminary studies. *International Journal of Offender Therapy and Comparative*

    Criminology, *56*, 1161-1181. doi: 10.1177/0306624X11421891

Lykken, D. T. (1995). *The Antisocial Personalities*. Hillsdale, NJ: Lawrence Erlbaum

    Associates, Inc.

Lynam, D. R., Whiteside, S., & Jones, S. (1999). Self-reported psychopathy: A validation

    study. *Journal of Personality Assessment, 73*(1), 110-132. doi:

    10.1207/S15327752JPA730108

Mikolajczak, M., Luminet, O., Leroy, C., Roy, E. (2007). Psychometric properties of the

    Trait Emotional Intelligence Questionnaire: Factor structure, reliability, construct,

    and incremental validity in a French-speaking population. *Journal of Personality*

    Assessment, 88, 338-353. doi: 10.1080/00223890701333431

Millon, T. (1981). Disorders of Personality DSM-III: Axis II. New York: John Wiley and

    Sons.

Millon, T., Simonsen, E., Birket-Smith, M., & Davis, R. D. (Eds.). (2002).

    Psychopathy: Antisocial, criminal, and violent behavior. New York, NY: The

    Guilford Press.

Mullins-Nelson, J. L, Salekin, R. T., & Leistico, A. R. (2006). Psychopathy, empathy,

    and perspective-taking ability in a community sample: Implications for the

    successful psychopathy concept. *International Journal of Forensic Mental*

    Health, 5, 133-149. doi: 10.1080/14999013.2006.10471238

Murphy, C., & Vess, J. (2003). Subtypes of psychopathy: Proposed differences between

narcissistic, borderline, sadistic, and antisocial psychopaths. *Psychiatric Quarterly, 74*, 11-29. doi: 10.1023/A:1021137521142

Paulhus, D. L. (1988). Balanced inventory of desirable responding (BIDR). *Acceptance and Commitment Therapy. Measures Package*, *41*.

Petrides, K. V., & Furnham, A. (2006). The role of trait emotional intelligence in a gender-specific model of organizational variables. *Journal of Applied Social Psychology*, *36,* 552-569. doi: 10.1111/j.0021-9029.2006.00019.x

Porter, S. (1996). Without conscience or without active conscience? The etiology of psychopathy revisited. *Aggression and Violent Behavior*, *1*(2), 179-189. doi: 10.1016/1359-1789(95)00010-0

Poythress, N. G. & Skeem, J. L. (2006). Disaggregating psychopathy: Where and how to look for subtypes. In C. J. Patrick (Ed.), *Handbook of the psychopathy* (pp. 172-192). New York, NY: The Guilford Press.

Raskin, R., & Terry, H. (1988). A principal-components analysis of the Narcissistic Personality Inventory and further evidence of its construct validity. *Journal of personality and social psychology*, *54*(5), 890. doi: 10.1037/0022-3514.54.5.890

Reniers, R. L. E. P., Corcoran, R., Drake, R., Shryane, N. M., & Vollm, B. A. (2011). The QCAE: A questionnaire of cognitive and affective empathy. *Journal of Personality Assessment, 93,* 84-95. doi: 10.1080/00223891.2010.528484

Salekin, R. T., Trobst, K. K., & Krioukova, M. (2001). Construct validity of psychopathy in a community sample: A nomological net approach. *Journal of Personality Disorders*, *15*(5), 425-441. doi: 10.1521/pedi.15.5.425.19196

Skeem, J. L., Poythress, N., Edens, J. F., Lilienfeld, S. O., & Cale, E. M. (2003).

Psychopathic personality or personalities? Exploring potential variants of psychopathy and their implications for risk assessment. *Aggression and Violent Behavior*, *8*(5), 513-546. doi:10.1016/S1359-1789(02)00098-8

Spielberger, C.D., Gorsuch, R.L., & Lushene, R.E. (1970). *Test Manual for the State-Trait Anxiety Inventory.* Palo Alto, CA: Consulting Psychologists Press.

Uzieblo, K., Verschuere, B., Van den Bussche, E., & Crombez, G. (2010). The validity of the Psychopathic Personality Inventory—Revised in a community sample. *Assessment*, *17*(3), 334-346. doi: 10.1177/1073191109356544

Vassileva, J., Kosson, D. S., Abramowitz, C., & Conrad, P. (2005). Psychopathy versus psychopathies in classifying criminal offenders. *Legal and Criminological Psychology, 10*, 27-43. doi: 10.1348/135532504X15376

Vellante, M., Baron-Cohen, S., Melis, M., Marrone, M., Petretto, D. R., Masala, C., & Preti, A. (2013). The "Reading the Mind in the Eyes" test: systematic review of psychometric properties and a validation study in Italy. *Cognitive neuropsychiatry*, *18*(4), 326-354. doi: 10.1080/13546805.2012.721728

Verona, E., Patrick, C. J., Curtin, J. J., Bradley, M. M., & Lang, P. J. (2004). Psychopathy and physiological response to emotionally evocative sounds. *Journal of Abnormal Psychology*, *113*, 99. doi: 10.1037/0021-843x.113.1.99

Vidal, S., Skeem, J. & Camp, J. (2010). Emotional intelligence: Painting different paths for low-anxious and high-anxious psychopathic variants. *Law and Human Behavior*, *34*, 150-163. doi: 10.1007/s10979-009-9175-y

Wai, M., & Tiliopoulos, N. (2012). The affective and cognitive empathic nature of the dark triad of personality. *Personality and Individual Differences*, *52*, 794-799.

Table 1
Descriptive Statistics for Continuous Study Variables

Variables	*M*	*SD*	Min-Max	α
Total LSRP	46.29	8.75	28-75	.73
Primary	26.99	6.41	17-45	.83
Secondary	19.38	4.05	10-32	.66
Total PPI	289.98	41.27	0-371	.95
PPI (ME)	41.41	8.52	22-62	.85
PPI (RN)	33.83	7.66	17-54	.82
PPI (BE)	29.77	7.19	16-48	.85
PPI (CN)	34.61	7.27	19-54	.82
PPI (SOI)	47.40	9.08	20-68	.88
PPI (F)	33.91	9.85	14-56	.89
Total STAI-A	41.00	8.98	0-64	.87
Total BIDR	11.56	5.46	0-31	.77
BIDR (SD)	5.72	3.02	0-14	.62
BIDR (IM)	5.82	3.55	0-19	.76
Explicit Affective				
IRI (PT)	25.51	4.33	14-35	.75
IRI (PD)	19.74	4.85	9-34	.76
IRI (FS)	25.73	5.44	12-35	.82
Explicit Cognitive				
TEIQ-SF (E)	39.63	6.37	21.33-55	.56
IRI (EC)	28.29	3.93	15-35	.73
Implicit Cognitive				
RMET	25.41	5.27	8.23-46.29	.45
Implicit Affective				
HR	.00	.99	-3.29-8.07	

Note. LSRP=Levenson Self-Report Psychopathy Scale; PPI=Psychopathic Personality Inventory-revised; PPI(ME)=Machiavellian Egocentricity subscale; PPI(RN)=Rebellious Nonconformity subscale; PPI(BE)=Blame Externalization subscale; PPI(CN)=Carefree Nonplanfullness subscale; PPI(SOI)=Social Influence subscale; PPI(F)=Fearlessness subscale; STAI=State-Trait Anxiety Inventory; BIDR=The Balanced Inventory of Desirable Responding; BIDR SD =Self-Deceptive Enhancement subscale; BIDR IM =Impression Management subscale; IRI=Interpersonal Reactivity Index; IRI(PT)=Perspective Taking subscale; IRI(PD)=Personal Distress subscale; IRI(FS)=Fantasy Subscale; TEIQue-SF(E)=Trait Emotional Intelligence Questionnaire – Short Form Emotionality subscale; IRI(EC)=Empathetic Concern subscale; RMET=Reading the Mind in the Eyes Test; HR=Heart Rate.

Table 2

Zero-Order Correlations between the Continuous demographic Variables (Age), Social Desirability (Self-Deceptive Enhancement and Impression Management), and the Criterion Variable (Empathy)

	Age	BIDR-SDE	BIDR-IM	BIDR-Total	IRI (EC)	IRI (PD)	IRI (FS)	TEIQ (E)	IRI (PT)	RMET	HR
Age	1.000										
BIDR-(SD)	.022	1.000									
BIDR (IM)	.056	.376**	1.000								
BIDR-(T) Explicit Affective	.049	.801**	.857**	1.000							
IRI (EC)	.029	.156*	.312**	.287**	1.000						
IRI (PD)	.105	-.341**	-.098	-.252**	.145	1.000					
IRI (F) Explicit Cognitive	.028	.016	.090	.067	.219**	.168*	1.000				
TEIQ (E)	.029	.220**	.307**	.320**	.483**	-.199**	.176*	1.000			
IRI (PT)	.000	.029	.327**	.228*	.488**	-.047	.182*	.428**	1.000		
Implicit Cognitive RMET Implicit Affective	-.130	.061	.106	.103	.185*	-.034	.202**	.176*	.061	1.000	
HR	-.007	-.063	.063	.006	.076	.080	.121	.078	.005	.115	1.000

Note. STAI= State-Trait Anxiety Inventory; BIDR= The Balanced Inventory of Desirable Responding; BIDR SD = Self-Deceptive Enhancement subscale; BIDR IM = Impression Management subscale; BIDR T = Total; IRI = Interpersonal Reactivity Index; IRI(PT) = Perspective Taking subscale; IRI(PD) = ; IRI(FS)= Fantasy Subscale; TEIQ (E) Trait Emotional Intelligence Questionnaire-Short Form Emotionality subscale = Trait Emotional Intelligence Questionnaire – Short Form Emotionality subscale; IRI(EC) = Empathetic Concern subscale; RMET = Reading
 *Correlation is significant at the 0.05 level (2-tailed)
 **Correlation is significant at the 0.01 level (2-tailed)

Table 3

Hierarchical Regression Analysis Summary for Demographic and Psychopathy (PPIxSTAI) Variables predicting Explicit Cognitive Empathy

Step and Predictor Variables	B	SE B	β	R_2	ΔR_2
Step 1:				.213*	
Asian	-.033	.032	-.070		
Gender	.038	.010	.261***		
BIRD SD	.003	.002	.112		
BIRD IM	.007	.001	.330***		
Step 2:				.394***	.181
STAI	-.002	.001	-.287***		
PPI	.000	.000	-.184*		
PsyAnx	-4.314E-5	.000	-.573***		

Note: BIDR SD = Self-Deceptive Enhancement subscale; BIDR IM = Impression Management subscale; STAI=State Trait Anxiety Inventory; PPI=Psychopathic Personality Inventory; PsyAnx=Interaction term for STAI x PPI.
*p<.05. **p<.01. ***p<.001*

Table 4

Hierarchical Regression Analysis Summary for Primary and Secondary Psychopathy (STAIxPPI) Variables predicting Implicit Cognitive Empathy

Step and Predictor Variables	B	SE B	β	R_2	ΔR_2
Step 1:				.037***	
Asian	-7.023	2.787	-.193**		
Step 2:				.169***	.132
STAI	.054	.047	.088		
PPI	-.020	.011	-.147		
PsyAnx	-.002	.001	-.377***		

Note: STAI=State Trait Anxiety Inventory; PPI=Psychopathic Personality Inventory; PsyAnx=Interaction term for STAI x PPI.
*p<.05. **p<.01. ***p<.001

Table 5

Hierarchical Regression Analysis Summary for Demographic and Psychopathy (LSRP) Variables predicting Explicit Cognitive Empathy

Step and Predictor Variables	B	SE B	β	R_2	ΔR_2
Step 1:				.213***	
BIRD SD	.003	.002	.128		
BIRD IM	.006	.002	.329***		
Asian	-.036	.032	-.083		
Gender	.032	.010	.234**		
Step 2:				.216	.003
LSRPP	.000	.001	-.047		
LSRPS	.001	.001	.055		

Note: BIDR SD = Self-Deceptive Enhancement subscale; BIDR IM = Impression Management subscale; LSRPP=Levenson Self-Report Psychopathy Scale-Primary subscale; LSRPS= Levenson Self-Report Psychopathy Scale Secondary subscale. *p<.05. **p<.01. ***p<.001

Table 6

Hierarchical Regression Analysis Summary for Primary and Secondary Psychopathy (LSRP) Variables predicting Implicit Cognitive Empathy

Step and Predictor Variables	B	SE B	β	R_2	ΔR_2
Step 1:				.040**	
Asian	-6.245	2.795	-.174*		
Step 2:				.060	.020
LSRPP	-.134	.074	-.159		
LSRPS	.053	.112	.042		

Note: LSRPP=Levenson Self-Report Psychopathy Scale Primary subscale; LSRPS= Levenson Self-Report Psychopathy Scale-Secondary subscale.
*p<.05. **p<.01. ***p<.001

Table 7

Regression Analysis Summary for Demographic and Psychopathy (PPIxSTAI)
Variables predicting Implicit Affective Empathy

Step and Predictor Variables	B	SE B	β	R_2	$\varDelta R_2$
				.035	
STAI	.001	.007	.014		
PPI	-.003	.002	-.178*		
PsyAnx	.000	.000	-.184*		

Note: STAI=State Trait Anxiety Inventory; PPI=Psychopathic Personality Inventory; PsyAnx=Interaction term for STAI x PPI.
*p<.05. **p<.01. ***p<.001*

Table 8

Regression Analysis Summary for Demographic and Psychopathy (LSRP) Variables predicting Implicit Affective Empathy

Step and Predictor Variables	B	SE B	β	R_2	$\varDelta R_2$
				.005	
LSRPP	.004	.013	.023		
LSRPS	.012	.020	.053		

Note: LSRPP=Levenson Self-Report Psychopathy Scale Primary subscale; LSRPS= Levenson Self-Report Psychopathy Scale-Secondary subscale.

*p<.05. **p<.01. ***p<.001

Table 9
Hierarchical Regression Analysis Summary for Demographic and Primary Psychopathy Variables predicting Implicit Cognitive Empathy for Listening Contexts

Step and Predictor Variables	B	SE B	β	R_2	$\varDelta R_2$
Step 1:				.039**	
Asian	-7.127	2.676	-.198*		
Step 2:				.066	.027
Experimental	-1.099	.802	-.102		
LSRPP	-.103	.061	-.127		
Step 3:				.072	.005
Experimental_Primary	.126	.126	.259		

Note: LSRPP=Levenson Self-Report Psychopathy Scale-Primary subscale;
Experimental_Primary = Interaction term for listening condition x primary psychopathy.
*p<.05. **p<.01. ***p<.001

Table 10

Hierarchical Regression Analysis Summary for Demographic and Secondary
Psychopathy Variables predicting Implicit Cognitive Empathy for for Listening Contexts

Step and Predictor Variables	B	SE B	β	R_2	ΔR_2
Step 1:				.040**	
Asian	-7.519	2.820	-.211**		
Step 2:				.051	.011
Experimental	-1.086	.839	-.100		
LSRPS Centered	-.034	.099	-.027		
Step 3:				.077*	.026
Experimental_Seconday	.440	.203	.577*		

Note: LSRPS = Levenson Self-Report Psychopathy Scale-Secondary subscale;
Experimental_Secondary = listening condition x secondary psychopathy.
*p<.05. **p<.01. ***p<.001*

Table 11

Hierarchical Regression Analysis Summary for Demographic and Primary Psychopathy Variables predicting Explicit Cognitive Empathy for Listening Contexts

Step and Predictor Variables	B	SE B	β	R_2	ΔR_2
Step 1:				.210***	
Gender	.037	.010	.256***		
Asian	-.033	.032	-.070		
BIDRSD	.002	.002	.099		
BIRDIM	.007	.001	.332***		
Step 2:				.239*	.029
Experimental	-.022	.010	-.157*		
LSRPP Centered	-.001	.001	-.065		
Step 3:				.219	.011
Experimental_Primary	.002	.001	.173		

Note: BIDR SD = Self-Deceptive Enhancement subscale; BIDR IM = Impression Management subscale; LSRPP=Levenson Self-Report Psychopathy Scale-Primary subscale; Experimental_Primary = Interaction term for listening condition x primary psychopathy.
*p<.05. **p<.01. ***p<.001*

Table 12
Hierarchical Regression Analysis Summary for Demographic and Secondary Psychopathy Variables predicting Explicit Cognitive Empathy for Listening Contexts

Step and Predictor Variables	B	SE B	β	R_2	ΔR_2
Step 1:				.212***	
Gender	.033	.010	.239**		
Asian	-.035	.030	-.080		
BIDRSD	.003	.002	.119		
BIRDIM	.006	.001			
			.332***		
Step 2:				.236	.024
Experimental	-.021	.009	-.155*		
LSRPS Centered	.001	.001	.034		
Step 3:				.261*	.026
Experimental_Secondary	.005	.002	.260*		

Note: BIDR SD = Self-Deceptive Enhancement subscale; BIDR IM = Impression Management subscale; LSRPS=Levenson Self-Report Psychopathy Scale-Secondary subscale; Experimental_Secondary = Interaction term for listening condition x secondary psychopathy.
*p<.05. **p<.01. ***p<.001*

Table 13

Regression Analysis Summary for Demographic and Primary Psychopathy Variables predicting Implicit Affective Empathy for Listening Contexts

Step and Predictor Variables	B	SE B	β	R_2	$\varDelta R_2$
Step 1:				.020	
Experimental	.275	.149	.139		
LSRPP Centered	.002	.011	.015		
Step 2:				.021	.001
Experimental_Primary	.011	.023	.058		

Note: LSRPP=Levenson Self-Report Psychopathy Scale-Primary subscale; Experimental_Primary = Interaction term for listening condition x primary psychopathy. *p<.05. **p<.01. ***p<.001*

Table 14

Regression Analysis Summary for Demographic and Secondary Psychopathy Variables predicting Implicit Affective Empathy for Listening Contexts

Step and Predictor Variables	B	SE B	β	R_2	$\varDelta R_2$
Step 1:				.026	
Experimental	.296	.151	.149*		
LSRPS Centered	.015	.018	.063		
Step 2:				.026	.000
			.026		
Experiemtnal_Secondary	.008	.036			

Note LSRPS= Levenson Self-Report Psychopathy Scale-Secondary subscale; Experimental_Secondary = Interaction term for listening condition x secondary psychopathy.
*p<.05. **p<.01. ***p<.001

Table 15

Hierarchical Regression Analysis Summary for Demographic and Primary Psychopathy Variables predicting Explicit Affective Empathy for Listening Contexts

Step and Predictor Variables	B	SE B	β	R_2	$\varDelta R_2$
Step 1:				.165***	
Gender	.041	.007	.406***		
Asian	-.009	.023	-.029		
BIRSD	.001	.001	.033		
Step 2:				.189	.024
Experimental	-.010	.007	-.099		
LSRPP	-.001	.001	-.114		
Step 3:				.240**	.051
Experimental_Primary	.004	.001	.389**		

Note: BIDR SD = Self-Deceptive Enhancement subscale; LSRPP=Levenson Self-Report Psychopathy Scale-Primary subscale; Experimental_Primary = listening condition x primary psychopathy.
*p<.05. **p<.01. ***p<.001

Table 16

Hierarchical Regression Analysis Summary for Demographic and Secondary Psychopathy Variables predicting Explicit Affective Empathy for Listening Contexts

Step and Predictor Variables	B	SE B	β	R_2	$\varDelta R_2$
Step 1:				.170***	
Gender	.042	.007			
			.412***		
Asian	-.009	.023	-.027		
BIRSD	.000	.001	.028		
Step 2:				.237**	.067
Listening Condition	-.012	.007	-.122		
LSRPS Centered	-.003	.001	.246**		
Step 3:				.259*	.023
	.004	.002	.538*		
Experimental_Secondary					

Note: BIDR SD = Self-Deceptive Enhancement subscale; LSRPS= Levenson Self-Report Psychopathy Scale-Secondary subscale; Experimental_Secondary=Interaction term between secondary psychopathy and listening condition.
*p<.05. **p<.01. ***p<.001*

APPENDIX A

SCRIPT FOR MALE ANNOUNCER AND KATIE BANKS

Announcer

Auto accidents continue to kill and mame Americans, but the tragic impact is often lost in the cold facts of statistics. Two were killed, 4 injured, and 1 is in critical condition. The reality of the tragedy hidden in such statements was brought home recently for Katie Banks, a University of Dayton Senior who moved to Kettering with her parents just 2 years ago. Last month Katie's parents, Mr. and Mrs. George Banks and her 16-year-old sister Jeanette were killed in a head on collision 30 miles south of Cincinnati. They were returning to their former home in Cincinnati, Ohio to visit friends. Mr. and Mrs. Banks left 3 surviving children; Katie, a senior at UD, Alice, age 11, and Mark, age 8. Katie has been given temporary guardianship of her younger brother and sister. Unfortunately, Mr. Banks did not carry life insurance and the children were left with very little money. Katie is trying desperately to keep her family together and to finish school. She hopes to graduate this year but many problems confront her. She does not have enough money for groceries or rent, she needs sitters to stay with her brother and sister while she attends her classes, and she needs transportation to the grocery store, laundry, and to school since she does not have a car. Katie is trying to raise money through private contributions. I talked with Katie Banks yesterday; she describes her situation in these words.

Katie

It … It's just such a nightmare. I … I just guess I'm still … numb, but I know that life has got to go on. The most imp thing for me right now is to… to graduate on time. I .. I need to be able to graduate on time and get a good job to support my little brother and sister. You know? (Small sigh) the help that we've gotten so far has been really wonderful, but we've got a long way to go. If we don't get more help, I'm .. I'm really afraid that I'm gonna have to drop out of school … find a job… and that's just gonna make things worse I think, because everybody knows that without a college degree you can't make much money. And if I have to drop out…I'm really afraid that I'm going to have to give up the children and I just.. I won't be able to make enough to support them.

Announcer

Just a look at the problems an accident can cause, even after the immediate shock and loss as people try to put their lives back together. This is news, from the personal side.

APPENDIX B

SCRIPT FOR FEMALE ANNOUNCER AND KYLE BANKS

Announcer

Auto accidents continue to kill and mame Americans, but the tragic impact is often lost in the cold facts of statistics. Two were killed, 4 injured, and 1 is in critical condition. The reality of the tragedy hidden in such statements was brought home recently for Kyle Banks, a University of Dayton Senior who moved to Kettering with his parents just 2 years ago. Last month Kyle's parents, Mr. and Mrs. George Banks and his 16-year-old sister Jeanette were killed in a head on collision 30 miles south of Cincinnati. They were returning to their former home in Cincinnati, Ohio to visit friends. Mr. and Mrs. Banks left 3 surviving children; Kyle, a senior at UD, Alice, age 11, and Mark, age 8. Kyle has been given temporary guardianship of his younger brother and sister. Unfortunately, Mr. Banks did not carry life insurance and the children were left with very little money. Kyle is trying desperately to keep his family together and to finish school. He hopes to graduate this year but many problems confront him. He does not have enough money for groceries or rent, he needs sitters to stay with his brother and sister while he attends his classes, and he needs transportation to the grocery store, laundry, and to school since he does not have a car. Kyle is trying to raise money through private contributions. I talked with Kyle Banks yesterday; he describes his situation in these words.

Katie

 It … It's just such a nightmare. I … I just guess I'm still … numb, but I know that life has got to go on. The most imp thing for me right now is to… to graduate on time. I .. I need to be able to graduate on time and get a good job to support my little brother and sister. You know? (Small sigh) the help that we've gotten so far has been really wonderful, but we've got a long way to go. If we don't get more help, I'm .. I'm really afraid that I'm gonna have to drop out of school … find a job… and that's just gonna make things worse I think, because everybody knows that without a college degree you can't make much money. And if I have to drop out…I'm really afraid that I'm going to have to give up the children and I just.. I won't be able to make enough to support them.

Announcer

Just a look at the problems an accident can cause, even after the immediate shock and loss as people try to put their lives back together. This is news, from the personal side.

APPENDIX C

(Control group)

Instructions

Please listen to this audio recording. Just listen. That is, while the audio recording is playing, all that we want for you to do is simply sit and listen to what is being said in the audio recording. There are not other instructions to be given at this time.

APPENDIX D

(Experimental, empathy evoking group)

Instructions

While you are listening to this broadcast, *try to imagine how the person being interviewed feels about what has happened and how it has affected his or her life*. Try not to concern yourself with attending to all the information presented. Just concentrate on trying to imagine how the person interviewed in the broadcast feels.

APPENDIX E

READING THE MIND IN THE EYES TEST – REVISED

For each set of eyes, choose and circle which word best describes what the person in the picture is thinking or feeling. You may feel that more than one word is applicable but please choose just one word, the word which you consider to be most suitable. Before making your choice, make sure that you have read all 4 words. You should try to do the task as quickly as possible but you will not be timed. If you really don't know what a word means you can look it up in the definition handout.

Record Sheet

P	jealous	panicked	arrogant	hateful
1	playful	comforting	irritated	bored
2	terrified	upset	arrogant	annoyed
3	joking	flustered	desire	convinced
4	joking	insisting	amused	relaxed
5	irritated	sarcastic	worried	friendly
6	aghast	fantasizing	impatient	alarmed
7	apologetic	friendly	uneasy	dispirited
8	despondent	relieved	shy	excited
9	annoyed	hostile	horrified	preoccupied
10	cautious	insisting	bored	aghast
11	terrified	amused	regretful	flirtatious
12	indifferent	embarrassed	skeptical	dispirited
13	decisive	anticipating	threatening	shy

14	irritated	disappointed	depressed	accusing
15	contemplative	flustered	encouraging	amused
16	irritated	thoughtful	encouraging	sympathetic
17	doubtful	affectionate	playful	aghast
18	decisive	amused	aghast	bored
19	arrogant	grateful	sarcastic	tentative
20	dominant	friendly	guilty	horrified
21	embarrassed	fantasizing	confused	panicked
22	preoccupied	grateful	insisting	imploring
23	contented	apologetic	defiant	curious
24	pensive	irritated	excited	hostile
25	panicked	incredulous	despondent	interested
26	alarmed	shy	hostile	anxious
27	joking	cautious	arrogant	reassuring
28	interested	joking	affectionate	contented
29	impatient	aghast	irritated	reflective
30	grateful	flirtatious	hostile	disappointed
31	ashamed	confident	joking	dispirited
32	serious	ashamed	bewildered	alarmed
33	embarrassed	guilty	fantasizing	concerned
34	aghast	baffled	distrustful	terrified

| 35 | puzzled | nervous | insisting | contemplative |
| 36 | ashamed | nervous | suspicious | indecisive |

Practice

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

11.

12.

13.
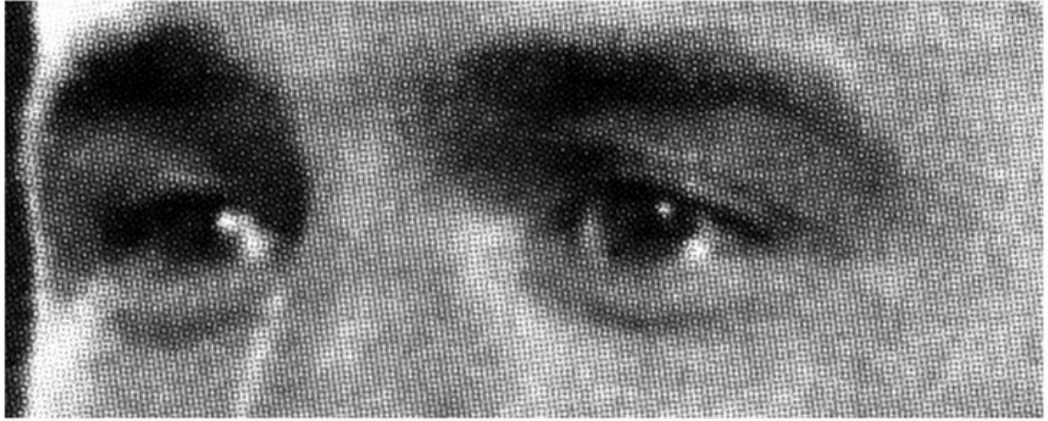
14.

15.

16.

17.

18.

19.

20.

21.

22.

23.

24.

25.
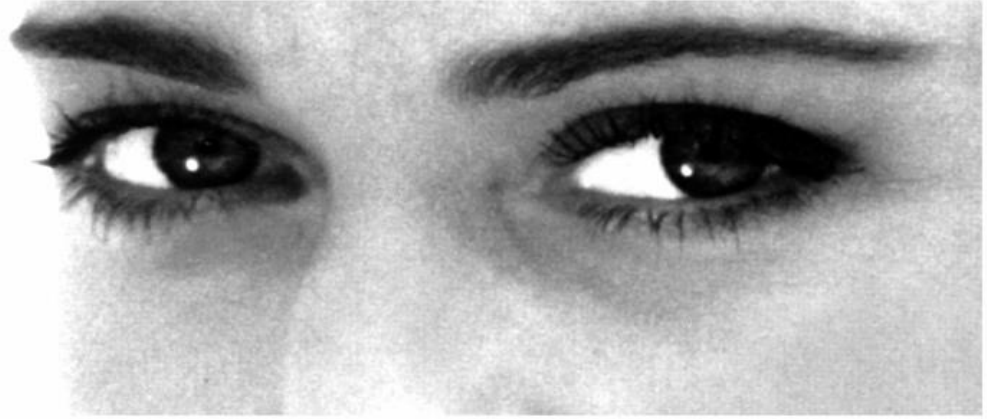
26.

27.

28.

29.

30.

31.

32.

33.

34.

35.

36.

Answers:
P – panicked
1. – playful
2. – upset
3. – desire
4. – insisting
5. – worried
6. – fantasizing
7. – uneasy
8. – despondent
9. – preoccupied
10. – cautious
11. – regretful
12. – skeptical
13. – anticipating
14. – accusing
15. – contemplative
16. – thoughtful
17. – doubtful
18. – decisive
19. – tentative
20. – friendly
21. – fantasizing
22. – preoccupied
23. – defiant
24. – pensive
25. – interested
26. – hostile
27. – cautious
28. – interested
29. – reflective
30. – flirtatious
31. – confident
32. – serious
33. – concerned
34. – distrustful
35. – nervous
36. – suspicious

APPENDIX F

INTERPERSONAL REACTIVITY INDEX

The following statements inquire about your thoughts and feelings in a variety of situations. For each item, indicate how well it describes you by choosing the appropriate letter on the scale at the top of the page: A, B, C, D, or E. When you have decided on your answer, fill in the letter on the answer sheet next to the item number. READ EACH ITEM CAREFULLY BEFORE RESPONDING. Answer as honestly as you can. Thank you.

ANSWER SCALE:

A	B	C	D	E
DOES NOT				DESCRIBES ME
DESCRIBE ME				VERY WELL
WELL				

1. I daydream and fantasize, with some regularity, about things that might happen to me. ____ (FS)

2. I often have tender, concerned feelings for people less fortunate than me. ____ (EC)

3. I sometimes find it difficult to see things from the "other guy's" point of view. ____ (PT) **RS**

4. Sometimes I don't feel very sorry for other people when they are having problems. ____ (EC) **RS**

5. I really get involved with the feelings of the characters in a novel. ____ (FS)

6. In emergency situations, I feel apprehensive and ill-at-ease. ____ (PD)

7. I am usually objective when I watch a movie or play, and I don't often get completely caught up in it. ____ (FS) **RS**

8. I try to look at everybody's side of a disagreement before I make a decision. ____ (PT)

9. When I see someone being taken advantage of, I feel kind of protective towards them. ____ (EC)

10. I sometimes feel helpless when I am in the middle of a very emotional situation. _____ (PD)

11. I sometimes try to understand my friends better by imagining how things look from their perspective. _____ (PT)

12. Becoming extremely involved in a good book or movie is somewhat rare for me. _____ (FS) **RS**

13. When I see someone get hurt, I tend to remain calm. _____ (PD) **RS**

14. Other people's misfortunes do not usually disturb me a great deal. _____ (EC) **RS**

15. If I'm sure I'm right about something, I don't waste much time listening to other people's arguments. _____ (PT) **RS**

16. After seeing a play or movie, I have felt as though I were one of the characters. _____ (FS)

17. Being in a tense emotional situation scares me. _____ (PD)

18. When I see someone being treated unfairly, I sometimes don't feel very much pity for them. _____ (EC) **RS**

19. I am usually pretty effective in dealing with emergencies. _____ (PD) **RS**

20. I am often quite touched by things that I see happen. _____ (EC)

21. I believe that there are two sides to every question and try to look at them both. _____ (PT)

22. I would describe myself as a pretty soft-hearted person. _____ (EC)

23. When I watch a good movie, I can very easily put myself in the place of a leading character. _____ (FS)

24. I tend to lose control during emergencies. _____ (PD)

25. When I'm upset at someone, I usually try to "put myself in his shoes" for a while. _____ (PT)

26. When I am reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me. _____ (FS)

27. When I see someone who badly needs help in an emergency, I go to pieces. _____ (PD)

28. Before criticizing somebody, I try to imagine how I would feel if I were in their place. ____ (PT)

TRAIT EMOTIONAL INTELLIGENCE QUESTIONNAIRE – SHORT FORM

Please answer each statement below by putting a circle around the number that best reflects your degree of agreement or disagreement with that statement. Do not think too long about the exact meaning of the statements. Work quickly and try to answer as accurately as possible. There are no right or wrong answers. There are seven possible responses to each statement ranging from 'Completely Disagree' (number 1) to 'Completely Agree' (number 7).

1 . . . . 2 . . . . 3 . . . . 4 . . . . 5 . . . . 6 7
Complete Disagree   **Completely Agree**

1. Expressing my emotions with words is not a problem for me.   1 2 3 4 5 6 7
(E)

2. I often find it difficult to see things from another person's viewpoint.   1 2 3 4 5 6 7
(E) **RS**

3. On the whole, I'm a highly motivated person.   1 2 3 4 5 6 7

4. I usually find it difficult to regulate my emotions.   1 2 3 4 5 6 7
(S-C) **RS**

5. I generally don't find life enjoyable.   1 2 3 4 5 6 7
(W) **RS**

6. I can deal effectively with people.   1 2 3 4 5 6 7
(S)

7. I tend to change my mind frequently.   1 2 3 4 5 6 7
(S-C) **RS**

8. Many times, I can't figure out what emotion I'm feeling.   1 2 3 4 5 6 7
(E) **RS**

9. I feel that I have a number of good qualities.   1 2 3 4 5 6 7
(W)

10. I often find it difficult to stand up for my rights.   1 2 3 4 5 6 7
(S) **RS**

11. I'm usually able to influence the way other people feel.   1 2 3 4 5 6 7
(S)

12. On the whole, I have a gloomy perspective on most things.   1 2 3 4 5 6 7
(W) **RS**

13. Those close to me often complain that I don't treat them right.   1 2 3 4 5 6 7
(E) **RS**

14. I often find it difficult to adjust my life according to the circumstances. 1 2 3 4 5 6 7
RS

15. On the whole, I'm able to deal with stress.   1 2 3 4 5 6 7
(S-C)

16. I often find it difficult to show my affection to those close to me.   1 2 3 4 5 6 7
(E) **RS**

17. I'm normally able to "get into someone's shoes" and experience their
emotions. (E)   1 2 3 4 5 6 7

18. I normally find it difficult to keep myself motivated.   1 2 3 4 5 6 7
RS

19. I'm usually able to find ways to control my emotions when I want to.   1 2 3 4 5 6 7
(S-C)

20. On the whole, I'm pleased with my life.   1 2 3 4 5 6 7
(W)

21. I would describe myself as a good negotiator.   1 2 3 4 5 6 7
(S)

22. I tend to get involved in things I later wish I could get out of.   1 2 3 4 5 6 7
(S-C) **RS**

23. I often pause and think about my feelings.   1 2 3 4 5 6 7
(E)

24. I believe I'm full of personal strengths.   1 2 3 4 5 6 7
(W)

25. I tend to "back down" even if I know I'm right.   1 2 3 4 5 6 7
(S) **RS**

26. I don't seem to have any power at all over other people's feelings.   1 2 3 4 5 6 7
(S) **RS**

27. I generally believe that things will work out fine in my life.   1 2 3 4 5 6 7
(W)

28. I find it difficult to bond well even with those close to me.   1 2 3 4 5 6 7
(E) **RS**

29. Generally, I'm able to adapt to new environments.   1 2 3 4 5 6 7

30. Others admire me for being relaxed.   1 2 3 4 5 6 7
(S-C)

APPENDIX H

LEVENSON SELF-REPORT PSYCHOPATHY SCALE (LSRP)

Please answer the following questions using the scale below:
1= Disagree strongly
2= Disagree somewhat
3= Agree somewhat
4= Agree strongly

Primary Psychopathy

_____ 1. Success is based on survival of the fittest; I am not concerned about
the losers.

_____ 2. For me, what's right is whatever I can get away with.

_____ 3. In today's world, I feel justified in doing anything I can get away with to
succeed.
_____ 4. My main purpose in life is getting as many goodies as I can.

_____ 5. Making a lot of money is my most important goal.

_____ 6. I let others worry about higher values; my main concern is with the
bottom line.

_____ 7. People who are stupid enough to get ripped off usually deserve it.

_____ 8. Looking out for myself is my top priority.

_____ 9. I tell other people what they want to hear so that they will do what I
want them to do.

_____ 10. I would be upset if my success came at someone else's expense. **RS**

_____ 11. I often admire a really clever scam.

_____ 12. I make a point of trying not to hurt others in pursuit of my goals. **RS**

_____ 13. I enjoy manipulating other people's feelings.

_____ 14. I feel bad if my words or actions cause someone to feel emotional pain. **RS**

_____ 15. Even if I were trying very hard to sell something, I wouldn't lie about it. **RS**
_____ 16. Cheating is not justified because it is unfair to others. **RS**

Secondary Psychopathy

_____ 1. I find myself in the same kinds of trouble, time after time.

_____ 2. I am often bored.

_____ 3. I find that I am able to pursue one goal for a long time. **RS**

_____ 4. I don't plan anything very far in advance.

_____ 5. I quickly lose interest in tasks I start.

_____ 6. Most of my problems are due to the fact that other people just don't understand me.

_____ 7. Before I do anything, I carefully consider the possible consequences. **RS**

_____ 8. I have been in a lot of shouting matches with other people.

_____ 9. When I get frustrated, I often "let off steam" by blowing my top.

_____ 10. Love is overrated.

RS denotes reverse score items

APPENDIX I

PSYCHOPATHIC PERSONALITY INVENTORY – REVISED

This test measures different personality characteristics- that is, the ways in which people's personality styles make them different from each other. Read each statement carefully and decide *how false or true* it is as a description of you. Then, mark the best choice that corresponds to your answer on this form. Use the answer choices provided as follows: **F = False(1), MF = Mostly False(2), MT = Mostly True(3), T = True(4)**. Even if you feel that a statement is neither false nor true about you, or if you are not sure which answer to choose, select the answer that is the *closest* to describing you. Try to be as honest as you can. Please be sure to give your *own* opinion about whether each statement is false or true about you. Remember, you have the right to leave any and/or all of the questions blank.

	1	**2**	**3**	**4**
1. If I really want to, I can persuade most people of almost anything. **(ME)**	F	MF	MT	T
2. When I meet people, I can often make them interested in me with just one smile. **(SOI)**	F	MF	MT	T
3. Dangerous activities like skydiving scare me more than they do most people. **RS (F)**	F	MF	MT	T
4. I have always seen myself as something of a rebel. **(RN)**	F	MF	MT	T
5. I hate having to tell people bad news. **RS (C)**	F	MF	MT	T
6. Sometimes I wake up feeling nervous without knowing why. **RS – S.I.**	F	MF	MT	T
7. I like to act first and think later. **(CN)**	F	MF	MT	T
8. Sometimes I forget my name. **(DR)**	F	MF	MT	T
9. At times, I worry that I have hurt the feelings of others. **RS (C)**	F	MF	MT	T

10. I am easily flustered in pressured situations. **RS – S.I.** F   MF   MT   T

11. I tell a lot of "white lies." **(ME)**   F   MF   MT   T

12. I would find the job of a movie stunt person exciting. **(F)** F   MF   MT   T

13. When my life gets boring, I like to take chances. **(F)**   F   MF   MT
    T

14. I've never cared about society's "values of right   F   MF   MT   T
    and wrong." **(RN)**

15. I might like to hang out with people who "drift" from   F   MF   MT   T
    city to city with no permanent home. **(RN)**

16. If I'd had fewer bad breaks in life, I'd be more   F   MF   MT   T
    successful. **(BE)**

17. It would bother me to cheat on a test even if no one   F   MF   MT   T
    was hurt by it. **RS (ME)**

18. A lot of people have tried to "stab me in the back." **(BE)** F   MF   MT   T

19. People's reactions to the things I do often are not what F   MF   MT   T
    I would expect. **(BE)**

20. On big holidays, I never eat more than I should. **(VR)**   F   MF   MT
    T

21. I find it hard to make small talk with people I don't   F   MF   MT   T
    know well. **RS (SOI)**

22. I'm not good at getting people to do favors for me. **RS (SOI)** F   MF   MT
    T

23. I get mad if I don't receive special favors I deserve. **(ME)** F   MF   MT   T

24. I am hardly ever the center of attention. **RS (SOI)**   F   MF   MT
    T

25. It might be exciting to be on a plane that was about   F   MF   MT   T
    to crash but somehow landed safely. **(F)**

26. I pride myself on being offbeat and different from   F   MF   MT   T
    others. **(RN)**

27. A lot of times, I worry when a friend is having personal problems. **RS (C)**   F   MF   MT   T

28. I tend to get crabby and irritable when I have too many things to do. **RS – S.I. (STI)**   F   MF   MT   T

29. A lot of times, I repeat the same bad decisions. **(CN)**   F   MF   MT   T

30. I think that it should be against the law to badly injure someone on purpose. **RS (DR)**   F   MF   MT   T

31. I get mad when I hear about the injustices in the world. **RS (C)**   F   MF   MT   T

32. I don't let everyday hassles get on my nerves. **S.I.**   F   MF   MT   T

33. I could be a good "con artist." **(ME)**   F   MF   MT   T

34. I have a talent for getting people to talk to me. **(SOI)**   F   MF   MT   T

35. I like (or would like) to play sports with a lot of physical contact. **(F)**   F   MF   MT   T

36. I might like to travel around the country with some motorcyclists and cause trouble. **(RN)**   F   MF   MT   T

37. I have never wished harm on someone else. **(VR)**   F   MF   MT   T

38. People usually give me the credit that I have coming to me. **RS(BE)**   F   MF   MT   T

39. If I want to, I can get people to do what I want without them ever knowing. **(ME)**   F   MF   MT   T

40. When I'm with people who do something wrong, I usually get the blame. **(BE)**   F   MF   MT   T

41. People are impressed with me after they first meet me. **(SOI)**   F   MF   MT   T

42. I have no bad habits. **(VR)**   F   MF   MT   T

43. In conversations, I'm the one who does most of the talking. **(SOI)**   F   MF   MT   T

44. I try to be the best at everything I do. **RS (CN)**   F   MF   MT   T

F(1) = False, MF(2) = Mostly False, MT(3) = Mostly True, T(4) = True

45. To be honest, I believe that I am more important   F   MF   MT   T
     than most people. **(ME)**

46. I feel sure of myself when I'm around other people. **(SOI)** F   MF   MT   T

47. Parachute jumping would really scare me. **RS (F)**   F   MF   MT   T

48. I'd like to spend my life writing poetry in a commune. **(RN)** F   MF   MT   T

49. I look out for myself before I look out for anyone else. **(C)** F   MF   MT   T

50. I am high-strung. **RS – S.I.**   F   MF   MT   T

51. When people lend me something, I try to get it back   F   MF   MT   T
     to them quickly. **RS (CN)**

52. Whenever I hear an airplane flying above me, I look   F   MF   MT   T
     down at the ground. **(DR)**

53. I often feel guilty about small things. **RS (C)**   F   MF   MT   T

54. When I'm in a frightening situation, I can "turn off"   F   MF   MT   T
     my fear almost at will. **S.I.**

55. I'll break a promise if it's too hard to keep (**ME**)   F   MF   MT   T

56. I like to stand out in a crowd. **(SOI)**   F   MF   MT   T

57. It would be fun to fly a small airplane by myself. **(F)**   F   MF   MT   T

58. I like to dress differently from other people. **(RN)**   F   MF   MT   T

59. Every once in a while, I nod my head when people   F   MF   MT   T
     speak to me even though I'm not paying attention
     to them. **RS (VR)**

60. People "rake me over the coals" for no good reason. **(BE)** F   MF   MT   T

61. In school or at work, I try to "stretch" the rules just   F   MF   MT   T
     to see what I can get away with. **(ME)**

62. I've often been betrayed by people I trusted. **(BE)**   F   MF   MT   T

63. The opposite sex finds me sexy and appealing.**(SOI)**   F   MF   MT   T

64. I have never pretended to know something I didn't know. **(VR)**   F   MF   MT   T

65. I have a hard time standing up for my rights. **RS (SOI)**   F   MF   MT   T

66. When a task gets too hard, I'll drop it and move on to something else. **(CN)**   F   MF   MT   T

67. I enjoy seeing someone I don't like get into trouble.**(ME)** F   MF   MT   T

68. I get embarrassed more easily than most people. **RS (SOI)** F   MF   MT   T

69. High places make me nervous. **RS (F)**   F   MF   MT   T

70. I get restless when my life gets too predictable.**(RN)**   F   MF   MT   T

71. It would break my heart to see a poor or homeless person walking the streets at night. **RS (C)**   F   MF   MT   T

72. Some people say that I am a "worry wart." **RS – S.I.**   F   MF   MT   T

73. I like having my vacations planned out. **RS (CN)**   F   MF   MT   T

74. I smile at a funny joke at least once in a while. **RS (DR)** F   MF   MT   T

75. It bothers me a lot when I see someone crying. **RS (C)**   F   MF   MT   T

76. I get stressed out when I'm "juggling" too many tasks. F   MF   MT   T
    RS – S.I.

77. I like to (or would like to) wear expensive and "showy" clothing. (**ME)**   F   MF   MT   T

78. It's easy for me to go up to a stranger and introduce myself.**(SOI)**   F   MF   MT   T

79. I would not like to be a race-car driver. **RS(F)**   F   MF   MT   T

80. I don't care about following the "rules"; I make my   F   MF   MT   T

own rules as I go along. **(RN)**

F(1) = False, MF(2) = Mostly False, MT(3) = Mostly True, T(4) = True

81. I never give an opinion unless I've thought it over carefully. **(VR)**   F   MF   MT   T

82. Few people in my life have taken advantage of me. **RS(BE)**   F   MF   MT   T

83. I don't take advantage of people even when it would be good for me. **RS (ME)**   F   MF   MT   T

84. I've been the victim of a lot of bad luck. **(BE)**   F   MF   MT   T

85. When people are mad at me, I usually win them over with my charm. **(SOI)**   F   MF   MT   T

86. I sometimes put off unpleasant tasks. **RS (VR)**   F   MF   MT   T

87. I'm hardly ever the "life of the party." **RS (SOI)**   F   MF   MT   T

88. I am careful when I do work that involves detail. **RS (CN)** F   MF   MT   T

89. I've thought a lot about my long-term career goals. **RS (CN)** F   MF   MT   T

90. Some people have gone out of their way to make my life difficult. **(BE)**   F   MF   MT   T

91. I would make a good actor. **(SOI)**   F   MF   MT   T

92. I sometimes lie just to see if I can get someone to believe me. **(ME)**   F   MF   MT   T

93. I agree with the motto, "If you are bored with life, risk it." **(F)**   F   MF   MT   T

94. If I had grown up during the 1960s, I would have been a "hippie." **(RN)**   F   MF   MT   T

95. I can honestly say that I've never met anyone I disliked. **(VR)**   F   MF   MT   T

96. I function well under stress. **S.I.**   F   MF   MT   T

97. I feel bad about myself after I tell a lie. **RS (C)**   F   MF   MT   T

98. I get deeply attached to people I like. **RS (C)**   F   MF   MT   T

F(1) = False, MF(2) = Mostly False, MT(3) = Mostly True, T(4) = True

99. People who know me well know they can depend   F   MF   MT   T
    and rely on me. **RS(CN)**

100. I feel that life has treated me fairly. **RS(BE)**   F   MF   MT
    T

101. If I do something that gets me in trouble, I don't   F   MF   MT   T
    do it again. **RS(CN)**

102. I frequently have disturbing thoughts that become   F   MF   MT   T
    so powerful that I think I can hear claps of thunder
    or crashes of cymbals inside my head. **(DR)**

103. I have to admit that I'm a bit of a materialist. **(ME)**   F   MF   MT   T

104. I like my life to be unpredictable and surprising. **(RN)** F   MF   MT   T

105. I like to poke fun at established traditions.**(RN)**   F   MF   MT   T

106. I occasionally feel like giving up on difficult tasks.   F   MF   MT   T
    RS(VR)

107. When I'm stressed, I often see big, red, rectangular   F   MF   MT   T
    shapes moving in front of my eyes. **(DR)**

108. I push myself as hard as I can when I'm working. **RS(CN)** F   MF   MT   T

109. I get very upset when I see photographs of starving   F   MF   MT   T
    people. **RS(C)**

110. Ending a friendship is (or would be) very painful   F   MF   MT   T
    for me. **RS(C)**

111. I haven't thought much about what I want to do   F   MF   MT   T
    with my life. **(CN)**

112. I'm sure some people would be pleased to see me   F   MF   MT   T
    fail in my life. **(BE)**

123

113. I hardly ever end up being the leader of a group. **RS(SOI)** F   MF   MT   T

114. I often lose patience with people when I have to   F   MF   MT   T
keep explaining things. **(ME)**

F(1) = False, MF(2) = Mostly False, MT(3) = Mostly True, T(4) = True

115. I might like flying across the ocean in a hot-air   F   MF   MT   T
balloon. **(F)**

116. Many people see my political beliefs as "radical." **(RN)**F   MF   MT   T

117. I occasionally feel annoyed at people. **RS(VR)**   F   MF   MT   T

118. I don't get nervous under pressure. **S.I.**   F   MF   MT   T

119. I worry about things even when there's no reason to.   F   MF   MT   T
RS – S.I.

120. I do favors for people even when I know I won't   F   MF   MT   T
see them again. **RS(C)**

121. When I am doing something important, like taking   F   MF   MT   T
a test or doing my taxes, I check it over first. **RS(CN)**

122. People I thought were my "friends" have gotten   F   MF   MT   T
me into trouble. **(BE)**

123. I often put off doing fun things so I can finish my   F   MF   MT   T
work. **RS(CN)**

124. When an important person is talking to me, I usually   F   MF   MT   T
try to pay attention. **RS(DR)**

125. How much I like someone really depends on how   F   MF   MT   T
much that person does for me.**(ME)**

126. Sometimes I do dangerous things on a dare. **(F)**   F   MF   MT   T

127. Keeping the same job for most of my life would   F   MF   MT   T
be dull. **(RN)**

128. I occasionally have bad thoughts about people who   F   MF   MT   T
hurt my feelings. **RS(VR)**

129. When a friend says hello to me, I generally either wave or say something back. **RS(DR)**   F   MF   MT   T

130. I think long and hard before I make big decisions. **RS(CN)** F   MF   MT   T

F(1) = False, MF(2) = Mostly False, MT(3) = Mostly True, T(4) = True

131. When someone is hurt by something I say or do, that's their problem.**(C)**   F   MF   MT   T

132. I tell people only the part of the truth they want to hear.**(ME)**   F   MF   MT   T

133. I've learned from my big mistakes in life. **RS(CN)**   F   MF   MT   T

134. I get blamed for many things that aren't my fault.**(BE)**   F   MF   MT   T

135. It bothers me to talk in front of a big group of strangers. **RS(SOI)**   F   MF   MT   T

136. I quickly get annoyed with people who do not give me what I want. **(ME)**   F   MF   MT   T

137. If I were a firefighter, I would like the thrill of saving someone from the top of a burning building.**(F)**   F   MF   MT   T

138. I would like to have a "wild" hairstyle. **(RN)**   F   MF   MT   T

139. Even when I'm busy, I never have second thoughts about helping people who ask for favors. **(VR)**   F   MF   MT   T

140. I can remain calm in situations that would make many other people panic. **S.I.**   F   MF   MT   T

141. I'm the kind of person who gets "stressed out" pretty easily. **RS – S.I.**   F   MF   MT   T

142. I cringe when an athlete gets badly injured during a game on TV. **RS(C)**   F   MF   MT   T

143. I usually think about what I'm going to say before   F   MF   MT   T

I say it. **RS(CN)**

144. Some people have made up stories about me to get   F   MF   MT   T
me in trouble. **(BE)**

145. I watch my finances closely. **RS(CN)**   F   MF   MT   T

146. During the day, I see the world in color rather   F   MF   MT   T
than in black-and-white. **RS(DR)**

F(1) = False, MF(2) = Mostly False, MT(3) = Mostly True, T(4) = True

147. To be honest, I try not to help people unless   F   MF   MT   T
there's something in it for me.**(ME)**

148. I am a daredevil. **(F)**   F   MF   MT   T

149. I would like to hitchhike across the country with   F   MF   MT   T
no plans.**(RN)**

150. I have never exaggerated a story to make it sound   F   MF   MT   T
more interesting. **(VR)**

151. Sometimes I go for several days at a time not   F   MF   MT   T
knowing if I'm awake or asleep. **(DR)**

152. I try to use my best manners when I'm around   F   MF   MT   T
other people. **RS(CN)**

153. I often place my friends' needs above my own. **RS(C)** F   MF   MT   T

154. If I can't change the rules, I try to get others to   F   MF   MT   T
bend them for me. **(ME)**

RS denotes reverse score items.
S.I. denotes Stress Immunity Scale items that will be removed upon scoring

APPENDIX J

STATE-TRAIT ANXIETY INVENTORY

A number of statements which people have used to describe themselves are given below. Read each statement and then circle the appropriate value to the right of the statement to indicate how you *generally* feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel. Remember, you have the right to leave any and/or all of the questions blank.

	Almost Never	Sometimes	Often	Almost Always
1. I feel pleasant **RS**	1	2	3	4
2. I feel nervous and restless	1	2	3	4
3. I feel satisfied with myself **RS**	1	2	3	4
4. I wish I could be as happy as others seem to be	1	2	3	4
5. I feel like a failure	1	2	3	4
6. I feel rested **RS**	1	2	3	4
7. I am "calm, cool, and collected" **RS**	1	2	3	4
8. I feel that difficulties are piling up so that I cannot overcome them	1	2	3	4
9. I worry too much over something that really doesn't matter	1	2	3	4
10. I am happy **RS**	1	2	3	4
11. I have disturbing thoughts	1	2	3	4

12. I lack self-confidence	1	2	3	4
13. I feel secure **RS**	1	2	3	4
14. I make decisions easily **RS**	1	2	3	4
15. I feel inadequate	1	2	3	4
16. I am content **RS**	1	2	3	4
17. Some unimportant thought runs through my mind and bothers me	1	2	3	4
18. I take disappointments so keenly that I can't put them out of my mind	1	2	3	4
19. I am a steady person **RS**	1	2	3	4
20. I get in a state of tension or turmoil as I think over my recent concerns and interests	1	2	3	4

RS denotes reverse score items.

APPENDIX K

BALANCED INVENTORY OF DESIRABLE RESPONDING

Using the scale of 1 to 7 below, write a number beside each statement to indicate how much you agree with it. Remember, you have the right to leave any and/or all of the questions blank.

Strongly_____Strongly
Disagree   Agree
1   2   3   4   5   6   7

Self-Deceptive Enhancement Scale

_____ 1. My first impressions of people usually turn out to be right.

_____ 2. It would be hard for me to break any of my bad habits. **RS**

_____ 3. I don't care to know what people really think of me.

_____ 4. I have not always been honest with myself. **RS**

_____ 5. I always know why I like things.

_____ 6. When my emotions are aroused, it biases my thinking. **RS**

_____ 7. Once I've made up my mind, other people can seldom change my opinion.

_____ 8. I am not a safe driver when I exceed the speed limit. **RS**

_____ 9. I am fully in control of my own fate.

_____ 10. It's hard for me to shut off a disturbing thought. **RS**

_____ 11. I never regret my decisions.

_____ 12. I sometimes lose out on things because I can't make up my mind soon enough. **RS**

_____ 13. The reason I vote is because my vote can make a difference

_____ 14. My parents were not always fair when they punished me. **RS**

_____ 15. I am a completely rational person.

_____ 16. I rarely appreciate criticism. **RS**

_____ 17. I am very confident of my judgments.

_____ 18. I have sometimes doubted my ability as a lover. **RS**

_____ 19. It's all right with me if some people happen to dislike me.

_____ 20. I don't always know the reasons why I like to do things. **RS**

Impression Management Scale

_____ 21. I sometimes tell lies if I have to. **RS**

_____ 22. I never cover up my mistakes.

_____ 23. There have been occasions when I have taken advantage of someone. **RS**

_____ 24. I never swear.

_____ 25. I sometimes try to get even rather than forgive and forget. **RS**

_____ 26. I always obey laws, even if I'm unlikely to get caught.

_____ 27. I have said something bad about a friend behind his or her back. **RS**

_____ 28. When I hear people talking privately, I avoid listening.

_____ 29. I have received too much change from a salesperson without telling him or her. **RS**

_____ 30. I always declare everything at customs.

_____ 31. When I was young I sometimes stole things. **RS**

_____ 32. I have never dropped litter on the street.

_____ 33. I sometimes drive faster than the speed limit. **RS**

_____ 34. I never read sexy books or magazines.

130

_____ 35. I have done things that I don't tell other people about. **RS**

_____ 36. I never take things that don't belong to me.

_____ 37. I have taken sick-leave from work or school even though I wasn't really sick.
RS

_____ 38. I have never damaged a library book or stole merchandise without reporting it.

_____ 39. I have some pretty awful habits. **RS**

_____ 40. I don't gossip about other people's business.

RS denotes reverse score items (Award 1 point for each "6" or "7" responses and 0 points for any other response)

APPENDIX L

DEMOGRAPHIC DATA SHEET

Please take a few moments to complete the demographic information on this page and then proceed in completing the remainder of the assessment packet in the order in which the questionnaires are presented.

Participant Number_____

Age: _____

Gender: Male   Female

Ethnicity: _____

Year in School: Freshman   Sophomore   Junior   Senior

APPENDIX M

WORD SEARCH PUZZLE

Astronomy

Find and circle all of the Astronomy related words that are hidden in the grid.
The remaining letters spell a secret message.

```
T  H  T  F  A  R  C  E  C  A  P  S  P  E  L  F  A  I  R  S
O  R  B  I  T  S  R  T  S  P  M  E  M  I  E  V  R  E  S  O
N  T  O  D  S  P  S  A  E  A  R  I  G  O  O  T  I  Q  H  R
S  S  F  I  R  A  U  O  T  I  T  H  L  N  O  R  O  U  E  E
R  O  T  O  E  C  N  E  G  S  T  E  R  K  U  N  B  I  C  D
A  L  E  R  M  E  O  E  P  Y  Y  E  L  A  Y  B  O  N  A  G
S  A  C  E  O  S  E  N  E  O  P  R  T  L  L  W  N  O  P  I
L  R  L  T  N  H  T  A  S  U  C  N  A  E  I  S  A  X  S  A
U  W  I  S  O  U  R  R  S  T  E  S  F  N  O  T  M  Y  P  N
P  I  P  A  R  T  A  H  E  C  E  R  E  L  I  M  E  A  E  T
O  N  S  P  T  T  O  N  A  G  A  L  A  L  W  B  T  U  E  G
A  D  E  O  S  L  A  M  A  W  S  R  L  Y  E  S  E  R  D  A
L  R  D  G  A  E  I  L  D  R  S  A  E  A  T  T  O  O  N  L
U  E  I  E  X  A  E  A  Y  I  L  N  L  T  I  R  R  C  I
B  T  T  E  O  X  T  S  S  I  R  A  L  O  P  I  V  A  E  L
E  A  A  R  I  I  A  T  M  O  S  P  H  E  R  E  O  A  S  E
N  R  P  E  H  U  E  L  O  H  K  C  A  L  B  O  K  N  R  O
R  C  S  W  Q  M  M  U  N  I  V  E  R  S  E  S  C  T  A  G
A  N  D  R  O  M  E  D  A  G  A  L  A  X  Y  R  O  N  P  G
```

ANDROMEDA GALAXY	DEEP SPACE	MOON	SOLAR SYSTEM
APOGEE	ECLIPSE	NEBULA	SOLAR WIND
ASTEROID	EQUINOX	ORBIT	SPACE SHUTTLE
ASTRONOMER	GALAXIES	PARSEC	SPACECRAFT
ATMOSPHERE	GALILEO	PERIGEE	STARS
AURORA	GRAVITY	POLARIS	SUN
BINARY STAR	HUBBLE	PROXIMA CENTAURI	SUPERNOVA
BLACK HOLE	KEPLER	PULSARS	TELESCOPE
CONSTELLATION	LIGHT YEAR	QUASARS	TIDES
CORONA	METEOR	RED GIANT	UNIVERSE
CRATER	MILKY WAY	SATELLITE	WHITE DWARF

133