Andrews University

Digital Commons @ Andrews University

Dissertations

Graduate Research

2017

Emotional Intelligence And Decision-Making As Predictors Of Antisocial Behavior

Melina Sample

Andrews University, sample@andrews.edu

Follow this and additional works at: <https://digitalcommons.andrews.edu/dissertations>

Part of the [Social and Behavioral Sciences Commons](#)

Recommended Citation

Sample, Melina, "Emotional Intelligence And Decision-Making As Predictors Of Antisocial Behavior" (2017). *Dissertations*. 1632.

<https://digitalcommons.andrews.edu/dissertations/1632>

<https://dx.doi.org/10.32597/dissertations/1632>

This Dissertation is brought to you for free and open access by the Graduate Research at Digital Commons @ Andrews University. It has been accepted for inclusion in Dissertations by an authorized administrator of Digital Commons @ Andrews University. For more information, please contact repository@andrews.edu.

ABSTRACT

EMOTIONAL INTELLIGENCE AND DECISION-MAKING
AS PREDICTORS OF ANTISOCIAL BEHAVIOR

by

Melina Marie Sample

Chair: Carole Woolford-Hunt

ABSTRACT OF GRADUATE STUDENT RESEARCH

Dissertation

Andrews University

School of Education

Title: EMOTIONAL INTELLIGENCE AND DECISION-MAKING AS PREDICTORS
OF ANTISOCIAL BEHAVIOR

Name of researcher: Melina Marie Sample

Name and degree of faculty chair: Carole Woolford-Hunt, Ph.D.

Date completed: June 2017

Problem

Antisocial behaviors in the general population are not well understood and little studied, however, their acceptance is becoming more normalized and accepted by society. This present study intended to focus on the contributing factors of emotional intelligence and decision-making to the presence of antisocial behaviors, and how these contributions vary by gender.

Method

This study used the Levenson Self-Report Psychopathy Scale, the Trait Emotional Intelligence Questionnaire – Short Form, and the General Decision Making Style Inventory to explore the relationships between the three variables. A structural equation

model was developed to examine the theoretical covariance matrix proposed in comparison to the empirical covariance matrix developed from collected data. Four hundred and thirteen adults in the United States general population were used for this study.

Results

The original structural equation model suggested a poor fit with the collected data. The revised model included additional paths based on theory found in the literature. The revised model showed an excellent fit with the data. A strong correlation between emotional intelligence and decision-making was indicated. Emotional intelligence had a high, significant impact on both Primary and Secondary Psychopathy (SEC). Decision-making had a low, but significant impact on SEC. The adjusted model accounted for 69% of the variance of Primary Psychopathy (PRI) and 68% of variance for SEC. The revised model was also assessed to examine differences between males and females. The revised model achieved an acceptable fit for males, and a superior fit for females, indicating no gender differences for the proposed model.

Conclusions

This hypothesized theoretical model was supported by the findings from this study. The contribution of emotional intelligence and decision-making to antisocial behaviors was validated through statistical significance. Findings indicated some minor variations according to gender. These findings have implications for the field of counseling psychology, as well as society's understanding and acceptance of antisocial behaviors in the general population.

Andrews University

School of Education

EMOTIONAL INTELLIGENCE AND DECISION-MAKING
AS PREDICTORS OF ANTISOCIAL BEHAVIOR

A Dissertation

Presented in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

by

Melina M. Sample

June 2017

© Copyright by Melina M. Sample 2017
All Rights Reserved

EMOTIONAL INTELLIGENCE AND DECISION-MAKING
AS PREDICTORS OF ANTISOCIAL BEHAVIOR

A dissertation
presented in partial fulfillment
of the requirements for the degree
Doctor of Philosophy

by

Melina Marie Sample

APPROVAL BY THE COMMITTEE:

Chair: Carole Woolford-Hunt

Dean, School of Education
Robson Marinho

Member: Elvin Gabriel

Member: Tevni Grajales

External: Lionel Matthews

Date approved

Anything's possible if you've got enough nerve.

-J. K. Rowling

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS	viii
LIST OF TABLES	viii
LIST OF ABBREVIATIONS	ix
ACKNOWLEDGMENTS.....	xi
Chapter	
1. INTRODUCTION	1
Background	1
Rationale for the Study.....	7
Statement of the Problem	8
Purpose of the Study	11
Conceptual Framework	11
Conceptualization of Antisocial Behavior	12
Conceptualization of Emotional Intelligence.....	16
The Relationship Between Emotional Intelligence and Antisocial Behavior	19
Impact of Gender on Emotional Intelligence	23
A Conceptualization of Decision-Making	24
The Relationship Between Decision-Making and Antisocial Behavior	26
Impact of Gender on Decision-Making Styles.....	27
Conceptualizations Applied to the Present Study	27
Research Questions	28
Significance of the Study	28
Definition of Terms	29
Limitations	31
Delimitations	31
Organization of the Study	32
2. LITERATURE REVIEW	33
Purpose of Literature Review	33
Sources for Material Included	34
Overview of Literature Review	35
A Conceptual Definition of Antisocial Behavior	35
Causes and Treatment of Antisocial Behavior	38

Genetic Contributions	38
Neurological Factors	41
Physiological Factors	45
Familial Resemblance	47
Gender Differences	49
Other Factors Related to Antisocial Behavior	53
Demographics	53
Immigration Status.....	54
Self-Esteem.....	54
Social Anxiety	56
Technology	59
Treatment	65
Theories of Antisocial Behavior.....	72
Social Learning Theory	72
Social Control (Social Bond) Theory	75
General Theory of Crime	78
Temperament-Based Theory	79
Development of Emotional Intelligence	80
Familial Influences	82
Neurological Factors	85
Gender Differences	85
Theories of Emotional Intelligence	86
Ability Measures	86
Mayer-Salovey Four Branch Model	87
Bar-On Model	88
Goleman Model.....	88
Trait Measures.....	89
Emotional Intelligence and Antisocial Behavior as Correlates	91
Aspects of Decision-Making	94
Motivation	94
Neurological Factors	95
Decision-Making Styles	97
Story-Telling	100
Impaired Decision-Making	102
Gender Differences	102
Theories of Decision-Making.....	103
Naturalistic Decision-Making Theory	103
Neuroeconomic Theory	104
Decision-Making and Antisocial Behavior as Correlates.....	106
Emotional Intelligence & Decision-Making.....	109
Antisocial Behavior, Emotional Intelligence, & Decision-Making.....	110
Summary	112
 3. METHODOLOGY.....	 113
Introduction	113
Research Questions	113

Research Design.....	113
Population and Sample.....	115
Research Hypothesis	116
Definition of Variables.....	116
Independent Variables.....	116
Dependent Variable.....	118
Instrumentation	118
Levenson Self-Report Psychopathy Scale.....	118
Trait Emotional Intelligence Questionnaire, Short Form	120
General Decision Making Style	120
Procedure	122
Treatment of Data	122
Data Analysis	123
Summary	123
 4. RESULTS OF THE STUDY	 125
Introduction.....	125
Demographic Characteristics	125
Description of the Variables.....	126
Hypothesis Testing.....	129
Structural Model.....	129
Respecified Structural Model.....	131
Respecification by Gender	132
Males.....	132
Females	134
Analysis of the Models.....	135
Males.....	136
Females	137
Summary of the Findings	138
 5. SUMMARY, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS	 139
Introduction.....	139
Research Problem.....	139
Research Hypothesis	141
Purpose of the Study	141
Overview of the Literature	142
Research Method.....	143
Significance of the Study	144
Discussion of the Findings	145
Research Question 1.....	145
Emotional Intelligence & Antisocial Behavior.....	146
Decision-Making & Antisocial Behavior.....	150
Avoidant Decision-Making	151

Spontaneous Decision-Making.....	153
Emotional Intelligence & Decision-Making.....	153
Other Findings.....	154
Research Question 2.....	155
Implications of the Study	157
Suggestions for Future Research.....	161

Appendix

A. INFORMED CONSENT AND RESEARCH INSTRUMENT.....	164
B. DEFINITION OF VARIABLES	170
C. STATISTICAL OUTPUTS.....	174
REFERENCES.....	184
VITA	226

LIST OF ILLUSTRATIONS

1.	Conceptualized Model of the Predictive Relationships of Antisocial Behavior	28, 117
2.	Respecified Model	133
3.	Respecified Model: Males.....	134
4.	Respecified Model: Females	135

LIST OF TABLES

1.	Reliability for Antisocial Behavior, Emotional Intelligence, and Decision-Making.....	121
2.	Respondents' Demographic Statistics	127
3.	Respondents' Descriptive Statistics	128
4.	Correlation Matrix of Variables	130
5.	Chi Square and Goodness of Fit for Models	133

LIST OF ABBREVIATIONS

ADA	Adaptive Decision-Making Styles
AMOS	Analysis of a Moment Structures
ASPD	Antisocial Personality Disorder
AVO	Avoidant Decision-Making Style
CBT	Cognitive Behavioral Therapy
CD	Conduct Disorder
CFI	Comparative Fit Index
COMT	Catechol-O-Methyl Transferase
DEP	Dependent Decision-Making Styles
EI	Emotional Intelligence
EMO	Emotionality
EQ-i	Emotional Quotient Inventory
GDMS	General Decision Making Style Inventory
GFI	Goodness-of-Fit Index
INT	Intuitive Decision-Making Style
LSRP	Levenson Self-Report Psychopathy Scale
MAOA	Monoamine Oxidase A
MAL	Maladaptive Decision-Making Styles
MSCEIT	Mayer-Salovey-Caruso Emotional Intelligence Test
NFI	Normed Fit Index

PCL-R	Hare Psychopathy Checklist-Revised
PRI	Primary Psychopathy
RAT	Rational Decision-Making Style
RMSEA	Root Mean Square Error of Approximation
SAD	Social Anxiety Disorder
SCN	Self-Control (as it pertains to instrumentation and results)
SEC	Secondary Psychopathy
SEI	Self-Reported Emotional Intelligence
SOC	Sociability
SPO	Spontaneous Decision-Making Style
SPSS	Statistical Package for Social Sciences
TEIQUE	Trait Emotional Intelligence Questionnaire
TEIQUE-SF	Trait Emotional Intelligence Questionnaire-Short Form
WBE	Wellbeing (as it pertains to instrumentation and results)

ACKNOWLEDGMENTS

The process of writing this dissertation was filled with many unexpected obstacles at every length of the journey, and its completion would have been much more difficult without support. First, I would like to thank my husband Erik for providing me with the opportunity to complete this degree. I know I have changed a lot since beginning this whole process, and I am thankful you have stuck with me through it all.

I am also thankful to my committee for always being available and providing encouragement. Dr. Woolford-Hunt, thank you for your faith in my capabilities, for assisting me in further developing concepts and ideas, and for helping me stay excited about my topic through the end. Dr. Grajales, thank you for always being available and taking as much time as needed to help ease my concerns. Dr. Gabriel, I would not have been able to graduate on time without your help, and for that I am truly grateful. Thank you for always trusting that I would make it through, and for helping to ease my anxieties when unexpected issues arose.

A special thank you to Dr. Montagano and Dr. Bailey for taking time to help me with this project simply out of the kindness of their hearts. Dr. Montagano, your feedback helped me further develop my writing into something of which I can be proud, and your sense of humor and encouragement helped me find renewed strength when I was feeling frustrated with this process. Dr. Bailey, thank you for taking the time to review my work and challenge my statistical knowledge. I was able to gain more

understanding by being confronted about all the things I did not know or could not answer.

I would also like to acknowledge the support of my friends and fellow students. Your words of encouragement helped me gain confidence and see this through to the end. In this field, a listening ear is always available, and being among colleagues who are empathic, open-minded, and encouraging is truly the best!

CHAPTER 1

INTRODUCTION

Background

Antisocial behaviors occur when an individual engages in disruptive acts directed toward another person. The acts may be performed openly, such as bullying, vandalism or physical violence, or may be covert, such as lying, noncompliance, or secretly acting out toward another aggressively. Many individuals engage in antisocial behaviors at some point in their lives, but, in the general population, the behaviors generally do not persist for a great length of time (Moffitt, 1993).

Records of antisocial behaviors have been documented since ancient Greece, generally portrayed through the concept of the “psychopath”. In Greek mythology, many stories depict individuals who are seemingly ambivalent about the feelings of others, including Ares, the god of war, Hades, god of the underworld, Medea, a woman who killed numerous individuals after feeling betrayed, and Procrustes, a man who used his iron bed to torture weary travelers. Procrustes is also present in Norse mythology as Loki, the mischief-maker, who is referred to as “insane” by his father and an “evil creature” by his brother, Thor (Larrington, 1999).

One of the earliest individuals to write about the antisocial nature of man was Theophrastus, a student of Aristotle. He was among the first to study personality. His

interest in this subject came about when he began to ponder a very perplexing question regarding mankind: “Why it has come about that, albeit the whole of Greece lies in the same clime, and all Greeks have a like upbringing, we have not the same constitution of character?” (Barondes, 2011, p. 28). In response to this puzzling question, Theophrastus began studying the individual personality traits in men, and compiled a book of his results titled *The Character of Theophrastus*. Theophrastus depicts “The Shameless” individual by stating, “the union of avarice and audacity produces a total disregard of decency and reputation.” He describes this individual as “a man [who] is not ashamed to ask a loan of one whom he has just defrauded” (p. 29). The individual discussed is one who took advantage of his neighbors for personal gain without giving any thought to the moral or legal repercussions of his actions, or the feelings and rights of others (Tamatea, 2011).

Around the year 1801, Phillipe Pinel coined the term “psychopathy” after he began noticing that some of his patients were more impulsive and violent than others while, at the same time, also aware of their actions. These individuals did not qualify for what today would be known as a diagnosis of psychosis, and their reasoning abilities seemed to be well intact. Pinel claimed that these men were suffering from what he called *manie sans délire*, or insanity without delirium (Arrigo & Shipley, 2001). In the early 1800s, Benjamin Rush further extended Pinel’s ideas by stating that the cause of mental illness might be due to a birth defect or disease (Millon, Simonsen, & Birket-Smith, 1998). He assumed, “there is probably an original defective organization in those parts of the body which are preoccupied by the moral faculties of the mind” (p. 112).

Although Rush believed that this defect, or lack of morality, was biological, he also felt that the condition was worsened in those who came from unstable environments.

In 1835, J.C. Prichard used the term *moral insanity* to identify those who exhibited chronic antisocial behaviors, describing this individual as “a moral perversion of the natural feelings, affections, inclinations, temper, habits, moral dispositions, and natural impulses, without any remarkable disorder or defect of the intellect or knowing and reasoning faculties, and particularly without any insane illusion or hallucination” (Arrigo & Shipley, 2001, p. 330). Prichard believed there was such a defect or deficit in the personality of these individuals and that they deserved to be punished socially (Augstein, 1996). As there was evidence that those afflicted with moral insanity were aware of their actions and knew that their offenses were wrong or illegal, Prichard asserted they should be held responsible for their behavior.

In *The Mask of Sanity* (1941; 2005), Hervey Cleckley extended the idea of psychopathic behavior to the everyday world, highlighting depictions of what this individual looks like as a businessman, a man of the world, a gentleman, a scientist, a physician, or a psychiatrist. Cleckley did not see this type of behavior as something that is innate in an individual, but rather as something learned, or, perhaps not learned, in that the conscience of these beings seems to be devoid of any moral feelings. He noted that many psychopathic individuals are not necessarily criminals or involved with the legal system; a large amount function well enough to become successful in numerous careers. According to Cleckley, “The true difference between them and the psychopaths who continually go to jails or psychiatric hospitals is that they keep up a far better and more consistent outward appearance of being normal” (pp.198-199).

One of the most well-known individuals who has had a more current influence in this area is Robert Hare, who has contributed significantly to the assessment of Antisocial Personality Disorder (ASPD), as well as the current ASPD diagnosis in the *Diagnostic and Statistical Manual-5* (2013). The diagnosis relies heavily on behavioral criteria, and focuses on antisocial behavior. Hare felt the emphasis on behavior did not measure psychopathy very accurately, and so devised the Psychopathy Checklist (PCL, PCL-R) (Arrigo & Shipley, 2001). Similar to Cleckley's assertion, in *Without Conscience: The Disturbing World of Psychopaths Among Us* (1993), Hare emphasizes the fact that although the majority of individuals with ASPD characteristics or traits can be found within the prison system, many are still a part of the general population. These individuals could be a parent, a spouse, a child, or a co-worker: in general, any individual who makes life exceedingly difficult.

According to Meloy (2007), an individual who qualifies for a diagnosis of ASPD most likely lacks the ability to experience emotions such as pleasure, gratitude, empathy, sympathy, remorse, or any feelings that enables him or her to relate to others. Most of the feelings this person would experience include anger, pleasure through dominance, and sensitivities to humiliation, envy, boredom, and contempt. It follows, then, that an individual who engages in repeated antisocial behaviors, even though he or she may not qualify for the ASPD diagnosis, would likely experience emotions in a similar, although less intense, manner.

In the average individual, emotions will arise after a particular occurrence is deemed meaningful and interpreted in either a positive or negative manner. Salovey and Mayer (1990) were the first to offer a definition for emotional intelligence (EI), a concept

that stemmed from the idea that different types of intelligence exist. Salovey and Mayer saw EI as a type of social intelligence, defining it as “the ability to monitor one’s own and others’ feelings and emotions, to discriminate among them and to use this information to guide one’s thinking and actions.” (p. 189). Salovey and Mayer also noted that deficits in EI might lead to a number of adjustment issues. A person who cannot regulate his or her emotions well or understand the emotions of others may have difficulty in social situations. The individual may also have difficulty planning an emotionally fulfilling lifestyle, which might lead to depression. The authors also point out that sociopaths, who are understood to be devoid of most emotional experiences, tend to “over-regulate mood in others for their own purposes” (p. 201). Hsieh and Chen (2017) performed a study that found that undergraduate students who were better able to regulate their emotions participated in fewer aggressive behaviors than those who did not regulate emotion well. In addition, some research suggests those who have high levels of emotional awareness can adopt adaptive behaviors when they experience negative emotion states (Gohm & Clore, 2002; Robertson, Daffern, & Bucks, 2012; Wilkowski & Robinson, 2008). It could follow, then, that those who engage in antisocial behaviors, who may not be sensitive to the feelings, wants, or needs of others, may be lacking in EI.

Individuals who engage in antisocial behaviors tend to be impulsive, have low self-control, and participate in risk-seeking endeavors (Laird, Marks, & Marrero, 2011). Depending upon the age of onset, these individuals also seem to be heavily influenced by their peers (Blazei, Iacono, & Krueger, 2006; Fontaine, Carbonneau, Vitaro, Barker, & Tremblay, 2009; Javdani, Sadeh, & Verona, 2011). Participating in antisocial behaviors, then, may occur as a result of poor decision-making. Research performed by Bechara,

Damasio, and Damasio (2000) suggests that individuals with brain damage in certain areas find themselves unable to make decisions. The authors point out that the brain structure largely associated with decision-making, the orbitalfrontal cortex, is not the only area activated when one makes a decision. In addition, the amygdala, the somatosensory/insular cortices, and the peripheral nervous system, areas known to help regulate emotion, also are involved. In their study, the authors noted that individuals with damage to the ventromedial sector seem to develop issues regarding appropriate social behavior, and find it exceedingly difficult to make simple decisions. While abilities related to general intelligence remain intact, the patient's complex emotions also appear to be disrupted. What is lacking in these individuals is the "lift" from emotion that lets them perceive something as good, bad, or mediocre. Thus, the authors conclude that problems related to experiencing emotions and feelings are closely tied to impaired decision-making, although this, of course, does not suggest one must have incurred damage to the brain in order to have difficulties in this respect.

Society's acceptance of certain behaviors has changed over the course of time. As noted above, the concept of psychopathy or "evil" has been around since near the beginning of documented history. In some contexts, antisocial behavior might be synonymous with evil, but it is important to make clear that, for this study, antisocial behaviors present within the normal population are being assessed. As stated, to an extent, these behaviors can be normal, and not necessarily harmful to other individuals. On the other hand, some behaviors have simply become *normalized*, that is, made acceptable by society when, in fact, they may be harmful to others. It is important to

maintain focus on the phenomenon being studied, as one's concept of the phenomenon could influence and affect interpretation of data and implementation of treatment.

This study will focus on how EI and decision-making predict antisocial behavior. The relationship between EI and decision-making will also be examined. In addition, the role of gender will also be assessed to determine its impact on the relationships between the variables. Gender typically refers to whether one identifies as male or female, although it is recognized that some individuals may not identify as either male or female. The definition, though, goes beyond the meaning of the term "sex", which refers to the biological features of being male or female; gender includes the psychological, behavioral, social, and cultural aspects of being male or female (American Psychological Association, Loc. 36062).

Rationale for the Study

Previous studies have focused on the relationship between EI and antisocial behavior (Côte, DeCelles, McCarthy, Van Kleef, & Hideg, 2011; Fix & Fix, 2015; Nagler, Reither, Furtner, & Rauthmann, 2014; Visser, Bay, Cook, & Myburgh, 2010), and between decision-making and antisocial behavior (Bereczkei, 2015; Berg, Lilienfeld, & Waldman, 2013; Crockett et al., 2015; Koenigs, Kruepke, & Newman, 2010), but to date, very little research (Aybek, Çavdar, & Özabacı, 2015; Osumi & Ohira, 2010) has examined any relationship between EI, decision-making, and antisocial behavior. In addition, much of the literature that examines attributes of antisocial behavior in relation to either predictor mostly focuses on adults with severe psychopathic traits or ASPD (e.g., Ali, Amorim, & Chamorro-Premuzic, 2009; Angrilli, Sartori, & Donzella, 2013; Hughes, Dolan, & Stout, 2016; Malterer, Glass, & Newman, 2008) or on adolescent

(delinquent) antisocial behavior (e.g., Bacon, Burak, & Rann, 2014; Davis & Nichols, 2016; Loney, Frick, Clements, Ellis, & Kerlin, 2010; Kokkinos & Kipritsi, 2011; Petrides, Frederickson, & Furnham, 2004; van den Bos et al., 2014), as opposed to investigating this behavior in the general population.

Statement of the Problem

Human beings are social creatures by nature. In fact, research suggests the reason the human brain is so much larger than that of other species is because it has evolved to manage humans' intricate social lives (Jerison, 1973). Socialization refers to "the process by which individuals acquire social skills, beliefs, values, and behaviors necessary to function effectively in society or in a particular group" (American Psychological Association, 2015; Loc. 79127). In other words, interacting with other humans is how one learns to behave appropriately in society. Communication is an important and significant form of human interaction. Anything that disrupts this pattern leaves one at the risk of feeling isolated by society, and feelings of isolation may lead to antisocial behaviors (Hirschi, 1969).

Researchers have acknowledged the importance of communication as a major developmental task from childhood to adulthood (Barnes & Olsen, 1985; Flavell, 1968; Wood, 1976). When young children show developmental delays in communication skills, they often have difficulties with socialization skills as well (Irwin, Carter, & Briggs-Gowan, 2002; Kjellmer, Hedvall, Fernell, Gillberg, & Norrelgen, 2012; Longobardi, Spataro, Frigerio, & Rescoria, 2016). All interactions from the time of one's birth appear to have an impact on one's socialization, including those with parents (Iyer, Denson, Laar, & Oller, 2016; Wilson & Durbin, 2012), siblings (Kramer & Conger, 2009;

Whiteman, Becerra, & Koloren, 2009), or other caretakers (Howes, 2011). Disruptions in the development of proper social skills, such as lack of family involvement, can lead to an increase in externalizing behaviors in children (Verhoeven, Junger, Aken, Dekovic, & Van Aken, 2010; Waller & Hyde, 2017). Poor communication skills in childhood has been linked to below average language skills later in life (Bryan, Freer, & Furlong, 2007). Problems with communication and language in childhood become problematic later on, as children with these issues also struggle with psychosocial and emotional development (Cohen, 2010). Likewise, research also suggests individuals who fail to develop sound communication skills in childhood are more likely to engage in antisocial behaviors as adults (Gilmour, Hill, Place, & Skuse, 2004; Tóth, Halász, Mikics, Barsy, & Haller, 2008). Social Bond Theory suggests when an individual does not feel bonded to society, his or her participation in antisocial behaviors is likely to increase (Hirschi, 1969). Recently, studies have been proposing that rates of antisocial behaviors are increasing in America, especially in regards to the generally unmonitored world of the Internet (Arntfield, 2015; Mariani, 2016; Wood, 2017).

Research also indicates that one's behaviors are strongly tied to his or her emotional development (e.g., Crocetti et al., 2016; Komorosky & O'Neal, 2015; Schaffer, Clark, & Jeglic, 2009; Thompson & Gullone, 2008). In addition, studies have been showing that empathy levels in Americans may be decreasing (Konrath, O'Brien, & Hsing, 2011; Wagner, 2015). The relationship between EI and antisocial behavior, though, is not completely clear. Some studies suggest those who engage in antisocial behaviors more frequently have lower levels of EI (Ali et al., 2009; Baroncelli & Ciucci, 2014; Contreras & Cano, 2016; Visser et al., 2010; Winters, Clift, & Dutton, 2004).

Other studies claim those with high levels of EI actually engage in more antisocial behaviors, as they use their knowledge of emotions to manipulate others (Côte et al., 2011; Fix & Fix, 2015; Grieve & Panebianco, 2013; Nagler et al., 2014).

Poor decision-making skills also have also been correlated with antisocial behavior, in that those with less adaptive decision-making (ADA) styles tend to make poorer, riskier decisions (Crowley et al., 2010; De Brito, Viding, Kumari, Blackwood, & Hodgins, 2013; Fanti, Kimonis, Hadjicharalambous, & Steinberg, 2016; Miranda, MacKillop, Meyerson, Justus, & Lovallo, 2009). As stated above, previous research suggests that one's decision-making capabilities are strongly tied to his or her complex emotions (Bechara et al., 2000; Levens et al., 2014; Roeser, 2006). Levens et al. (2014) point out that emotions are necessary for learning to take place and actually help to guide one's decisions. Decisions are made due to the expected emotions one hopes to experience as a result of making that decision. These emotions, then, also influence future decisions. Consequently, antisocial behaviors, too must be affected by the emotional experience one encounters during decision-making, as well as by the actual decision that follows.

The decrease in empathy seen throughout the last 30 years (Konrath et al., 2011) may also be causing individuals to engage in poor decision-making, which, in turn, could lead to engagement in antisocial behaviors, prompting the rise in such behaviors. Increased levels of antisocial behavior are challenging because their observation by members of society could lead to desensitization to the behaviors (Huesmann, 2007; Mrug, Madan, & Windle, 2016). According to Social Learning Theory, aggressive behavior is learned through observation (Bandura & Walters, 1963). The behaviors, then,

become normalized and, although still harmful, mostly go ignored, as the behaviors are problematic, but not illegal. If the behaviors become normalized, as a result, they can only be expected to increase even more over time.

In the past studies have consistently shown males committing higher rates of antisocial behaviors than females, especially in regards to violence (Bennett, Farrington, & Huesmann, 2005). The reasons for this difference, though, are not clear. More recent research indicates that females who have high levels of EI engage in higher levels of antisocial behaviors, whereas males with high levels of EI engage in fewer antisocial behaviors, although these findings also have not been thoroughly explained (Bacon et al., 2014; Bacon & Regan, 2016).

Purpose of the Study

The purpose of this study is to examine EI and decision-making as predictors of antisocial behavior. The relationship between EI and decision-making will also be investigated. In addition, this study will explore the role of gender and how it contributes to these relationships.

Conceptual Framework

This section will contextualize and synthesize theories underlying the research constructs (variables) of antisocial behavior, EI, and decision-making. The primary objective is to determine the nature of the interrelationships among these constructs and variables. Then, the application of these factors to the present study will be discussed.

Conceptualization of Antisocial Behavior

Most experts understand antisocial behavior and/or aggression through a developmental framework. The development of such behaviors depends both on one's environment and genetics, but also upon individual differences (Hogg & Cooper, 2007). Environmental factors include the interactions one has with his or her surroundings. Genetic factors include those traits that one inherits at birth. The concept of individual differences recognizes that groups of individuals are alike in many ways, but that no two individuals are exactly alike. It is those differences that allow two individuals to experience the same situation, yet react in very different ways (Harris, 2010). Nearly all individuals engage in antisocial behaviors at some point in their lives, especially during adolescence, but this behavior is temporary, and typically does not persist throughout the lifespan (Moffitt, 1993).

Control theory, posited by Travis Hirschi in 1969, suggests that individuals choose to engage in criminal (antisocial) behaviors when they do not feel bonded to society. Poor bonding first occurs in childhood with one's parents through harsh discipline and lack of supervision. The individual, then, by initially failing to bond with his or her parent(s), does not develop a strong sense of internal control or respect for societal values (Patterson, DeBaryshe, & Ramsey, 1990).

Social-interactional theory suggests family members "train" a child to engage in antisocial behaviors by inconsistent reinforcement and punishment (Patterson et al., 1990). "Coercive" behavior by the child is, then, reinforced intermittently through numerous daily interactions until the child eventually begins participating in aversive behaviors to cope with the negative behavior of other family members and, in a sense,

survive. The coercive behaviors increase in intensity to include physical behaviors, such as hitting or kicking. Research suggests what is missing from these homes is reinforcement for prosocial behaviors; behaviors that would lead to the development of appropriate coping skills are often ignored or attended to inappropriately.

Participation in antisocial behaviors can be extremely stable over time for many individuals. In fact, if one's severe antisocial traits persist into adulthood, it is required for him or her to have shown antisocial traits in youth. A diagnosis of ASPD according to the American Psychiatric Association (2013) necessitates an individual to have also shown evidence of a conduct disorder, beginning before age 15. On the other hand, engaging in antisocial behaviors in youth certainly does not mean these behaviors will continue into adulthood (Robins, 1978).

Moffitt (1993) proposed two separate and distinct categories of individuals: one individual whose antisocial behaviors are temporary, and one whose antisocial behaviors persist throughout adolescence and into adulthood. Moffitt noted that there is a significant relationship between age and antisocial behavior, with an increase in antisocial behavior occurring between ages 7 and 17, a decrease in antisocial behavior occurring between the ages of 17 and 30, and a peak in antisocial behavior occurring in one's early 20s. Her theory attempts to explain this pattern through the concepts of life-course persistent antisocial behavior and adolescence-limited antisocial behavior.

Since the current study focuses on antisocial behaviors of adults in the general population, life-course persistent antisocial behavior is the concept most relevant to the study at hand. The main contributing factor in life-course persistent antisocial behavior is continuity. These individuals engage in antisocial behaviors that change over time,

depending on one's developmental stage. For example, as a young child, the individual bites and hits others; in early adolescence, he or she shoplifts or is truant; as a teen, he or she might steal a car; as a young adult, robbery or rape may occur; later in life, fraud or child abuse (Moffitt, 1993). The term "heterotypic continuity" is used to indicate that it is not just one type of behavior that persists throughout different life stages, but multiple behaviors that continually arise and evolve in all settings. Moffitt asserts that two types of interactions contribute to the continuation of these behaviors throughout one's life: reactive interaction and proactive interaction. Reactive interaction relates to how a particular individual reacts to a certain situation. Aggressive children, for example, are more likely to feel threatened when faced with a situation they deem ambiguous. Proactive interaction is when people choose to align themselves with others who portray characteristics similar to their own preferences. For example, an antisocial individual is more likely to prefer the company of antisocial peers or mates.

According to Moffitt, these two interactions can produce two types of results: cumulative consequences and contemporary consequences. Cumulative consequences build upon each other, and so may continue their influence on an individual from birth through adulthood. Contemporary consequences occur when an individual uses the same traits in adulthood he or she used in childhood as a way of interacting with the world, such as irritability and lack of self-control (Caspi & Bem, 1990; Caspi, Elder, & Bem, 1987; Caspi, Bem, & Elder, 1989; Moffitt, 1993).

Nearly all theorists agree that the development of life-course persistent symptoms requires a combination of both genetic and environmental risk factors. These behaviors seem to be at least somewhat related to certain neuropsychological deficits that may be

present in an individual even at birth. Before birth, these individuals may have been exposed to toxic agents, poor prenatal nutrition, birth complications, or even maternal drug abuse (Glenn & Raine, 2014; Jordan, 2011; Moffitt, 1993; Moffitt, 2005). During development, research has indicated that many factors could play a role, including the presence or activation of certain genes, family conflict or violence, lack of supervision, association with delinquent peers, divorce, or maladaptive parenting styles (Blazei et al., 2006; Burt, 2009; Burt, 2012; Cernkovich, Lanctôt, & Giordano, 2008; Cornet, de Kogel, Nijman, Rain, & van der Laan, 2014; Eme, 2013; Jackson & Beaver, 2015; Paradis, Fitzmaurice, Koenen, & Buka, 2015; Sundram, et al., 2012).

Over time, studies have consistently indicated that males show higher rates of offending than females, especially concerning violence (Bennett et al., 2005). The reason for these differences, though, is not completely understood. Some researchers have suggested it is due to environmental differences experienced by males and females (Benda, 2005; Javdani et al., 2011; Xie, Drabick, & Chen, 2011; Zheng & Cleveland, 2015). Others suppose the differences might be due to neurological factors (Raine, Yang, Narr, & Toga, 2011; Seo, Patrick, & Kennealy, 2008; Twardosz & Lutzker, 2010). Still others assert males are exposed to a greater number of risk factors, especially in adolescence (Andershed, Gibson, & Andershed, 2016; Benda, 2005; Gardner, Waller, Maughan, Cluver, & Boyes, 2015).

Many known risk factors associated with criminal and violent behavior exist, such as high impulsivity (Buker, 2011; Zhu et al., 2016), low intelligence (Allen, Briskman, Humayun, Dadds, & Scott, 2013; Koenen, Caspi, Moffitt, Rijdsdijk, & Taylor, 2006), low academic achievement (McEvoy & Welker, 2000; Trzesniewski, Moffitt, Caspi, Taylor,

& Maughan, 2006), problematic family dynamics (Boyle, O’Leary, Rosenbaum, & Hassett-Walker, 2008; Burnette, 2013), poor parental supervision (Bacchini, Miranda, & Affuso, 2011; Claes et al., 2005), or peer factors (Monahan, Steinberg, & Cauffman, 2009; Zhu et al., 2016). However, some antisocial behaviors are generally deemed acceptable by society, and sometimes can even be advantageous depending on the needs of an individual. It is likely that many individuals engage in behaviors that might be considered antisocial, such as lying or manipulating others, but, of course, these individuals are not considered criminals.

Conceptualization of Emotional Intelligence

Salovey and Mayer (1990) were the first to use the term *emotional intelligence*, defining it as,

a set of skills hypothesized to contribute to the accurate appraisal and expression of emotion in oneself and in others, the effective regulation of emotion in self and others, and the use of feelings to motivate, plan, and achieve in one’s life. (p. 185)

Salovey and Mayer developed this concept based on E. L. Thorndike’s (1920) idea of social intelligence, which he defined as “the ability to understand men and women, boys and girls – to act wisely in human relations (p. 228). He asserted that having social intelligence allows one to perceive one’s own and others’ internal behaviors, drives, and circumstances so that one can make effective decisions regarding social relationships. Years later, Weinstein (1969) asserted that social intelligence could provide one with the skill to manipulate others if he or she is inconsiderate of the emotions of others.

Emotional intelligence commences when an individual perceives some affect-laden information. Sufficient EI skills allow one to accurately appraise the expression of feelings. By properly appraising emotions, the individual, then, can determine the

appropriate emotional expression. The appraisal and expression of emotion can be either verbal or nonverbal. Verbal expression includes language; being knowledgeable about emotions means being able to clearly articulate them and their content. Nonverbal factors of emotion, such as body language, make it difficult to identify emotion simply as part of one's mental capabilities, or general intelligence. Being able to recognize nonverbal emotions in others served as an evolutionary advantage for humans, as this allowed for stronger interpersonal skills (Salovey & Mayer, 1990). Understanding the emotions of others, though, depends on individual differences. People interpret facial expressions differently, and engage in varying levels of empathy towards others. Equally important is the ability to reflect upon and regulate one's own emotions. Emotional regulation may be automatic, or brought about through conscious effort. For example, if a particular activity brings about one's positive mood, he or she may engage in that activity in the future to produce similar results. Also, people can choose to spend time with others who enhance their emotional experiences (Salovey & Mayer, 1990).

Being emotionally intelligent allows one to elicit emotional responses from others, or regulate others' emotions. A person, for example, can create a favorable impression on others in the workplace by engaging in appropriate workplace-related behaviors (i.e., punctuality, professionalism). It is also beneficial when an individual is able to exert control over his or her emotions to problem solve. Being flexible, creative, motivated, and redirecting problematic emotions to stay focused can help a person solve problems quickly and effectively (Salovey & Mayer, 1990).

Mayer and Salovey (1997) later broke down the concept of EI into four parts, including perceiving emotions, using emotions, understanding emotions, and managing

emotions. Perceiving emotions refers to one's skills at noticing and making proper sense of emotions in faces, pictures, voices, and cultural artifacts, as well as being able to recognize one's own emotions. Using emotions suggests an ability to use one's emotions to assist him or her with various cognitive skills, such as thinking or problem solving. Understanding emotions refers to one's ability to truly know and understand emotional language and relationships concerning emotions. Managing emotions indicates an ability to keep one's emotions properly regulated and appropriate for any given situation (Salovey & Grewal, 2005).

Emotional development occurs early in life, transpiring as a result of one's experiences, expressions, understanding, and regulation of emotions. From birth through late adolescence one's emotions undergo much growth and change (Holodynski & Friedlmeier, 2006). Early discussion regarding the concept of emotion pondered whether or not emotions could even be "classically defined" (Fehr & Russell, 1984). Salovey and Mayer (1990) believed emotions to be "organized responses" that span across numerous psychological systems (p. 186). Use of one's emotions involves physiology, cognitions, motivation, and experience. Emotions can occur as a reaction to either an internal or external event that a person deems as meaningful. Salovey and Mayer also point out there is a distinct difference between the concepts of emotion and mood in that emotions are of shorter duration but tend to be more intense, while moods are less intense, and tend to be triggered by a particular stimulus.

Defined in its most general terms, EI is one's ability to identify his or her own emotions and the emotions of others. In most models, this ability comprises three basic components: emotional awareness, the ability to exert control over one's emotions and

apply them to tasks, and emotion regulation. Salovey and Mayer (1997) described EI as “the subset of social intelligence that involves the ability to monitor one’s own and others’ feelings and emotions, to discriminate among them and to use this information to guide one’s thinking and actions” (p. 189). This concept relies on the processing of affective information, and individual differences come into play as to how well one completes this task.

Theories regarding EI have suggested that one’s emotions tend to be adaptive and are dependent upon development, interactions with others, social problem solving, and success in achieving goals or objectives. In this respect, research has focused on individual differences. Mayer and Salovey (1997) have composed the most empirically sound theory to date, indicating that EI is a type of intelligence. They describe EI as:

the ability to perceive, assess and express emotions with accuracy, the ability to access and generate feelings when they facilitate thought; the ability to understand emotion and emotional knowledge, and the ability to regulate emotions to promote emotional and intellectual growth. (p. 5)

The authors felt, then, that empathy, being an important part of one knowing and responding to another’s emotions appropriately, was closely related to EI. Previous research regarding these two variables noted that individuals with higher EI scores tend to be more empathic, and so empathy may occur as a result of EI.

The Relationship Between Emotional Intelligence and Antisocial Behavior

Past studies have indicated that individuals who score high on tests of EI show lower levels of antisocial behavior (Baroncelli & Ciucci, 2014; Contreras & Cano, 2016; Visser et al., 2010; Winters et al., 2004). Considering the fact that those who engage in antisocial behaviors often tend to violate the rights of others, it would likely follow that

these individuals do not have a clear understanding of the thoughts and feelings of others. However, other studies have indicated that those who portray antisocial traits tend to actually have higher levels of EI. Emotional intelligence has to do with how well one is able to process emotions and emotional information both of one's self and of others; if these skills are used in an antisocial way, they can assist an individual in manipulating others to engage in sociopathic acts (Côte et al., 2011; Fix & Fix, 2015; Grieve & Panebianco, 2013; Nagler et al., 2014).

Research on the relationship between crime and emotions generally shows that criminals have lower emotional regulation, and a poorer understanding of the emotions of others (e.g., Fix & Fix, 2015; Sacco, Merold, Lui, Lustgraaf, & Barry, 2016; Stanković, Nešić, Obrenović, Stojanović, & Milošević, 2015; Visser et al., 2010). A true psychopath, or an individual diagnosed with ASPD, has very little understanding of emotions or empathy. Instead, they must wear a sort of “mask” to fit into society, gaining acceptance through their charm. They have little understanding that their actions are considered wrong, or why their actions are considered wrong, and, thus, have little desire to change. Kiehl and Buckholtz (2010) describe psychopaths as “tone deaf” because access to their own feelings, as well as the feelings of others, is quite limited.

Robert Hare developed the PCL-R (Hare, 2003), which assesses certain behaviors and traits associated with psychopathy. The highest score one can achieve on the PCL-R is 40, but anyone who scores above 30 is considered a psychopath. It is important to note, though, that, as with many other personality-related characteristics, all individuals fall somewhere on the psychopathy spectrum (Kiehl & Buckholtz, 2010). An individual who receives a score in the high 20s certainly would have similar traits as those of a

“true” psychopath, but this individual would not be considered a psychopath. The behaviors in which he or she engages, though, still would likely be problematic, even if the person is not breaking any laws. These individuals may not give much thought to the needs and wants of others, but they are also probably not completely devoid of emotion, as is a psychopath. A bullying workmate, a “win at all costs” business executive, or a friend who borrows items and does not return them all represent individuals who have found a way to make their antisocial behaviors acceptable within society.

Other research indicates that those who actually *do* have a good understanding of others’ emotions, and are better able to regulate their emotions, might be able to control, manipulate, or use other individuals to their advantage. As pointed out by Salovey, Mayer, and Caruso (2002) in their research on the idea of EI, “a person who sees the fleeting expression of fear in the face of another understands much more about that person’s emotions and thoughts than someone who misses such a signal” (p. 161). Newman, Curtin, Bertsch, & Baskin-Sommers (2010) suggest the problem psychopathic individuals have with emotion is related to limitations in attention, which do not allow them to process the information appropriately, and if the information (such as emotional cues) cannot be properly processed, it is unlikely to be properly understood by the individual. Previous research had suggested psychopaths are typically quite unreactive, with little fear responses (e.g., Cornet et al., 2014; Gao, Raine, Venables, Dawson, & Mednick, 2010; Rothmund et al., 2012), but results from the study by Newman et al. (2010) indicated that it is not necessarily that these individuals are unreactive to all unpleasant stimuli. When their attention was directed elsewhere was when these individuals were unable to divert from a task. In that case, it may not be that the

individual is completely devoid of emotional understanding; an emotional plea or appeal of someone may simply not be deemed as important as the psychopath's own needs and desires.

This, to a lesser extent, then, may be the concept more recent research is pointing toward in regards to the general population. The United States promotes a very individualistic culture, which, quite possibly, could be the type of atmosphere that encourages an "every man for himself" type of mentality. Vaughn, Salas-Wright, DeLisi, and Maynard (2014) found native-born Americans engaged in violent behavior about four times more often than Asian and African immigrants, and about three times more often than Latin American immigrants. In addition, each year an immigrant spent in America was related to an increase in his or her participation in both nonviolent and violent crimes. The United States certainly incarcerates its citizens at higher rates than the rest of the world (Wagner & Walsh, 2016; Weiss & MacKenzie, 2010), although this does not necessarily mean Americans commit more antisocial behaviors, just that they are punished for the behaviors more often.

Kilduff, Chiaburu, and Meges (2010) suggest that certain qualities of EI may be beneficial in organizational settings wherein individuals must compete for resources like money or status. When competition is especially strong, and certain behaviors are rewarded, it is more likely for increased levels of antisocial behavior to take place. The authors point out that individuals use all different types of intelligences when situationally appropriate. If one thinks a certain behavior will help him or her move forward in a relationship or organization, it is likely he or she will engage in that behavior. This is not to say that the behavior is unethical or immoral just because it is

antisocial, nor does this mean every individual with a high level of EI would engage in unethical or immoral behavior. Although one could say all antisocial behaviors, whether adaptive or maladaptive, are behaviors that are done to benefit the individual committing them, there is a distinct difference between those behaviors that are acceptable by society, and those that will bring about harsh consequences.

One difference between antisocial behaviors that are punishable by law and those that are not is whether or not the behaviors cause significant harm to other individuals. However, there are different types of aggressive, or antisocial, behaviors. Males tend to commit more overt forms of aggressive acts, such as hitting, kicking, or punching. Women, on the other hand, tend to engage in more covert types of aggression, such as ostracizing others or gossiping about others (Card, Stucky, Sawalani, & Little, 2008; Kaukiainen et al., 2001; Verona, Reed, Curtin, & Pole, 2007). Most punishable behaviors, though, would likely be considered overt, which may contribute to the fact that males are incarcerated at higher rates than females (Western & Pettit, 2010). This, though, does not necessarily mean men engage in *more* antisocial behaviors, though, just ones that are less socially acceptable.

Impact of Gender on Emotional Intelligence

In general, females tend to perform better than males on tests of EI (Salguero, Extemera, Cabello, & Fernández-Berrocal, 2014). Men, though, tend to overestimate their EI capabilities, whereas females tend to underestimate their strengths. The reason for this self-enhancing bias in males and self-derogatory bias in females, though, is not well understood, and could occur due to a variety of unknown reasons (Petrides & Furnham, 2000).

A Conceptualization of Decision-Making

Cognitive theory states that learning and memory are developmental and begin with the gathering of information through the senses. The information, then, goes to the brain, where it is coded and analyzed and later consolidated in long-term memory. Afterward, this information can be retrieved and used. This progression requires that biological brain changes happen without the individual consciously having to take part in the process (Faw, 2003; Klein, 2015; Schlaghecken, Refaat, & Maylor, 2011).

Decision-making is thought to begin before a person even consciously becomes aware of making the decision. The idea that one deliberates over the decision-making process is not legitimate because one's brain already knows the decision he or she is going to make before he or she does actually make that decision. Although this is an unconscious process that occurs automatically, one's consciousness can later come back and veto the automatic decision (Miller & Schwarz, 2014). Most professionals agree that at least some processes are unconscious, especially sensory and late motor activity, perception, cognition, and the action that follows. The decision to act comes into consciousness after being developed completely in unconsciousness. More current models assert that decisions start from an initial position that *may* be biased, and then a conclusion is reached after more evidence is provided. This is a gradual accumulation, though, which is consistent with the concept that awareness comes about gradually (e.g., Bogacz, 2007; Brown & Heathcote, 2008; Purcell et al., 2010).

According to neuroeconomic theory, decision-making occurs as a result of an intricate relationship between brain systems. In order to perform a task, a number of systems must work together to produce a result. More specifically, when one needs to

make a decision, the systems that perform functions related to that decision are enlisted (Brocas & Carrillo, 2014). Kahneman and Tversky (1979) envisioned the brain as two separate systems. System 1 is more automatic and instinctive, making rapid decisions without much consideration. System 2 is more slow and thoughtful, requiring much more effort.

Decision-making processes take place in the prefrontal cortex. Research conducted by Bechara et al. (2000) looked specifically at the ventromedial sector in the prefrontal cortex, and how damage to this area of the brain results in disruption in one's social behavior. Although one's general intellectual abilities (memory, language, attention, and executive function) stay intact, individuals with damage to the ventromedial prefrontal cortex present with irregularities related to emotions and feelings. What occurs, then, is that individuals do not utilize their emotions when dealing with complex occurrences.

Antonio Damasio's (1994) somatic marker hypothesis suggests that, when faced with a decision, humans experience an automatic, emotional signal, either positive or negative, that allows them to make a choice. Damasio asserts that somatic markers allow people to make decisions more accurately and effectively. This process is *not* related to reasoning. Instead, as part of one's learning process and development, emotions and feelings have become connected to predictions of future outcomes and particular scenarios.

The somatic marker hypothesis assumes that human reasoning and decision-making result from complex interactions between neurons, some conscious and cognitive-based, some not; that all cognitive processes involve attention, working

memory, and emotion; and that people reason and make decisions based on prior knowledge about circumstances, other people involved, and choices related to outcomes. Such knowledge is referred to as “dispositional”, meaning an individual may have knowledge of certain things without being aware of that knowledge at any given moment in time (Bechara et al., 2000). When making decisions, then, individuals not only make a choice based on outcome severity and the probability of occurrence, but also very much so with regards to the emotional quality associated with the choice.

Scott and Bruce (1995) suggested that there are five different decision-making styles: Rational (RAT), Intuitive (INT), Dependent (DEP), Avoidant (AVO), and Spontaneous (SPO). Rational decision-making occurs when someone uses logical deliberation to make a decision. Intuitive decision-making is when one relies on his or her emotions to make decisions. The SPO style identifies individuals who make very rapid decisions. Dependent decision-makers look for help from others to make choices. And those with an AVO style tend to put off making decisions (Delaney, Strough, Parker, & Bruine de Bruin, 2015). Rational and INT styles are considered ADA styles, whereas DEP, AVO, and SPO are considered maladaptive styles (MAL).

The Relationship Between Decision-Making and Antisocial Behavior

Links between antisocial behavior and poor decision-making have been confirmed by research. Van den Bos et al. (2014) found that while juvenile delinquents are able to recognize the social context of a situation, they are more likely to react strongly if they feel a situation is unfair. In the same study, MRI results indicated that severely antisocial adolescents have difficulty accessing regulatory processes in the

frontal cortex, which is where, as previously discussed, the decision-making brain systems are located. Generally, research in this area has indicated that antisocial behavior is related to impaired decision-making (Crowley et al., 2010; De Brito et al., 2013; Fanti et al., 2016; Miranda et al., 2009).

Impact of Gender on Decision-Making Styles

Research shows mixed results regarding differences in decision-making styles between men and women. Women tend to engage in intuitive styles, whereas men tend to engage in rational styles of decision-making (Sadler-Smith, 2011). But many studies have found no significant differences in gender related to decision-making (Delaney et al., 2015).

Conceptualization Applied to the Present Study

In the present study, EI and decision-making were conceptualized as personal traits that contribute to the level of antisocial behavior in which one engages. Figure 1 illustrates the hypothesized relationship between the three variables: antisocial behavior, EI, and decision-making. Emotional intelligence is represented by four subscales: Wellbeing (WBE), Self-Control (SCN), Emotionality (EMO), and Sociability (SOC). Decision-making is also represented by four subscales: ADA (this includes both Rational and Intuitive styles), AVO, DEP, and SPO. Antisocial Behavior is separated into two subscales: PRI and SEC. The proposed model indicates that EI has a direct effect on both PRI and SEC, and that decision-making has a direct effect on SEC.

Research Questions

This study sought to answer the following questions:

1. Is the theoretical covariance matrix equal to the observed covariance matrix collected from the data?
2. Does gender influence the fit of the proposed theoretical covariance matrix?

Figure 1. Conceptualized model of the predictive relationships of antisocial behavior.

Significance of the Study

This area of research is important for the field of Counseling Psychology because antisocial behaviors are common symptoms presented within all age groups for a multitude of disorders. This research may help to expand the knowledge base regarding the influence of EI and decision-making on antisocial behaviors, and how this knowledge might be used to help to identify treatment plans to prevent these behaviors from

becoming normalized and increasing among society's members. As males and females have shown different patterns in behavior related to EI in past studies, it is likely that treatment plans will need to be gender specific. Previous research has indicated that females with high levels of EI engage in more frequent antisocial behaviors. In contrast, males with high levels of EI engage in fewer antisocial behaviors, but men with low levels of EI engage in more antisocial behaviors. Counseling psychologists need to fully understand the impact that emotions and decision-making have on antisocial behaviors so they can develop adequate resources in order to provide proper treatment to clients. This research could also be beneficial to therapists working with clients of all ages, as treatment plans could include interventions that would assist clients in improving their knowledge of emotions, both in self and in others, and decision-making skills to help them engage in more appropriate coping mechanisms and improve their interpersonal relationships. These interventions might also help those who participate in more serious antisocial behaviors, for example, those who are incarcerated for committing crimes, so that they can learn to behave in a way society deems appropriate and acceptable, and possibly even reduce their risk of recidivism.

Definition of Terms

Antisocial: "Denoting or exhibiting behavior that sharply deviates from the social norms and also violates other people's rights. Arson and vandalism are examples of antisocial behavior." (American Psychological Association, 2015; Loc. 5629).

Avoidant decision-making: "Characterized by attempts to avoid decision making" (Scott & Bruce, 1995; p. 820).

Decision-making: Habitual patterns individuals use to make decisions (Bavol'ár & Orosová, 2015).

Dependent decision-making: “Characterized by a search for advice and direction from others” (Scott & Bruce, 1995; p. 820).

Emotional intelligence: “A set of skills hypothesized to contribute to the accurate appraisal and expression of emotion in oneself and in others, the effective regulation of emotion in self and others, and the use of feelings to motivate, plan, and achieve in one's life” (Salovey & Mayer, 1990; p. 189).

Emotionality: “The degree to which an individual experiences and expresses emotions, irrespective of the quality of the emotional experience” (American Psychological Association, 2015; Loc. 29230).

Intuitive decision-making: “Characterized by a reliance on hunches and feelings” (Scott & Bruce, 1995; p.820).

Primary Psychopathy: “Selfish, uncaring, and manipulative posture towards others” (Levenson, Kiehl, & Fitzpatrick, 1995; p. 152).

Rational decision-making: “Characterized by a thorough search for and logical evaluation of alternatives” (Scott & Bruce, 1995; p. 820).

Secondary Psychopathy: Participation in “impulsive behaviors and a self-defeating lifestyle” (Levenson et al., 1995; p. 152).

Self-Control: “The ability to be in command of one's behavior (overt, covert, emotional, or physical) and to restrain or inhibit one's impulses” (American Psychological Association, 2015; Loc.75690).

Sociability: “The tendency and accompanying skills to seek out companionship, engage in interpersonal relations, and participate in social activities” (American Psychological Association, 2015; Loc. 78692).

Spontaneous decision-making: Tendency to make snap decisions (Scott & Bruce, 1995).

Well-Being: “A state of happiness and contentment, with low levels of distress, overall good physical and mental health and outlook, or good quality of life” (American Psychological Association, 2015; Loc. 91472).

Limitations

One limitation of this study was the sole use of self-report measures to collect data. This method relies on trusting the honesty of participants, but understanding that some individuals may be tempted to answer questions in a more favorable way, as opposed to divulging their flaws. Or, some individuals may lack the insight to provide an accurate response to a particular item. In addition, some may respond inappropriately or incorrectly due to a lack of understanding in regards to an item.

Delimitations

This study sought to focus on antisocial behaviors in adults, and therefore only individuals over the age of 18 will be eligible to participate. In addition, as a survey company was utilized to collect data, only individuals who were a part of the survey company’s database would have been eligible to respond.

Organization of the Study

This study has been organized into five chapters. In this chapter, background information was provided regarding the development of antisocial behaviors in society over time. In addition, this chapter suggested a rationale for the present study, and provided a statement of the problem, as well as the purpose of the study. A conceptual framework was provided to discuss theories related to antisocial behavior, EI, and decision-making, and to portray how these three variables related to each other. In addition, this chapter discussed research questions and the significance of the study, and provided definitions of terms, as well as limitations and delimitations of the study.

Chapter 2 gives a comprehensive view of literature related to antisocial behavior, EI, and decision-making and their proposed relationships to each other. Chapter 2 also examines the role of gender in regards to the three aforementioned variables. Chapter 3 provides the methodology used for the study, including research questions, research design, instrumentation, data collection procedures, and administration of data collection and analysis. Chapter 4 gives the results obtained and the data analysis of the study, the statistical analysis, and related tables. In Chapter 5, a summary of the study is provided to link the results found to current theory and research. This chapter also provides a discussion regarding the findings, as well as exploring conclusions, recommendations for use, and recommendations for future research.

CHAPTER 2

LITERATURE REVIEW

Purpose of Literature Review

The purpose of this literature review is to provide a theoretical framework that emphasizes how antisocial behavior is influenced by EI and decision-making. This review focuses on studies that underline the significance of these variables and the relationships between them.

Studies on the relationship between antisocial behavior and EI show conflicting results. One line of research suggests that those who engage in antisocial behaviors show lower levels of EI; not having a solid understanding of the thoughts and feelings of others may contribute to the likelihood of these individuals violating the rights and boundaries of others (Bacon et al., 2014; Baroncelli & Ciucci, 2014; Contreras & Cano, 2016; Visser et al., 2010; Winters et al., 2004). In contrast, another line of research indicates that those who engage in frequent antisocial behaviors will likely have higher levels of EI; being able to process the emotional information of others, though, in this case, is used for manipulative purposes (Côte et al., 2011; Fix & Fix, 2015; Grieve & Panebianco, 2013; Nagler et al., 2014).

Researchers, too, have found a significant relationship between antisocial behavior and decision-making. Processing difficulties in the frontal cortex appear to impair decision-making abilities (Van den Bos et al., 2014). Most research in this area found that greater involvement in antisocial behaviors was linked with poor decision-making abilities (Crowley et al., 2010; De Brito et al., 2013; Fanti et al., 2016; Miranda et al., 2009).

The literature review is necessary because, although previous studies have focused on the relationship between EI and antisocial behavior, or between decision-making and antisocial behavior, very little research to date has examined any relationship between EI, decision-making and antisocial behavior, and no research has addressed how EI and/or decision-making might predict antisocial behavior.

Sources for Material Included

The articles used for this literature review were found through online databases, including EBSCOhost Academic Search Complete, Oxford Journals Online, Sage Publications, and ScienceDirect. The articles were published in journals such as *Aggressive Behavior*, *Behavior Therapy*, *Clinical Psychology Review*, *Cognitive Psychology*, *Crime and Delinquency*, *Frontiers in Psychology*, *Journal of Applied Research in Memory and Cognition*, *Journal of Criminal Justice*, *Personality and Individual Differences*, *Neurobiology of Learning and Memory*, *PLoS One*, and *Social Behavior and Personality*. The key search criteria used were “antisocial behavior adults”, “aggressive behavior adults”, “emotional intelligence”, and “decision-making”.

Overview of Literature Review

The research presented in this chapter will first highlight the presence of antisocial behaviors in the adult populations as seen through different developmental theories. Next, the importance of the development and conceptualization of EI will be discussed, as will specific EI theories. Following, different decision-making aspects will be deliberated, and theories of decision-making will be covered. Lastly, the review will cover research that demonstrates how the different variables relate to each other. The role of gender as it relates to each variable will also be covered.

A Conceptual Definition of Antisocial Behavior

The American Psychological Association defines the term antisocial as “denoting or exhibiting behavior that sharply deviates from the social norms and also violates other people’s rights”, and cites arson and vandalism as examples of such behavior (American Psychological Association, Loc. 5629). Antisocial behavior and aggression are often understood by experts through a developmental perspective. Development of such traits occurs through a combination of environment, genetics, and individual differences (Hogg & Cooper, 2007). Genetic and environmental influences appear to vary significantly depending on whether or not the behaviors displayed by an individual are aggressive or non-aggressive. Genetics seem to factor in more for aggressive behaviors (65% versus 45%), and shared environment accounts more for non-aggressive behaviors (18% versus 5%) (Burt, 2009). Antisocial behaviors, though, consistently have been shown to be comprised of *both* aggressive and non-aggressive behaviors.

Aggressive behaviors are more consistent over time, and occur more frequently within the toddler years. Non-aggressive behaviors are more frequent during

adolescence. Individuals who display high levels of aggression in childhood tend to be aggressive in adulthood as well; the stability of this trait is comparable to intelligence (Burt, 2012). Although most individuals engage in antisocial behaviors at some point in their lives, usually during adolescence, the behavior remains temporary and does not persist into adulthood (Moffitt, 1993). Antisocial behaviors are actually quite common in adolescence, with about 80% of all adolescents exhibiting some antisocial behaviors, but they do not occur as frequently in children (Blazei et al., 2006). Aggressive behavior appears to be highly genetic with little influence from shared environment. Non-aggressive behavior is also influenced by genetics, but much less so than aggressive behavior. Additionally, non-aggressive behavior *is* influenced by environment (Burt, 2012). As discussed in Chapter 1, Moffitt's (1993) theory proposes two types of antisocial behaviors: life-course persistent, which starts early in childhood and persists throughout one's life, and adolescent-limited, which starts in adolescence and ends by adulthood.

Barriga and Gibbs (1996) examined what they called "self-serving cognitive distortions" and how these contributed to aggression. The researchers identified two types of distortions: primary and secondary. Primary distortions include egocentric attitudes and belief biases:

according one's own views, expectations, needs, rights, and immediate feelings and desires to such a degree that the legitimate views, etc. of others (or even one's own long-term best interest), are scarcely considered or are disregarded altogether. (p.334)

Secondary cognitive distortions are "pre- or posttransgression rationalizations that serve to 'neutralize' conscience or guilt, and thereby to prevent damage to the self-image following antisocial behavior" (p.334). This includes blaming others, particularly other

persons or groups, minimizing one's own behavior and its effects, and presuming the worst in social situations.

Chabrol, Goutaudier, Melioli, van Leewen, and Gibbs (2014) found self-serving cognitive distortions to be a partial mediator between antisocial behaviors and callous-unemotional traits. Their findings suggested the presence of antisocial behaviors may cause one's psychopathic traits to persist by neutralizing empathic emotions. Other variables that may contribute to the development of antisocial behavior and psychopathic traits may include biological, psychological, or sociofamilial factors. The authors asserted that the influence antisocial behaviors have on psychopathic traits is quite complex; the antisocial behaviors may reinforce the relationship between self-serving cognitions and callous-unemotional traits, creating a multifaceted relationship wherein all factors influence, interact with, and reinforce each other.

Machiavellianism, a personality trait proposed by Christie and Geis in 1970, is closely related to the concept of antisocial behavior. The American Psychological Association (2015) defines the term as "a personality trait marked by a calculating attitude toward human relationships and a belief that ends justify means, however ruthless" (Loc. 49081). One who might be considered "Machivellian" (based on the novel by Niccolo Machiavelli) is someone who sees other individuals as objects that must be manipulated (by any means necessary) in order for that person to attain his or her goals. Christie and Geis alleged that individuals who exhibit high levels of Machiavellianism think in a "cold, strategic, and pragmatic way"; have cynical, negative views; tend to be callous in their emotions, or even detached from their emotions; are motivated externally, by things like money, power, or status, as opposed to internally, by

things like love or family; and use manipulative means or exploitation to gain what they want (Rauthmann, 2013, p.388).

Causes and Treatment of Antisocial Behavior

The causes of antisocial behavior may be influenced by numerous factors, including genetics, neurological factors, physiological factors, and environmental influences. The general understanding is that a combination of these influences can contribute to the development of antisocial behavior, but no one combination of factors holds true for all individuals who exhibit problematic behaviors. Those who engage in such behaviors, though, appear to consistently exhibit difficulties with emotional affect. In addition, they often make poor choices, which leads to the participation in such behaviors.

Genetic Contributions

Some research has examined the possibility of an “antisocial gene” responsible for the development of disruptive behaviors. Bentley et al. (2013) sought to find a latent phenotypic (observable) variable for antisocial behaviors by investigating a subset of 15 predictors. Researchers hoped to define a new “candidate system of genes”. A candidate system of genes approach uses hypothesis-driven research while providing limitations by looking at only a small, localized area. This approach, though, necessitates many subjects to account for very little variance. Researchers found the indicators that contributed the most variance to antisocial behavior were the number of times a participant had run away from home, been stopped by police, been sent to a correctional facility between birth and 15 years of age, and how often a participant drank alcohol and used drugs. The researchers wanted to assess groups of alleles and how they might

contribute to antisocial behavior; they cited that past research had generally only looked at alleles one at a time. The group was able to find eight genes that accounted for 16% of variance in a latent antisocial phenotype.

Research has provided some evidence that certain genes might play a role in the development of an antisocial personality. In a study of 240 children with Attention Deficit Hyperactivity Disorder (ADHD), children with the valine/methionine variant in the Catechol O-Methyltransferase (COMT) portrayed more antisocial behaviors than those without the variant (Thapar et al., 2005). Participants of the study were assessed for ADHD, Conduct D (CD), and other psychiatric disorders through interviews using the Child and Adolescent Psychiatric Assessment- Parent Version (Angold et al., 1995). The presence or absence of CD symptoms were also analyzed using the *Diagnostic and Statistical Manual of Mental Disorders-IV-TR* (American Psychiatric Association, 2000). In addition, participants were given the Wechsler Intelligence Scale for Children (Wechsler, 1992). Genotyping was performed to examine COMT. The enzyme COMT is likely related to prefrontal cortical functioning and is responsible for the reduction of dopamine in the prefrontal brain areas. Since research has shown a correlation between ASPD and deficiencies in the front of the brain, Thapar et al. (2005) hypothesized that these prefrontal cortical deficits can be linked to antisocial behavior and, thus, linked to the enzyme COMT. The studies performed also showed that this gene variant may interact with environmental factors to increase the risk of antisocial behaviors and may, in fact, affect the development of the prefrontal cortex.

Genetic deficiencies in the Monoamine Oxidase A (MAOA) gene, located on the X chromosome, have been linked with aggressive behavior. Caspi et al. (2002)

conducted a study using 1,037 children (52% male, 48% female) to examine how the MAOA gene interacts with maltreatment of males. Individuals in this study were assessed at ages 3, 5, 7, 9, 11, 13, 15, 18, and 21, and nearly all participants (96%) were assessed a final time at age 26. Results showed that males who possessed low-MAOA activity and who had been maltreated were more likely to display traits associated with child CD and adult ASPD, including criminal activity, than were males with high-MAOA activity who also had been exposed to maltreatment. While environmental factors also played a role in the development of antisocial features, the presence of low-MAOA activity most likely places individuals at risk.

Genes can also correlate with environment. For example, a person with high-risk genes may often find him/herself in high-risk situations. A person born with such genes may simply live in an aversive environment or, he or she could look for environments that match his or her genotype. The genetic risk in a child that influences his or her behavior may also create unhealthy responses from one's parent. If one's parent does not place appropriate boundaries on a child with this type of genetic predisposition, he or she will likely not learn that certain behaviors are inappropriate (Jackson & Beaver, 2015).

Mann et al. (2017) found impulsive traits to be correlated with the development of antisocial behaviors, as was sensation seeking. A study was conducted to analyze the degree to which genetic variance contributes to impulsivity and sensation seeking. The study included 835 adolescents: 396 twin pairs, 13 sets of triplets, and one set of quadruplets (ages 13-20 years, gender not indicated). Participants completed the Big Five Inventory (BFI; John, Naumann, & Soto, 2008) to assess personality, the Brief Sensation Seeking Scale (BSSS; Stephenson, Hoyle, Palmgreen, & Slater, 2003) to assess

sensation seeking, the UPPS Impulsive Behavior Scale (Whiteside & Lynam, 2001) to assess impulsivity, and an adapted version of an instrument by Huizinga, Esbensen and Weiher (1991) to assess antisocial behavior. The authors suggest their findings showed sensation seeking and impulsivity as the “primary drivers of genetic overlap” between personality and antisocial behaviors (p. 35).

Neurological Factors

Neuroscience has indicated that biological factors alone do not *cause* antisocial behaviors, rather it is a combination between genetics and environmental experiences, which then influence biological systems in the body (Glenn & Raine, 2014). Studies looking at the relationships between antisocial behavior and biological functioning do not show exact genes or environmental factors that lead to antisocial behaviors, but some factors, such as hormone levels, neurotransmitter levels, physiology, or brain defects do seem to be related (Tuvblad et al., 2013).

According to Kiehl and Buckholtz (2010) a horseshoe-shaped band of tissue deep within the brain called the paralimbic system is likely to be the faulty area found in psychopaths. This system consists of several interconnected brain regions pertaining to feelings, and helps allocate value to emotional experiences. These regions of the brain also deal with decision-making, high-level reasoning, and impulse control. Damage in these areas typically leads a person to develop antisocial traits and behaviors.

The paralimbic system includes the anterior cingulate, the orbitofrontal cortex, the amygdala, the posterior cingulate, the insula, and the temporal lobe. The amygdala is likely to be largely involved in the presence of antisocial behavior, as it is the brain area that produces emotions. The anterior cingulate is also a good candidate, as it regulates

emotional states and assists with impulse control. The insula helps an individual recognize violations of social norms, and is involved in experiencing anger, fear, empathy, and disgust. It also plays a key role in pain perception. As the psychopath tends to portray many of these traits, it is likely that these areas are involved in the development of the antisocial brain (Kiehl & Buckholtz, 2010).

Baron-Cohen (2011) identified an “empathy circuit” in the brain, which consists of an area the brain uses when one engages in empathic acts. These areas include the amygdala, caudate anterior cingulate cortex, medial prefrontal cortex, orbitofrontal cortex, and middle cingulate cortex. If one or more of these brain areas are deficient or damaged in some way, it could make social relationships quite difficult. Pemment (2013) asserts that there are two categories of aggression: reactive, wherein one reacts to a threat, and instrumental, which include behaviors one uses for personal gain. The “threat circuitry” in the brain includes the amygdala, hypothalamus, and the dorsal half of the periaqueductal gray. The frontal lobe has control over this area, so deficits in the frontal lobe may indicate impairment in one’s response to threats, which increases the chance that the individual would not see a problem with his or her reactive, aggressive behavior. Of course, it is normal for one’s body to respond automatically to an immediate threat, but without the tie to emotional thinking, an individual would likely display poor judgment in how to behave.

Raine, Lencz, Bihrlé, LaCasse, and Colletti (2000) performed a study that found an 11% reduction in gray matter in a group with ASPD when compared to the control group. Participants in this study included 21 men diagnosed with ASPD, 34 men who did not have ASPD or substance abuse issues (control group), and 27 men with substance

dependency. Clinical interviews were conducted for diagnostic purposes. To assess intelligence, five subtests from the Wechsler Adult Intelligence Scale (1981) were utilized (Vocabulary, Arithmetic, Digit Span, Digit Symbol, and Block Design). In addition, violence and psychopathy were assessed using an adult extension of the National Youth Survey for self-reported delinquency (Elliott, Ageton, Huizinga, Knowles, & Canter, 1983), the PCL-R (Hare, 2003), and the Interpersonal Measure of Psychopathy (Kosson, Steuerwald, Forth, & Kirkhart, 1997). Researchers also collected data pertaining to heart rate and skin conductance and magnetic resonance imaging (MRI). Findings from this study suggested a developmental abnormality exists that keeps certain brain areas from growing and developing. The antisocial group also had a reduced galvanic skin response (electrical changes present in one's skin as a result of emotional stress) when talking about antisocial acts they had committed. The authors noted that a past study with similar participants also showed significant reductions in both the left and right amygdala, suggesting impairment related to emotions (Yang, Raine, Colletti, Toga, & Narr, 2009).

A tract that connects the orbitofrontal cortex and the amygdala has also been implicated in the engagement of more severe antisocial behaviors. This tract allows for communication between the two areas, so damage to the tract might result in deficits. When lower levels of white matter were found within the area, or when the area was degraded, participants tended to show increased aggression and lower fear responses (Craig et al., 2009).

Some studies of patients with neurological disorders show how damaged brain mechanisms might predispose some individuals to antisocial and psychopathic behavior.

Both single case studies and studies involving series of patients indicate that persons who have suffered significant damage to both gray and white matter in the prefrontal region of the brain portray an antisocial, psychopathic personality (Damasio, Grabowski, Frank, Galaburda, & Damasio, 1994; Damasio, Tranel, & Damasio, 1990; Raine et al., 2000). These patients tended to display slow arousal to significant events and low emotional states, but not all individuals with prefrontal lesions develop antisocial symptoms. Also, patients displaying these symptoms only after a significant brain injury did not account for those individuals who portray antisocial or psychopathic personalities throughout their entire life.

Past research indicates that reduced serotonin function is linked to antisocial and aggressive behavior (Siegel & Crockett, 2013; Coccaro, Fanning, Phan, & Lee, 2015). In one study of 24 healthy adults (50% males, 50% females), lowered serotonin along with tryptophan depletion (which reduces the availability of both tryptophan and serotonin) reduced cooperative behavior among participants (Wood, Rilling, Sanfey, Bhagwagar, & Rogers, 2006). It is believed that serotonin may influence one's beliefs about others or their preferences for fair versus self-serving outcomes (De Quervain et al., 2004). Neuroimaging results have shown that punishing unfair behavior results in increased activation in the dorsal striatum, which is an area that relates to one's perceived goals and values. Acute tryptophan depletion increased these responses, which suggests that lower levels of serotonin increases the urge to punish others. This may arise from a desire to enforce social norms, or to harm those who violate norms (Crockett & Cools, 2015).

In a longitudinal study of 616 adolescents, Kretschmer, Sentse, Dijkstra and Veenstra (2014) found a link between a serotonin transporter gene (*5-HTTLPR*), peer

rejection, and antisocial behavior. In the study, data was collected from participants at ages 11, 13, 16 and 19. The participants were asked to complete the Antisocial Behavior Questionnaire (ABSQ; Moffitt & Silva, 1998) and partake in peer-related activities that involved nominations (Dijkstra, Lindenberg, Verhulst, Ormel, & Veenstra, 2009). In addition, information regarding the serotonin transporter was collected through blood samples or buccal (mouth) swabs. Findings from the study suggested antisocial behavior in late adolescence was predicted by peer rejection in preadolescence, especially for individuals who possessed a particular type of gene variant. The presence of the serotonin transporter gene *5-HTTLPR*, then, when coupled with peer rejection, may contribute to an individual's later participation in antisocial behaviors in early adulthood.

Physiological Factors

Antisocial behaviors appear to be related to low levels of physiological arousal. A low resting heart rate is correlated with antisocial behaviors such as lack of fear, a lower likelihood of feeling guilt or shame after a criminal act, and not learning from consequences (Armstrong & Boutwell, 2012). Poorer treatment outcomes have been found to be significantly related to lower overall arousal levels, such as low skin conductance levels, resting heart rates and basal cortisol levels. Higher overall arousal levels tend to lead to more favorable treatment outcomes (Berntson, Cacioppo, & Quigley, 1991; Cornet et al., 2014). Testosterone and cortisol levels were also shown to be involved in social aggression, and may be regulated by steroid hormones (Cornet et al., 2014; Montoya, Terberg, Bos, & van Honk, 2012; Shenk et al., 2012). In order to learn (or, for treatment to be successful), individuals need to have an “optimal” level of arousal (Mangina & Beuzeron-Mangina, 1992). Also important is one's ability to

emotionally bond with his or her therapist; having impaired social skills may prevent this from happening, but this has been rarely studied (Blair, Mitchell, & Blair, 2005; Catty, 2004; Cornet et al., 2014).

Gao et al. (2010) performed a study to propose that poor fear conditioning in children is one of the early neurobiological risk factors that influences some adult individuals in criminal offending. Poor autonomic fear conditioning had previously been linked to adult criminal and psychopathic behavioral traits, thus the authors hypothesized that individuals would learn to avoid these types of behaviors by associating stimuli related to antisocial events with later socializing punishments. This type of learning should cause an increase in anxiety and anticipatory fear in the individual whenever he considers performing an antisocial act or behavior, which should, in turn, motivate the individual to avoid such behavior.

Gao et al. (2010) also performed tests to measure fear conditioning in 1,795 three year olds by pairing a neutral stimulus with an unpleasant one, such as a loud noise. Over time, the neutral stimulus alone would cause a fear response that can be measured with physiological equipment. Twenty years later, the researchers compared the early poor fear conditioning with adult criminal behavior. Of the 1,795 participants, 137 individuals had been convicted of crimes by age 23. Results showed that skin responses to the conditioned stimulus were significantly smaller in children who later became criminals (Sterzer, 2010). In fact, skin responses to the conditioned stimulus were no different than skin responses to an unconditioned stimulus.

Familial Resemblance

Antisocial behaviors tend to run in families. Mothers and fathers with ASPD are more likely to have children who display symptoms of CD (Blazei et al., 2006). Li et al. (2017) examined gender differences in relation to antisocial behavior problems in a population of 655 children from 339 families. Participants were from an ongoing Michigan Longitudinal Study (MLS) of families with or without Alcohol Use Disorder (Zucker, Ellis, Bingham, & Fitzgerald, 1996; Zucker, Ellis, Fitzgerald, Bingham, & Sanford, 1996). Measures given included the Antisocial Behavior Checklist (Zucker, 1999), the Norbeck Social Support Questionnaire (Norbeck, Lindsey, & Carrieri, 1981), and the Family Environment Scale (FES; Moos & Moos, 1974). Findings indicated that antisocial behavior itself present in mothers had a direct effect on antisocial behaviors on their daughters. A mother's antisocial behavior, though, only had an effect on sons if the mother also had a drinking problem. Antisocial behavior in fathers had a direct effect on both genders. Children of mothers with Alcohol Use Disorder (AUD) had more relationship problems with siblings, friends, and classmates.

Boys diagnosed with CD are more likely to have parents with higher rates of ASPD than boys who have not been diagnosed with CD (Frick et al., 1992). Foley et al. (2001) conducted a study using 850 twin families to assess associations between psychiatric disorders in parents and their juvenile children and adolescents (8-17 years of age). Children and adolescents were interviewed to assess for CD, Major Depressive Disorder, Oppositional-Defiant Disorder, Overanxious Disorder, and Separation Anxiety Disorder according to the *Diagnostic and Statistical Manual of Mental Disorders III-R* (American Psychiatric Association, 1987). Children and adolescents were then given the

Child and Adolescent Psychiatric Assessment – Children’s Version (CAPA-C; Angold & Costello, 2000). Parents were given a parent version of the CAPA (CAPA-P), the Structured Clinical Interview for DSM-III-R (Spitzer, Williams, & Gibbon, 1987), the Diagnostic Interview Schedule for DSM-III (American Psychiatric Association, 1980), and the Adult Personality Functioning Assessment (APFA; Hill, Harrington, Fudge, Rutter, & Pickles, 1989). Similar to findings in the study by Li et al. (2017), the authors found that alcoholism in parents was related to an increased risk for CD in children. In addition, results suggested maternal psychiatric issues create a greater risk for children developing psychiatric issues than do paternal psychiatric issues. The presence of ASPD in parents was related to an increased risk of oppositional-defiant and conduct symptoms in males, as well as an increased risk for CD in males. These findings suggest a strong parental impact on the development of problematic behaviors in children and adolescents. Other familial factors that appear to contribute to the development of these behaviors include family disruptions, poor parenting, family violence, divorce, and marital discord (Blazei et al., 2006).

There do seem to be “broad indicators” of risk for both parent and child, which tend to be stable throughout childhood and adolescence, but most studies indicate that no parent-driven effects have been found to be consistent (Jackson & Beaver, 2015). Parenting styles may be somewhat related, with authoritative parenting protecting children from antisocial behaviors, and authoritarian and permissive parenting increasing the risk (Javdani et al., 2011). Findings from a study by Jackson and Beaver (2015) suggested family environment influences the development of antisocial behaviors, especially environments that lack warmth, support, parental monitoring, and appropriate

discipline. This study used data from the Early Childhood Longitudinal Study, Kindergarten Class of 1998-1999 (ECLS-K) that included data for over 21,000 children. Parents had been asked questions pertaining to involvement with their children, parental affection, parental withdrawal, attachment, corporal punishment, marital communication, marital conflict, quality of marriage, and mental health. For children, the study included data related to self-control, emotional behavior, social skills, and misconduct (self-report and parent-report). Overall, children with low self-control, difficult temperament, and behavior problems were more likely to come from a home with marital conflict, parent mental instability, and approval of the use of corporal punishment (Jackson & Beaver, 2015).

Behavioral genetics studies attempt to explain the role of genetic and non-genetic effects in explaining traits, characteristics, or patterns of behavior at the population/sample level. Comparing monozygotic (identical) twins who possess the same genetic material and dizygotic (fraternal) twins who share about half of their genetic material but mostly share similar environments, it is assumed that correlated behavior of monozygotic twins should be twice that of dizygotic twins (Ferguson, 2010). Behavioral genetic studies for antisocial traits propose that genetics contribute significantly to antisocial traits and behaviors.

Gender Differences

Males consistently display more antisocial behavior than females. In fact, according to Tremblay (2008), “maleness” is one of the main predictors of the development of antisocial behaviors. Lanctôt and Le Blanc (2002) assert that if females engage in criminal behaviors, the crimes are generally less serious than males commit. In

addition, females tend to exhibit antisocial behaviors later in adolescence than males, and the behaviors do not persist as long.

A study by Cernkovich et al. (2008) suggested gender differences are generally related to the level of involvement of the individual, and not the types of crimes committed. The authors' study used previously collected data (Cernkovich & Giordano, 2001) from 109 females in a juvenile institution in the state of Ohio. Data was obtained through personal interviews and was analyzed using logistic regression modeling. Researchers hoped to examine social and interpersonal associations with antisocial behavior by asking the respondents questions pertaining to family, peers, school, and other interpersonal areas. In addition, respondents were asked to report their involvement in delinquency by completing the National Youth Survey self-report delinquency scale (Elliot & Ageton, 1980). Interviews were also conducted with the same individuals about 13 years later. Instead of the National Youth Survey scale, though, participants were asked to complete a scale pertaining to adult criminal involvement (modified from Elliot & Ageton's 1980 scale). Results from this longitudinal study found that parental disapproval and parental conflict were strongly correlated with adolescent delinquency. With adult offenders, higher levels of criminal involvement were related to higher levels of abuse, both sexual and physical. This finding indicates the importance of taking into consideration the past levels of victimization an individual may have experienced, which may relate to current, problematic behaviors.

Research by Chabrol et al. (2014), sought to assess the impact of antisocial behavior on psychopathic traits in a population of 970 French high school students (592 males, 378 females). Using the Antisocial Behavior Scales (Schwab-Stone et al., 1999)

to assess antisocial behaviors, the How I Think Questionnaire (Barriga, Gibbs, Potter, & Liao, 2001) to assess self-serving cognitive distortions, and the Youth Psychopathic Traits Inventory (Andershed, Kerr, Stattin, & Levander, 2002) to assess psychopathic traits, researchers found girls have a higher risk of developing self-serving cognitive distortions and psychopathic traits if they repeatedly engage in antisocial behaviors, indicating that early preventative efforts may be effective in preventing the development of callous-unemotional tendencies. When developing prevention programs for antisocial youth, it is important to include cognitive processes as an area of treatment.

A review by Javdani et al. (2011) pointed out that males and females engage in different types of antisocial behaviors; males prefer more overt types of aggression (hitting, kicking, or punching), and females prefer more covert types of aggression (ostracizing others or gossiping). Crick and Grotpeter (1995) referred to these covert types of aggression as “relational aggression”, as they involve one’s social network. Although the types of behaviors are different, though, Javdani et al. (2011) pointed out that males and females seem to follow a similar trajectory of antisocial patterns. One difference is that females engage in fewer antisocial behaviors than males in childhood, increasing the behaviors in adolescence. However, if a female child engages in antisocial behaviors, these behaviors are more likely to continue into adulthood than if the behaviors begin in adolescence; this is the same for males.

Multiple studies indicate parenting styles may predict antisocial behavior for females (e.g., Hart, O’Toole, Price-Sharps, & Shaffer, 2007; Javdani et al., 2011; Jones et al., 2008). Authoritative parenting appears to be a protective factor against a child later engaging in antisocial behaviors. Authoritarian parenting, on the other hand, contributes

a risk for developing such behaviors. Research on parental monitoring consistently indicates lower levels of monitoring are related to increased participation in antisocial behaviors for both males and females (e.g., Bowman, Prellow, & Weaver, 2007; Javdani et al., 2011; Laird, Criss, Pettit, Dodge, & Bates, 2008; Vieno, Nation, Pastore, & Santinello, 2009; Windle et al., 2010). Females, though, may gain additional protective factors from parental monitoring if they feel they can self-disclose with parents (Bowman et al., 2007; Vieno et al., 2009).

In addition, certain external experiences may also contribute to gendered differences for antisocial behavior. For example, childhood sexual abuse seems to be a highly related risk factor for the development of antisocial behaviors in females (e.g., Cernokovich, 2008; Hahm, Lee, Ozonoff, & Van Wert, 2010; Javdani et al., 2011). Early puberty also may be a risk factor for females, as it also tends to contribute to early social maturation (Javdani et al., 2011).

Jordan (2011) claimed that males who exhibit antisocial behaviors have more trouble with attention and perform worse on intelligence tests, although poor academic achievement is attributed to both genders. Males were also found to be more likely to engage in antisocial behaviors if their friends did. In addition, emotional deficiencies appear to be a risk for males more than females. A study by Dadds et al. (2009) with a sample of 2,760 children (1393 males, 1367 females) between the ages of 3 and 30 assessed the relationship between psychopathic traits and deficits in empathy. The Griffith Empathy Measure (Dadds et al., 2008) was used to assess empathy. Self-reports from mothers were collected using pooled items from the Antisocial Process Screening Device (Frick & Hare, 2002) and the Strengths and Difficulties Questionnaire (Goodman,

1997) to assess antisocial behaviors in the children. Results indicated that psychopathic traits were related to deficits in affective empathy, or using appropriate emotional reactions to a given person or situation, for males only. In a longitudinal study of 1,480 twin pairs, though, which followed the twin pairs for six years (from ages 8 or 9 through ages 19 or 20), Forsman, Lichtenstein, Andershed, & Larson (2010) found low levels of empathy in childhood, paired with negative personality characteristics, such as callousness, as well a tendency to ignore possible risks of behavior, was associated with higher levels of antisocial behaviors in adulthood, but this was true for both genders.

Other Factors Related to Antisocial Behavior

This section discusses other factors that may be related to antisocial behavior. These possible factors include demographics, immigration status, self-esteem, social anxiety, and technology.

Demographics

Paradis et al. (2015) also found antisocial behaviors were significantly correlated to race (especially for Black males), having a low socioeconomic status, and having a parent with mental illness. Participants of this study included 2,776 offspring of mothers (33-40 years of age) enrolled in the Providence, Rhode Island site of the Collaborative Perinatal Project (CPP; Niswander & Gordon, 1972). From the originally collected data, information had been gathered from the mothers of participants pertaining to neurodevelopmental factors, such as if the mother smoked cigarettes during pregnancy or had pregnancy or delivery complications. Data on adult antisocial behavior was collected from adult arrest records, as well as from a diagnostic interview with participants. Neurodevelopmental risk factors that were linked to the development of antisocial

behaviors included maternal smoking, childhood behavior problems, and low intelligence. Factors such as pregnancy or delivery complications and low birth rate may have played a role, but only when combined with other environmental factors.

Immigration Status

A study by Vaughn et al. (2014) suggested that, although Americans tend to view foreigners as dangerous criminals, an idea the authors suggest is perpetuated by the media, immigrants to the United States are actually less likely to engage in violent or nonviolent antisocial behaviors than native-born Americans. Using data from waves I and II of the National Epidemiological Survey on Alcohol and Related Conditions, Vaughn et al. assessed 43,093 non-institutionalized residents in the United States ages 18 and above, and found Americans to be four times more likely to exhibit violent behavior than Asian or African immigrants, and three times more likely to exhibit these behaviors than Latin Americans. In addition, immigrants who came to the United States before the age of 12 were more likely to participate in antisocial behaviors, but still less likely native-born Americans.

Self-Esteem

Researchers have debated whether or not low self-esteem contributes to aggressive behavior. Some studies have suggested individuals with low self-esteem are more susceptible to externalizing behaviors (Fergusson & Horwood, 2002; Garofalo, Holden, Zeigler-Hill, & Velotti, 2016). Other studies, however, have claimed no relationship exists between low self-esteem and problematic behaviors (Kirkpatrick, Waugh, Valencia, & Webster, 2002; Twenge & Campbell, 2003). Donnellan, Trzesniewski, Robins, Moffitt, and Caspi (2005) conducted three studies to examine this

phenomenon. The first study sought to examine the association between self-reports and teacher ratings of self-esteem, and self-reports of delinquency in a sample of 292 students (ages 11-14 years of age). The second study included non-self-report measures from teachers and parents to analyze self-esteem, delinquent behaviors, quality of parent-child and peer relationships, socioeconomic status, and intelligence. The second study was longitudinal, and examined 812 participants both at age 11 and age 13. Study three sought to examine if excessively high self-esteem and narcissism contributed to aggression in a sample of 3,143 undergraduate students (31.7% male, 68.3% female; mean age = 19.6 years of age). Results from the three studies suggested low self-esteem predicts externalizing behaviors in individuals of all ages. An individual's level of self-esteem even seems to predict antisocial behavior. In addition, in the second study, 11-year olds with low self-esteem were more likely to increase their aggression levels by age 13.

Garofalo et al. (2016) also sought to examine the relationship between self-esteem and aggression, while simultaneously analyzing emotion dysregulation as a mediator. Data was collected from 153 male inmates from four prisons in Northern Italy, and 197 male individuals from the surrounding community. Participants were asked to complete an Italian translation of the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965), an Italian version of the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004), and an Italian version of the Aggression Questionnaire (Buss & Perry, 1992). Results from this study suggested offenders exhibited significantly lower levels of self-esteem than individuals in the community. Concerning emotion dysregulation, no differences were noted when overall scores were assessed, but offenders indicated greater

difficulty with emotional nonacceptance (nonacceptance in regards to their own emotional responses) which may have indicated these individuals struggle to regulate and reflect upon their own emotions. Interestingly, though, offenders only showed marginally higher levels of physical aggression than the community sample. This might suggest that the emotional components of aggression typify offenders more so than behavioral factors.

Moudgil and Moudgil (2017) examined the role of child rearing styles in relation to self-esteem and aggression levels. In a sample of 100 male and female students (18-20 years of age), aggression was found to have a positive relationship with permissive and authoritarian parenting styles. In addition, self-esteem was positively correlated with the authoritative parenting style. Assessments used in this study included the Aggression Questionnaire (Buss & Warren, 2000), the Self Esteem Inventory (Coopersmith, 1989), and the Parental Authority Questionnaire (Buri, 1991). Findings suggested greater use of permissive or authoritarian parenting styles may lead to higher levels of aggression in young adults. If parents used an authoritative style of parenting, though, wherein they exhibited a high level of acceptance of and involvement with their child, the child was more likely to develop healthy self-esteem.

Social Anxiety

Anxiety itself is common in individuals with a diagnosis of ASPD (De Brito & Hodgins, 2009; Meloy, 2007), but some recent research suggests the presence of Social Anxiety Disorder (SAD) among individuals who participate in antisocial behaviors. Band and Ahamad (2015) performed a study that included 500 adolescents (250 male, 250 female, 12-19 years of age) in order to analyze the relationship between social

anxiety and antisocial behavior. Participants were given an adapted version of the Social Anxiety Scale for adolescents (La Greca, 1999) and the Reynolds Adolescent Adjustment Screening inventory (Reynolds, 2001). A linear regression analysis suggested that social anxiety had a significant, positive effect regarding the development of antisocial behaviors. These results suggest that difficulties socially bonding with one's peers, further exacerbated by social anxiety, may set off certain antisocial behaviors, such as social avoidance.

Results from a study by Chabrol, Valls, van Leeuwen, and Bui (2012) indicated adolescents with high levels of both callous-unemotional traits and borderline traits show the highest amount of antisocial behaviors, as well as the highest levels of both depressive symptoms and social anxiety. This study included 972 high school students (594 males, 378 females; 14-21 years of age). Measures used included the Affective subscale for callous-unemotional traits from the Youth Psychopathic Traits Inventory (Andershed, Hodgins, & Tengström, 2007), the Borderline Personality Disorder scale from the Personality Diagnostic Questionnaire, Fourth Edition (Hyler, 1994), and the Antisocial Behavior Scale (Schwab-Stone et al., 1999). Researchers suggested these findings indicate that those individuals with callous-unemotional traits who show emotional distress and instability may be representative of an antisocial subtype of borderline personality. It is likely though, that individual differences regarding emotions would be present within this subtype, and so characteristics may vary from one individual to another.

Kashdan, McKnight, Richey, and Hofmann (2009) investigated the relationship between SAD and behavioral inhibition. Using data from the National Comorbidity

Survey-Replication (Kessler et al., 2004), Kashdan et al. analyzed data from 679 participants who had met the criteria for SAD in the last 12 months (37% male, 63% female; mean age = 39.9) and 1,143 participants who had met the criteria for SAD in their lifetime (39% male, 61% female; mean age = 41.5). For these participants, authors also examined behaviors related to risk-taking and impulsivity, as well as the severity and pervasiveness of SAD. Authors then composed a latent class model to help portray those individuals with SAD who engage in risk-prone behaviors. A small portion of participants indicated high levels of aggression and moderate levels of sexual impulsivity, two traits that are not usually associated with SAD. Findings were the same for both those who had lifetime diagnoses, and those who had only had symptoms within the last twelve months. Severity of SAD was only weakly correlated with risk-prone behaviors. These findings suggest there is a small subset of individuals who portray SAD symptoms while also participating in impulsive and risky behaviors.

Those with SAD have difficulty trying to live up to self-imposed unrealistic standards, which they assume society holds as well. This encourages these individuals to change undesirable behaviors, such as anxiety, so that others do not notice. Kashdan et al. asserted that trying to constantly control one's fears in social settings may eventually cause compromised executive functioning, which could lead to poor behaviors or bad decisions. Individuals with SAD who exhibit antisocial behaviors are doing so in an attempt to overcompensate for his or her socially anxious behavior. Aggressive behavior may be an attempt to gain an advantage over others so that socially anxious behaviors can remain hidden. It is also possible that the distress one experiences as a result of SAD could lead to making impulsive decisions, such as using or abusing substances, which is

largely correlated with participation in antisocial behaviors (e. g., Brook, Zhang, Rubenstone, Primack, & Brook, 2016; Compton, Conway, Stinson, Colliver, & Grant, 2005; Galbraith, Heimberg, Wang, Schneier, & Blanco, 2014; Moody, Franck, & Bickel, 2016; Ruiz, Pincus, & Schinka, 2008; Westermeyer & Thruas, 2005).

Technology

More recent studies lend support to the notion that modern advances in technology and increased participation in social networking are contributing to the rise in antisocial behaviors. Fox and Rooney (2015) examined the relationship between “Dark Triad” traits in relation to men’s use and behaviors on social networking sites. The Dark Triad includes three components: narcissism, Machiavellianism, and psychopathy. These traits are within the normal range of functioning, and so are present within the general population. The combined traits, or Dark Triad, describe an individual who is deceitful, self-promoting, cold, disagreeable, exploitative, and aggressive (Furnham, Richards, & Paulhus, 2013; Jonason & Webster, 2010). Fox and Rooney’s study included 800 males ages 18-40 years of age (73% Caucasian/European-American/White; 13.3% Black/African/African-American; 7.6% Latino(a)/Hispanic; 6.1% Asian/Asian-American; 1.3% American Indian/Native American; 2.3% multiracial; and 2% other). Individuals were asked to complete the Self-Objectification Questionnaire (SOQ; Noll & Fredrickson, 1998), and the Dirty Dozen (Jonason & Webster, 2010). Participants were also asked to report the amount of time spent per day on popular social networking sites, how many pictures they took (specifically “selfies”), and how often they used certain techniques to edit posted pictures. Findings suggested narcissism predicted editing and posting selfies, which supports the theory that individuals high in Dark Triad traits will

engage in manipulation in order to self-promote. The authors speculated this may be due to the insecurity commonly experienced by narcissistic individuals, and also as a way to feel superior to others. Psychopathic traits, too, were found to predict posting selfies, but not editing selfies. This may be due to the more impulsive nature of an individual with these traits. In this study, Machiavellianism did not predict use of social networking sites, nor posting or editing selfies.

Other studies, however, do indicate a relationship between Machiavellianism and involvement in social networking sites. Abell and Brewer (2014) examined responses from 54 males and 189 females to analyze if individuals who present with Machiavellian traits (cynicism, emotional detachment, and willingness to manipulate others) engage in self-presentation tactics, and if these same individuals are honest in their interactions online. The authors asserted that individuals often manipulate online information by controlling the type of information they post in order to create a positive image of self. Participants' Facebook activity was assessed by researchers, and then participants were asked to complete the MACH-IV (Christie & Geis, 1970) and adapted items from a self-monitoring scale (Snyder, 1974). In addition, researchers devised questions to assess self-promotion and online relational aggression. Researchers concluded that Machiavellianism influences online behavior. Both males and females with high levels of Machiavellianism engaged in more frequent self-monitoring online than those with low levels. Females, however, were more likely to be dishonest regarding self-promoting behavior, and engaged in more relational aggression towards others. Males, on the other hand, were involved in higher rates of online self-promoting behavior. High rates of Machiavellianism seem to influence an individual's online behavior, as well as how one

chooses to present oneself on social networking sites. By presenting a more favorable side of oneself, an individual is able to broaden the size of his or her social network, and thus increase available opportunities for exploitation and manipulation.

Rosenberg and Egbert (2011), too, found a relationship between Machiavellianism and online self-preservation tactics. Their study included 477 participants (23% male, 75.6% female), and sought to assess self-preservation tactics, secondary goals, self-monitoring, Machiavellianism, and affinity-seeking. Instruments used included the Self-Preservation Tactics Scale (Lee, Quigley, Nesler, Corbett, & Tedeschi, 1999), the Revised Self-Monitoring Scale (Lennox & Wolfe, 1984), the MACH-IV (Christie & Geis, 1970), and the Affinity-Seeking Instrument (ASI; Bell, Tremblay, & Buerkel-Rothfuss, 1987). In addition, goal scales were developed based on Dillard's Goals-Planning-Action model (Dillard, Segrin, & Harden, 1989). Results from this study suggested individuals with high levels of Machiavellianism did not show concern for interaction secondary goals, which include identity goals, interaction goals, personal resource goals, and arousal management goals. Instead, these individuals showed more concern for self-oriented secondary goals, which are more focused on one's own desires.

Valkenburg and Peter (2010) asserted it is the "anonymity, asynchronicity, and accessibility" of online communication that encourages users to disclose freely, as the online communication allows one to control his or her self-presentation and self-disclosure (p. 122). By maintaining anonymity, a person can choose what information to reveal and what to withhold from others. Asynchronicity allows an individual to reflect upon what he or she has written before sending or posting a message, which could be a

benefit to those who are socially shy or anxious. Accessibility allows one to choose an audience and share information quickly with individuals to whom they otherwise might never have had access.

Likewise, Wright (2013) suggested anonymity helps motivate online (cyber) aggression because it allows an individual to feel disinhibited, which lowers one's level of self-control. In a study involving 130 young adult males and females (60 males, 70 females; 18-25 years of age), Wright conducted a longitudinal study to analyze the relationship between one's beliefs regarding anonymity and cyber aggression, and the influence of one's beliefs about not getting caught participating in the behavior, as well as the permanency of content online. Participants were asked to complete a questionnaire at the beginning of the study, and again six months later. Questions were related to cyber aggression, beliefs about anonymity, beliefs about permanency of online content, and one's confidence in not getting caught. Findings from Wright's study suggested that anonymity was positively related to cyber aggression in the sample. Furthermore, it appeared these individuals choose anonymity for different reasons. Some choose it because it helps them feel more confident that they will not get caught participating in the aggressive behaviors, and some because they do not believe online content is permanent. Regardless of why the individual chooses to remain anonymous, it seems that anonymity on the Internet helps to perpetuate cyber aggression.

Valkenburg, Peter, and Schouten (2006) examined the relationship between one's involvement in social networking sites, and his or her self-esteem and wellbeing in a sample of 881 male and female adolescents (45% male, 55% female; 10-19 years of age). Results suggested the tone of feedback one received on social media was related to his or

her self-esteem, wherein positive feedback was associated with higher levels of self-esteem, and negative feedback was associated with lower levels of self-esteem.

Research also points to increased exposure to violent images as a contributor to the recently seen increase in antisocial behavior. An early study conducted by Linz, Donner, and Penrod (1988), which included a sample of 156 college age males, indicated that original feelings of anxiety and depression experienced after viewing sexually violent content tended to lessen as one exposure to the content increased. Negative arousal to the sexually violent content also decreased with more exposure. In addition, the desensitization to the violent content occurred rather quickly; participants were asked to watch a maximum of five films every other day. Notably, this desensitization to fictional content seemed to transfer to real life scenarios, with participants exposed to R-rated film violence showing less sympathy toward a hypothetical rape victim.

Later research by Fanti, Vanman, Henrich, and Avraamides (2009) further assessed the desensitization to violence over a short length of time. In a study of 96 male and female college students (50% male, 50% female; 18-26 years of age), the authors found desensitization in regards to violence in the media can happen after continuous exposure to the violence within a short span of time. Participants of the study were shown a series of short violent scenes and short comedy scenes in random order. After viewing the scenes, participants were asked to indicate if they had previously seen the entire movie. Participants were also asked to complete the Aggressive Acts Questionnaire (Barratt, 1991), as well as an adapted version of the Film Evaluation Instrument (Linz, Donnerstein, & Penrod, 1984). Participants were asked questions regarding the level of empathic response and sympathy they had regarding the victim of

violence. The authors note that, originally, participants had more aversive responses to the violent scenes. After repeated exposure, the aversion lessened, and participants reported feeling less sympathy for the victims of violence, and found more enjoyment in watching the violent scenes. These results suggest individuals become desensitized to violence upon increased exposure.

Exposure to media violence in childhood may be related to later aggressive and violent behavior in adulthood. In a longitudinal study from 1977-1992, Huesmann, Moise-Titus, Podolski, and Eron (2003) sought to investigate the relationship between television violence viewed between ages six and ten, and later aggressive behavior in adulthood. This study collected original data from 557 individuals, and follow-up data from 329 individuals. As children, participants were asked to report how often they watched certain television shows, how realistic they judged a television program to be, and how much they acted like similar television characters. In addition, child participants were asked to complete the Peer Nominated Index of Aggression (Huesmann & Eron, 1986) and the California Achievement Test (Tiegs & Clark, 1970). Parents of child participants were asked to complete scales four and nine of the Minnesota Multiphasic Personality Inventory (Huesmann, Lefkowitz, & Eron, 1978), and questions regarding parent practices and attitudes, as well as parent television usage. As adults, the child participants were asked to report their top three favorite television programs. In addition, adult participants were asked to self-report their levels of different types of aggression, and how often they engaged in aggression against their spouse or significant other. Then the participants were assessed in accordance with scales from the Minnesota Multiphasic Personality Inventory. Results from this study suggested viewing television violence in

youth wherein children identified with aggressive, same-sex characters and viewed the violence as realistic, was positively correlated with later aggression in adulthood. In addition, the level of violence the children viewed was related to the level of violence in which they later participated. Those individuals who viewed shows with very high levels of violence scored significantly higher on aggression as adults in comparison to other participants. Findings from this study point to the importance of the prevention of violence exposure to youth, especially if a child identifies with a particular character who perpetuates violence.

Treatment

Treatment for antisocial behaviors can be somewhat difficult, depending upon the severity of the behaviors an individual is displaying. For an individual whose behaviors are severe enough to support a diagnosis of ASPD, the question still remains as to whether or not a cure is even possible. The key, then, is to provide interventions as early as possible.

There is some indication that individuals who display severe antisocial behaviors, such as those diagnosed with ASPD, can, in fact, be treated. Some research has suggested these individuals might have a deficit in “mentalization” (Allen, Fonagy, & Bateman, 2008; Bateman & Fonagy, 2012), or metacognition (Semerari, Carcione, Dimaggio, Nicolò, & Procacci, 2007; Semerari et al., 2014), which is the “capacity to reflect and think about one’s mental states, to distinguish one’s own mental states from those of others, and to understand the actions of oneself and the others as meaningful” (Velotti et al., 2016, p. 38). If an individual is not successful at metacognition, it could bring about violence, or arousal, in response to feelings of shame or humiliation. If an

individual who participates in severe antisocial behaviors perceives his or her self-worth as threatened, he or she is then not able to make sense of his or her own emotionality, and tends to retaliate aggressively (e.g., “I don’t understand what you just said, so I’m going to assume it was disrespectful”).

A related concept is mindfulness, which Velotti et al. (2016) defined as “the proneness to be attentive to and aware of what is taking place in one’s inner world in the present, as well as the ability to keep one’s consciousness active to the present reality” (p. 39). Findings from Velotti et al.’s study of 83 Caucasian, European, male inmates (19-60 years of age), supported the idea that problems with mindfulness are related to antisocial personality traits, especially those related to acting with awareness, describing what one is experiencing, and experiencing something without judging. This study utilized the Italian version of the Millon Clinical Multiaxial Inventory-III (Millon, 2008), the Aggression Questionnaire (Buss & Perry, 1992), and the Five Facet Mindfulness Questionnaire (Giovannini et al., 2014). The authors noted that findings aligned with the idea that individuals who display more severe antisocial traits generally do not think before acting, do not pay attention to consequences that might follow from their actions, and find it difficult to provide reasons for their problem behaviors. If mindfulness *is* intact, which is more likely to occur in individuals who display aggressive behaviors, treatment becomes much more difficult because the individual is aware of what he or she is doing, and decides to do it anyway. However, findings indicated that at least some offenders might find benefit from treatment that focuses on awareness of their thoughts and feelings behind the problem behaviors and aggression, as opposed to centering treatment on the thoughts and feelings of their victims.

Using a sample of 173 male and female prisoners at a minimum-security jail in Seattle, Washington who had a history of abusing substances (79.2% male, 20.8% female; 19-58 years of age), Bowen et al. (2006) assessed the effectiveness of the use of Vipassana meditation. Measures included in this study were the Daily Drinking Questionnaire (Collins, Parks, & Marlatt, 1985), the Daily Drug-Taking Questionnaire (Parks, 2001), the Short Inventory of Problems (Miller, Tonigan, & Longabaugh, 1995), the Drinking-Related Locus of Control Scale (Donovan & O'Leary, 1978), and the Life Orientation Test (Scheier, & Carver, 1985). Baseline measures were gathered, then participants either attended a Vipassana meditation course, or treatment as usual. After a 15-month time period, assessments were given a second time. Results from the study indicated that individuals who had engaged in use of alcohol, marijuana, and/or crack cocaine were less likely to report substance use postincarceration if they had attended the Vipassana meditation course. In addition, psychosocial functioning in these individuals also appeared to improve. Individuals who had partaken in the Vipassana meditation course reported more internal alcohol-related locus of control, and higher levels of optimism. This research may allude to the importance of providing psychosocial treatment measures for incarcerated individuals with substance abuse problems.

The most difficult antisocial symptom to overcome is violence, mostly seen in those who display more severe antisocial behaviors (Day & Doyle, 2010; Gilbert & Daffern, 2010). Some medication may, in fact, prove to combat these violent traits when targeted towards the appropriate biological system (Meloy, 2007). In the aminobutyric acid system, Benzodiazepines can be used to inhibit affective aggression. In the noradrenergic system, Lithium and Propanolol can be used to enhance affective

aggression and inhibit predatory aggression. To inhibit both affective and predatory aggression in the serotonergic system, Lithium and Fluoxetine may be used. And in the electrical system, Phenytoin and Carbamazepine have shown to enhance both affective and predatory aggression (Eichelman, 1988).

Affective aggression describes a type of violence that is accompanied by high levels of sympathetic arousal and emotion (usually anger or fear) and comes as a reaction to a threat. Predatory aggression is violence, which is characterized by little arousal or sympathy and is emotionless, planned, and purposeful (Meloy, 2007). In order to determine which pharmacological intervention is appropriate, clinicians must analyze the mode of violence portrayed by the antisocial person. And, although these interventions might help reduce certain symptoms of ASPD, they will not, alone, completely treat a diagnosed individual. Many studies, find little to no difference in behavior after medicinal interventions. A review of eight studies involving 394 individuals with ASPD by Khalifa et al. (2010) identified only three drugs that were more effective than a placebo in at least one instance. These drugs were Nortriptyline, Bromocriptine, and Phenytoin. Results varied, though, depending upon the individual. Phenytoin was effective for reducing the frequency and intensity of impulsive violent acts, but not violent acts that were premeditated. Nortriptyline was effective for men with alcohol dependency, but this depended upon the severity of the alcohol abuse. Vollum et al. (2010) ascertained that most studies of this nature are poor in quality. In a review of ten studies, these authors found that anticonvulsants were used most often to treat violent symptoms. These drugs did seem to have some effectiveness in reducing aggression, but, as stated, with poor study quality, it is difficult to have confidence in the results.

Psychotherapy is the preferred treatment for antisocial behaviors or personality disorders. Cognitive behavioral therapy (CBT) has proven to be successful in correctional treatment programs. Cognitive behavioral therapy holds the belief that antisocial behavior is learned, motivated, and reinforced by internal factors within the patient and external factors in the environment. If the antisocial behavior is not disrupted, relapse is bound to occur. The main focus of CBT is to teach the individual new cognitive and behavioral strategies in order to break the cycle of reoffending. The mild to moderately antisocial patient is more likely to benefit from CBT, as he or she may be more motivated to change. However, for more severe displays of antisocial behavior, any change is unlikely to result from therapy. These patients are unable to foresee the long-term consequences of their behavior and remain unmotivated to change, as they do not see their behavior as a problem (Meloy, 2007).

Meloy (2007) asserted that treatment has a greater likelihood of being successful if an individual is motivated to change. The severity of the antisocial personality matters as well, as treatment is likely to be ineffective with severe populations. Meloy's guide to treatment planning for antisocial individuals suggested therapy combined with a firm emphasis on teaching individuals the skills to function within the normal limits of society has proven to be a more effective treatment (Meloy, 2007). According to Meloy, the best treatment plan for antisocial behaviors involves comprehensive care following six principles:

1. During the initial diagnosis, the severity of antisocial behaviors of the patient should be determined.

2. Any treatable conditions, such as mental or substance abuse disorders, should be identified.
3. Situational factors that may be aggravating or worsening the antisocial behaviors need to be eliminated.
4. The mental health professional should recognize the likelihood of potential legal problems.
5. Treatment should only occur if it is safe and effective for both the patient and the clinician; brief therapy should not be attempted.
6. Pay attention to all countertransference reactions as they could provide insight into the severity of the patient's disorder.

Kiehl and Buckholtz (2010) believe the antisocial individual is more deserving of help than society currently is willing to provide. Psychiatrists often feel that individuals who exhibit severe antisocial behaviors are beyond the point of treatment, and so tend to put in less effort when it comes to this disorder. Kiehl and Buckholtz have begun a project to gather more research by way of brain images and case histories from 1,000 individuals diagnosed with ASPD for study. A transportable MRI machine housed in a trailer is being used in order to more readily scan the brains of high security prisoners without having to take them off-site. Kiehl and Buckholtz estimate the total expense of prosecuting and incarcerating these individuals along with the costs of damage they cause in the lives of others to be between \$250 billion to \$400 billion a year (Kiehl & Buckholtz, 2010). The average individual with ASPD will be convicted of four violent crimes by the age of forty, yet funding for research in this area is minimal.

Studies regarding the successfulness of treatments and interventions do not seem to be very promising. Many studies performed did not include an appropriate sampling of individuals, while many other test results were inconclusive or inconsistent. Some research showed very little progress among individuals who display severe antisocial behaviors, and others suggested that treatment was effective. One study performed by Seto and Barbaree in 2001 (Seto & Barbaree, 2006) actually concluded that criminals who showed the most promise and improvement during treatment (as measured by sessions, quality of homework, and therapists' ratings of how motivated the individual was to change) were most likely to re-offend than other participants, especially in violent ways. It does seem true, however, that individuals with mild or moderate antisocial personality traits are more likely to benefit from therapy and other interventions than individuals with severe traits. Overall, though, most treatment does not appear to be significant in helping the antisocial individual, and certainly is not long lasting.

Treatment in adolescents who engage in antisocial behaviors, however, does appear to hold more promise. Again, the level of problem behavior an individual portrays does matter, as seen in a study performed by Gretton, McBride, Hare, O'Shaughnessy, and Kumka in 2001, where only 64 percent of adolescents with high ranking scores on the PCL-R (Hare, 2003) completed treatment compared with 80 percent of adolescents with low and medium scores (Salekin, Worley, & Grimes, 2010). But what this study also showed was that only 30 percent of individuals who completed the program reoffended violently whereas 80 percent who did not complete the program reoffended violently. Furthermore, those individuals with a high PCL-R score who had remained in treatment reoffended at the same rate of offenders with a low PCL-R score.

Salekin et al. (2010) found that about three out of eight studies showed adults benefitted from psychotherapy whereas six out of eight studies showed adolescents improved after treatment. With respect to adolescent studies, five out of five found that psychopathy scores were correlated with the outcome of treatment. It appears that the key to improving the behaviors of antisocial individuals is catching the symptoms early. Michael Caldwell, a psychologist at the Mendota Juvenile Treatment Center in Madison, Wisconsin uses intensive individual therapy, which he calls decompression, with juvenile criminal offenders who exhibit psychopathic tendencies. The program aims at ending the cycle of punishing bad behavior, which, he says, inspires more bad behavior, which is then punished. A group of over 150 juveniles were 50 percent less likely to take part in criminal behavior after participating in Caldwell's program (Caldwell, Vitacco, & Van Rybroek, 2006).

Theories of Antisocial Behavior

Social Learning Theory

Bandura's Social Learning Theory proposes that individuals learn aggressive behavior through observing such behavior in others (Bandura, Ross, & Ross, 1961). In his famous "Bobo doll" experiment, Bandura observed that children who were exposed to an aggressive model (an adult participant who behaved aggressively toward the Bobo doll toy) were far more likely to imitate the model's behavior than were children who were not exposed to the aggressive model. In society, children frequently come into contact with influential models, such as parents, peers, teachers, and characters on television. Children attend to these models, observing and then encoding their behavior.

Children are more likely to attend to and then copy behavior if the child identifies with the individual engaging in the behavior. The child's behavior, then, is either rewarded or punished by the people around him or her. If the imitated behavior is rewarded, or reinforced, the child is encouraged to perform the behavior again. The reinforcement can be external, such as from one's parents, or internal, such as whether the child feels happy about the approval. The reinforcement can also be positive or negative, but it must align with the child's needs.

Social Learning Theory also suggests that children consider the effect a behavior has on others before they decided to imitate the behavior. In this way, children can be reinforced vicariously. For example, if a sibling is praised for a particular behavior, the child then is more likely to copy the behavior. Children learn to identify with numerous people, such as parents, siblings, teachers, or even people in the media. In identifying with others, the child, then, attempts to adopt that individual's behaviors, beliefs and attitudes.

Expanding upon Bandura's theory, Tapper and Boulton (2005) sought to examine the ways in which children are rewarded for their aggressive behavior, and how these rewards vary by gender. In their study of 77 children in British primary schools (ages 7-8 and 10-11). Children were observed for aggressive behavior and victim and peer responses. Researchers witnessed a total of 125 acts of physical aggression, 278 acts of direct verbal aggression, 137 acts of direct relational aggression, and 52 acts of indirect relational aggression. Results indicated that direct aggression brought about retaliation or withdrawal from victims. Both direct and indirect aggression led to peer support for the aggressor. Acts of physical aggression seemed more likely to take place in the absence of

one's peers. It appears, then, in this sample, direct aggression was positively reinforced by one's peers, and negatively reinforced by victims. An analysis of gender differences suggested that girls were more often positively reinforced than boys for both direct relational aggression (70% versus 40%), and direct physical aggression (44% versus 36%).

Bandura (1977) later asserted that individuals actively consider the relationship between what they do and the resulting actions, or consequences. This is why one does not simply notice the behavior of another and then immediately reproduce the behavior; there must be some consideration given. Bandura termed this the mediational processes, of which there are four: attention, retention, reproduction, and motivation. Attention refers to how often one notices behavior, or, how often it attracts one's attention. Retention describes how well an individual remembers the behavior to which he or she has been exposed. Social learning does not generally occur in an immediate fashion; it must be linked to memory. Reproduction occurs once one then reenacts a behavior he or she has seen. Motivation refers to the individual's willingness or desire to repeat the behavior and the rewards or punishments that coincide with that behavior. If an individual thinks the perceived rewards will outweigh the costs, the chance of a behavior being imitated increases.

Research has aligned with Bandura's theory, providing support for the idea that aggression in adolescents is associated with aggression in parents. In a study of 292 junior and high school students (46.7% male, 53.3% female; 13-18 years of age), Winstok and Perkis (2008) that aggressive tendencies of both genders were associated with aggressive tendencies in both same-gendered parents and close friends. Participants

were asked to complete an assessment regarding their intentions to react to aggression (Winstok & Enosh, 2007), and then were asked to respond to similar questions regarding the intentions to react to aggression of their parents. The findings followed Bandura's notion that one learns from others through observation, modeling, and imitation. This also aligns with previous research on Bandura's theory, which asserted children are more likely to model and imitate their same-sex parent (Bandura & Walters, 1963; Perry & Bussey, 1979).

Social Control (Social Bond) Theory

Social Control Theory, developed in 1969 by Travis Hirschi, posits that one commits criminal, or antisocial, behaviors when he or she does not feel properly bonded to society. Humans naturally want to feel as if they belong; if they do not feel a sense of belonging, they may stray to antisocial behaviors or criminal activities. The four elements that bond an individual are attachment, commitment, involvement, and belief. Attachment refers to one's internalization of norms, a conscience, and the superego, which is dependent upon his or her attachment to others. Commitment refers to one's desire to follow and obey rules so as to not face the consequences of breaking them. Involvement refers to how often one engages in social activities; if one is more heavily involved, he or she will have less time to dedicate to antisocial acts. Belief can be related to deviant behavior in two ways: A person can either ignore the beliefs he or she was taught, or rationalize his or her behavior so as to perform the antisocial acts while still believing the behavior is inappropriate.

Poor bonding begins with one's relationship to his or her parents. If an individual is disciplined harshly and does not have appropriate supervision, he or she may not

develop a strong sense of internal control or respect for societal norms and values (Patterson et al., 1990). Society enforces certain rules to restrict antisocial behavior, but if a person does not feel he or she has control over his or her own environment, the temptation to engage in antisocial behaviors or commit crimes may arise. Hirschi (1969) ascertained that humans are animalistic and hedonistic by nature, and, as such, are capable of participating in such acts if they do not feel restricted. His four elements help describe how one conforms to societal norms.

Control Theory sees the cause of antisocial behaviors as obvious; the behaviors are fun, and people enjoy seeking pleasure. If an individual does not participate in antisocial behaviors, it is because he or she aspires to fit in with and bond to society. If antisocial behaviors persist throughout one's life, it is because the individual did not appropriately bond to his or her parents and, later, to society. This theory explains both male and female delinquency, and appears to be more likely to occur when a child experiences a lack of supervision (Cernkovich et al., 2008).

Using Hirschi's theory as a guide, Han, Kim, and Lee (2016) conducted a study to analyze the effect of attachment on adolescent substance use. The study included 3,449 Korean youth, and utilized data from waves 1-5 of the Korea Youth Panel Survey (Korea National Youth Policy Institute, 2010). This data included information about alcohol and cigarette use, wherein participants had been questioned at five different intervals from the second year of middle school to the third year of high school. In addition, participants completed a questionnaire regarding parental attachment, teacher attachment, and attachment to close friends. Results from the study suggested attachment to one's parent(s) and teacher were related to delayed initial alcohol and cigarette use.

Attachment to one's peers, however, was related to early substance use initiation. Quality time with and approval from one's parents seemed to serve as a protective factor against experimentation with and continued usage of harmful substances. If a youth's peers chose to engage in substance use, though, it increased the likelihood that youth would also engage in such behaviors. Perhaps the bond one has with his or her parents and teachers also serves as a protector against choosing friends who engage in problematic behaviors.

Hart and Mueller (2013) sought to examine the relationship between school delinquency and social bonds, influenced by the assertions in Hirschi's theory. Their study used data from the Education Longitudinal Study of 2002 (ELS; Ingels, Pratt, Rogers, Siegel, & Stutts, 2004). The sample included 11,758 10th graders (47.5% male, 52.5% female). Using hierarchical regression analysis, researchers examined information related to socioeconomic status, parental involvement, bond to school, beliefs, commitment to sports, commitment to non-sport activities, involvement in school-sponsored activities, and school delinquency.

Results from the study showed social bonding accounted for 11.2% of the variance in school delinquency after researchers controlled for socioeconomic status. Socioeconomic status did not appear to have a large influence on social bonding, although the relationship between the two was statistically significant. In addition, the association between gender and social bonding added another 1.5% of the variance in school delinquency. Greater parental involvement, stronger bonding with school, higher levels of commitment to non-sport activities, and higher levels of involvement in general all were associated with lower levels of delinquency. Also, school bonding was a

stronger protective factor for males than for females. This study suggests that helping to involve children in school-related activities may increase the child's bond to the school and, as a result, decrease school delinquency.

General Theory of Crime

Gottfredson and Hirschi's (1990) General Theory of Crime asserts there are six factors that indicate low self-control: risk seeking, preference for physical activities, non-verbal communication, short sightedness, volatile temper, and impulsivity. Individuals with low self-control are thought to engage in more antisocial behaviors, which, Gottfredson and Hirschi claim, could be "the" cause of crime. These individuals also tend to be insensitive to the needs of others, and so have more problems in social relationships. The theory continues on to warn about the "origins postulate", which states that parents must pay close attention to their children, and appropriately identify and discipline bad behavior. If a child has not developed self-control by ages eight to ten, it may be unlikely to ever develop. As a result, the authors considered self-control a trait that stays relatively stable throughout one's life.

Over the years, researchers have raised issue with this theory's generalizability and accuracy. Ha and Beauregard (2016) pointed out three main concerns regarding the theory. First, Gottfredson and Hirschi posited that low self-control most likely contributes to one's participation in crime when that individual is exposed to crime opportunities, however, the opportunity for crime has rarely been studied in relation to this theory, with self-control dominating most discussions. Second, most research regarding this theory has not focused on samples with high levels of criminality, and so it is difficult to generalize the findings to populations with higher crime rates and more

severe behaviors. Third, studies that test the General Theory of Crime have chosen to examine how low self-control contributes to involvement in criminal activity. These studies, though, have not assessed how low self-control relates to the different factors involved in the process of committing a crime. Gottfredson and Hirschi pointed out that situational factors and individual traits could also affect self-control, and so it should follow that these other conditions and propensities are taken into consideration.

Temperament-Based Theory

More recently, DeLisi and Vaughn (2014) have proposed the idea that temperament has the best potential for creating a unified theory for lifelong antisocial behaviors. They assert that temperament is stable, is related to both environment and social interactions, is heritable, and is relatively stable throughout one's life. The authors think there should be one theory to explain antisocial behaviors, regardless of environment or developmental stages, and this theory should hold for the individual's entire life.

DeLisi and Vaughn's 2014 study looked at the concepts of effortful control and negative emotionality. They defined effortful control as the "ability to inhibit a dominant response in favor of performing a subdominant response." As an infant, humans first learn to self-regulate by being able to maintain focus despite distractions. Around age three or four, one learns to behave appropriately in social settings, which involves the maturation of the prefrontal executive attention system. In later years, self-regulation relates to one's social life and expectations at school or work: one must sit still, take turns, stand in line, or raise one's hand. If an individual has deficits in self-regulations at this developmental stage, problem behaviors will begin to surface. Limitations in this

area lead to social problems, conduct problems, and relational problems, and are related to delinquency and recidivism.

Negative emotionality occurs when an individual perceives the environment and interactions with others as negative. Feelings such as frustration, discomfort, sadness, and soothability (rate of recovery from peak arousal) are related to this concept. There exists some evidence that children with high levels of negative emotionality are at risk for engaging in antisocial behaviors. Emotions such as fear and anger are associated with much more maladaptive behaviors (DeLisi & Vaughn, 2014).

The combination of a lack of effortful control and negative emotionality, then, increases the likelihood of antisocial behaviors. Generally, this type of individual will display emotional interactions and behaviors that others see as maladaptive. Once met with social disapproval, the individual is likely to engage in antisocial behaviors, creating conduct issues. An individual with more effortful control tends to be more socially competent and well adjusted. On the other hand, if one has higher levels of anger and lower levels of inhibitory control, he or she tends to show greater amounts of aggression (DeLisi & Vaughn, 2014).

Development of Emotional Intelligence

Martos, Lopez-Zafra, Pulido-Martos, and Augusto (2013) conducted a study to examine the relationship between EI, self-monitoring, and empathy. The authors noted that empathy has been studied using both cognitive and affective-based approaches. The cognitive approach states that empathy is cognitive and involves considering another's perspective. The affective approach looks at empathy as shared affection with another. A newer, integrative view consists of four parts, including perspective taking (ability to take

another's perspective), fantasy (ability to identify with fictional characters), empathic involvement (experiencing concern for others) and personal distress (feeling discomfort when someone else endures a negative experience). This view focuses more on perspective taking and empathic involvement, as these two factors have shown significant relationships with other variables. Martos et al. assert that in past studies, empathy has been related to effective leadership within organizations, superior interpersonal relations, and positive work atmosphere and teamwork. On the other hand, empathy may also be related to neuroticism, fatigue, and emotional burnout.

Dimitriu and Negrescu (2015) saw EI as a "collection of attitudes" that allows one to take in emotion-related information (p. 302). The authors further elaborated, stating that cognitions and emotions influence each other. They conducted a study based on four components of Baron and Parker's (2000) EI concept to examine the relationship between EI and one's tendency to use dysfunctional cognitive schemas. The four components include an intra-personal aspect, an interpersonal aspect, adaptability, and stress management. The intra-personal aspect describes being aware of one's own emotions. The interpersonal aspect consists of elements such as empathy for and social responsibility to others. Adaptability comprises problem solving and flexibility, and stress management takes into account things like controlling one's impulses and mood. Dimitriu and Negrescu's study suggested that the stage of development of an individual is inversely related to EI and the use of dysfunctional cognitive schemas. Findings from Dimitriu and Negrescu's study suggested that lower scores on the Emotional Intelligence Inventory (Wood & Tolley, 2003) indicated a greater likelihood for one to feel depressed, anxious, or angry, which then led to a person engaging in self-defeating behaviors. These

individuals also had a tendency to develop negative coping mechanisms, such as rumination, worry, dissociating, depression, or substance abuse.

Some studies have reported negative correlations between mindfulness and perceived stress, but what accounts for this relationship is unclear. As mindfulness increases (due to some intervention), perceived stress decreases (Black, Sussman, Johnson, & Milam, 2012; Bränström, Duncan, & Moskowitz, 2011; Gard et al., 2012). According to Bao, Xue, and Kong (2015), mindfulness is “a receptive attention to and awareness of internal and external experiences as they occur” (p. 48). Mindfulness is generally understood to be a positive influence on one’s psychological well-being, physical health, and quality of relationships (Brown & Ryan, 2003; Brown, Ryan, & Creswell, 2007). The relationship could be due to more developed EI in some individuals, which can result in a higher state of well-being. In contrast, the less awareness or mindfulness one displays, the lower his or her EI and overall state of well-being.

Familial Influences

Sánchez-Nuñez, Fernández-Berrocal, and Latorre (2013) conducted a study to examine the self-reported emotional intelligence (SEI) and perceived emotional intelligence of family members, including mothers, fathers, and children. Past research has indicated that parents who are more sensitive and responsive to their children’s emotions, and who are able to monitor and regulate their own emotions, tend to produce children who are emotionally intelligent (e.g., Salovey, Bedell, Detweiler, & Mayer, 2000; Cumberland-Li, Eisenberg, Champion, Gershoff, & Fabes, 2003). The development of SEI appears to be influenced by culture and differences in family

relationships. Two socialization “routes” identified by Matthews, Zeidner, & Roberts (2002), wherein parents teach children emotions, were the direct effect route, where parents convey emotional abilities to their child openly (guidance, conversation, coaching), and the indirect effect route, where parents convey emotional abilities to their children without awareness (observation, modeling).

The results from the Sánchez-Núñez et al. (2013) study indicated a positive relationship between parent’s SEI for attention and clarity and children’s SEI for attention and clarity. The authors noted that there may be a “need” effect associated with this finding, meaning that the more attentive a parent is to emotions, the more attentive a child will be to emotions, and the greater the need for clarity of emotions would be. These results support the indirect effect route, which places an emphasis on social interactions between family members as a means for children to learn emotions.

Alegre (2012a) conducted a study to examine the relationship between EI in children and the mother-child relationship. Emotional intelligence has been associated with many positive outcomes in past studies, and is purported to be adaptive and flexible. The author differentiated between trait EI, one’s self-perception of his or her emotions measured through self-report, and ability EI, a group of emotional abilities measured through performance. Abilities can be taught, but the author felt that trait EI was more indicative of one’s individual personality, and was likely to have come through human interactions, such as the mother-child relationship. In past studies, researchers have looked at how parents educate their children; instead, Alegre hoped to look at “parent-child joint activities” (e.g., singing, doing puzzles, playing games) where parents and children are able to relate to each other, and children feel accepted. Previous research

has indicated that those mothers who engage in these activities with their children produced children with fewer emotional and behavioral problems. The author's intent was to examine this relationship with parents and younger children, as younger children are more likely to be influenced by their parents, and older children tend to want to gain independence from their parents and become more influenced by their peers.

Alegre's study included 155 mothers and 159 children. Child participants were between the ages of seven and twelve (55.3% male, 44.7% female). Alegre developed a questionnaire based on Galboda-Liyanage, Scott, and Prince's (2003) time categories to assess how much time mothers spent engaged with children in different activities during the week. To examine EI, child participants were asked to complete the Emotional Quotient Inventory: Youth Version (Baron & Parker, 2000) and the Trait Meta-Mood Scale for Children (Rockhill & Greener, 1999). Responsive parenting was assessed using the Responsive Parenting Scale (Alegre, 2012b). Results indicated that the amount of time parents spent in joint activity with their children was positively related to their child's social and emotional development and mental health, and negatively related to adolescent smoking, drinking, and drug use. This relationship between mother and child may be so important because mothers model emotion regulation to their children, and, as a result, children learn to regulate their own emotions. More time together means more time for modeling and reinforcement. It also appeared that time spent together reduced conduct problems in children, which may be due to the amount of shared attention that occurs in joint activities, wherein the child needs to regulate his or her emotions to answer to the demands of the activity. Another finding was that time spent engaging in

educational activities was related to the child's trait EI, interpersonal intelligence, and their aptitude at attending to and understanding emotions (Alegre, 2012a).

Neurological Factors

Research related to traumatic brain injury has indicated that an injury to the temporal lobe or right amygdala can cause problems with emotion regulation. In addition, injury to the frontal lobe can decrease one's abilities in recognizing negative emotions in others (Gawryluk & McGlone, 2007; Callahan, Ueda, Sakata, Plamondon, & Muray, 2011). In a study of patients with low and medium level brain injuries, Hadjam and Chizanah (2015) noted that simply having a brain injury seemed to significantly affect EI, and it did not matter the location or the severity of the injury in the brain.

Gender Differences

Studies on ability EI (which assesses EI performance) suggest EI levels may be related to gender, with females steadily achieving significantly higher EI scores than males. There is also some data that indicates gender differences in brain activity during performance of emotional tasks (Jaušovec & Jaušovec, 2008). Regarding perceived EI, which looks at EI as a personality trait, males have scored higher than females on some EI measures, and some results have been inconclusive (Batool & Khalid, 2009; Salguero, et al., 2014). Brackett, Rivers, Shiffman, Lerner, and Salovey (2006) suggest that although a person has higher EI abilities, it does not necessarily mean that he or she has a high perception of his or her emotional self.

Results from a study by Salguero et al. (2014) indicated a negative association between perceived EI and depression in women, but found no significant correlations in relation to ability EI. There was also a significant correlation between ability EI and

perceived EI, indicating that women with higher EI levels do not always see themselves as having high emotional skills, but this correlation was low to moderate. Women seemed to be less depressed only if they had high scores in both ability EI and perceived EI. Perceived EI seemed to explain depression in women in that it enhances the influence of ability EI.

Theories of Emotional Intelligence

Ability Measures

Ability measures see EI as the combination of different skills:

the ability to perceive accurately, appraise, and express emotion; the ability to access and/or generate feelings when they facilitate thought; the ability to understand emotion and emotional knowledge; and the ability to regulate emotions to promote emotional and intellectual growth. (Salovey & Sluyter, 1997; p. 10)

According to some studies, ability EI differs significantly with gender, with women performing better than men. However, effect sizes in these studies also vary. Some studies show low effects (e.g., Fernández-Berrocal, Cabello, Castillo, & Extremera, 2012), and some show medium effects (e.g., Farrelly & Austin, 2007).

Cabello and Fernández-Berrocal (2015) sought to discover how emotions and EI are related, and how much people perceive them to be changeable. The authors also examined how implicit theories of emotion and EI are associated with ability EI. Implicit theories “function like knowledge structures, through which people interpret themselves and others” (p. 2). Individuals often keep their behavior in compliance with these knowledge structures, and so such theories can have a large impact on one’s behavior, and may account for why different people respond differently to the same stimuli, or even therapy. People hold differing views on the possibility of change in regards to cognitions, emotions, and behavior, and this can affect many areas, such as intelligence,

emotion, social skills, relationships, management, judgment, and stereotyping (Dweck, 2012).

The results from Cabello and Fernández-Berrocal's (2015) study suggested that implicit theories of emotion and EI affect total ability EI on the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT; Mayer, Salovey, & Caruso, 2002). This study included 688 adults (37% male, 63% female; 19 to 73 years of age). Participants were asked to complete the MSCEIT, the Implicit Theories of Emotion Scale (Tamir, John, Srivastava, & Gross, 2007), and an adapted version of the Implicit Theories of EI scale (Dweck, 1999). The authors found that those individuals who feel people can control and change their emotions ('incremental theorists') have higher ability EI, indicating that if one believes he or she can alter emotions, he or she is more likely to use effective strategies for coping. These incremental theorists also tended to have fewer negative emotions. Results from this study can be useful for interventions because it indicates that emotions may be changeable depending upon circumstance or coping strategy.

Mayer-Salovey Four Branch Model

Mayer and Salovey (1997) proposed a 16-step developmental model of EI, which spans from childhood to adulthood. They envisioned emotional abilities as part of a continuum that includes individuals with very fundamental emotional skills, as well as those who have mastered emotion management. This model includes four different branches: one's ability to recognize emotions in self and others, one's ability to use his or her own emotions to aid in thinking, one's ability to understand emotions and how they are expressed by others, and the ability to manage and regulate one's own emotions to achieve goals. The authors then broke down the four main branches into more specific

skill sets. To measure these different abilities, Mayer et al. (2002) developed the MSCEIT, which consists of eight tasks for a participant to complete (two tasks per branch of the model). Responses of participants are compared to responses provided by emotional researchers from a study performed on a normative sample. The MSCEIT has been widely used, and has been validated with different cultures (Karim & Weisz, 2010) and languages (Curci, Lanciano, Soleti, Zammuner, & Salovey, 2013; Ma, Tsai, Chang, & Lane, 2010; Sanchez-Garcia, Extemera, & Fernandez-Berrocal, 2016).

Bar-On Model

Bar-On's (2006) model identifies EI as emotional and social competencies and skills, which are interrelated with each other. One's characteristics influence how efficiently he or she can understand and express the self, appreciate and relate with others, and manage daily tasks and demands. The competencies and skills to which Bar-On referred include intrapersonal skills (self-awareness and self-expression), interpersonal skills (social awareness and interpersonal relationships), stress management (emotional management and regulation), adaptability (change management), and general mood (self-motivation). Bar-On asserted that both EI and cognitive intelligence equally factor into one's general intelligence level, which provides a formula for one's potential for success. Baron created the Emotional Quotient Inventory (EQ-i), which has been translated into more than thirty languages and used among numerous populations, allowing for extensive data collection (e.g., Bar-On, 2006; Van Zyl, 2016).

Goleman Model

Daniel Goleman (1998) postulated the idea that EI comprises five elements: self-awareness, self-regulation, social skill, empathy, and motivation. His concept focused on

how the four elements drive leadership performance. Self-awareness allows a person to know about his or her own emotions and inner drives and use them to make decisions. Self-regulation lets one manage his or her own emotions, especially when those emotions become problematic; he or she can then change to adapt to a situation. Having good social skills means using one's emotions to motivate others. Having empathy helps a person recognize and understand the emotions of others, and how one's own decision might affect others. Motivation is what moves a person towards achieving his or her goals.

Goleman did not think these factors were inherited characteristics, rather, they are skills one can learn, develop, and improve over time. He felt that individuals inherit a general EI at birth, which then predicts one's capacity for learning emotional capabilities. Both Goleman's and Bar-On's models have been critiqued for conceptual weakness, as they heavily rely upon personality traits and dispositions (Grunes, Gudmundson, & Irmer, 2013; McCrae, 2000).

Trait Measures

Petrides (2010) broke away from the concept that EI is ability-based and, instead, asserted that EI is a personality trait. Petrides felt it was important to include one's subjective experiences when defining EI, as they are a part of one's personality. This allows for a person to self-report his or her own traits, instead of having them scientifically measured, assuming that one can accurately describe his or her own traits. He described trait EI as "a constellation of emotional self-perceptions located at the lower levels of personality" (2001, p. 137).

In 2009, Petrides developed the Trait Emotional Intelligence Questionnaire (TEIQue) to assess global intelligence in individuals. From the original version, Cooper and Petrides (2010) developed a short-form (TEIQue-SF), and conducted two separate studies to test the psychometric properties. In a sample of 1,119 university students and general community members, internal consistency reliability was shown by a Cronbach's alpha of .89 for men ($N = 455$) and .88 for women ($N = 653$). In a sample of 866 university students and general community members, internal consistency reliability of the TEIQue-SF was shown by a Cronbach's alpha of .88 for men ($N = 432$) and .87 for women ($N = 416$). For both studies, the authors conducted an item response theory analysis (IRT) using the graded response model. Results from the first study indicated that most residuals were .00 or .01, and no residuals were higher than .04, suggesting a reasonably good model-data fit. Results from the second study indicated that most residuals were .00 or .01, and no residuals were higher than .02, which suggests good model-fit data. An exploratory factor analysis suggested the trait EI factor was sufficiently dominant to justify using a unidimensional IRT model (all factor loadings about .30 except for one for both studies). For study two, four items were rewritten to more accurately align these items with the original items of the TEIQue.

Agnoli, Pittarello, Hysenbelli, and Rubaltelli (2015) used the TEIQue-SF to assess how trait EI motivates individuals to help others. In their study, the authors found that receiving more negative feedback caused differences in perceived efficacy for the participants; negative feedback created higher negative affective states, and participants revealed greater levels of sadness, guilt, and fatigue, and lower levels of joviality and self-assurance. Repeatedly giving positive feedback to those individuals with low trait EI

decreased the intensity of their negative affect, and they then became more stable, with higher scores.

When Petrides (2009) first constructed the TEIQue, he aimed to determine an overall, global EI score. In addition, Petrides included four subscales: WBE, SCN, EMO, and SOC. Wellbeing assesses one's self-esteem, trait happiness, and trait optimism. Self-control examines emotion regulation, stress management, and low impulsiveness. Emotionality analyzes emotional perception, trait empathy, emotion expression, and relationships. Sociability seeks to measure assertiveness, emotion management, and social awareness (Petrides, 2009; Siegling, Vesely, Petrides, & Saklofske, 2015).

Emotional Intelligence and Antisocial Behavior as Correlates

Most research links EI with prosocial behavior (actions intended to help others), because EI relates to how well one is able to process the emotional information from both self and others (e.g., Brackett & Mayer, 2003; Brackett et al., 2006; Penner, Dovidio, Piliavin, & Schroeder, 2005). However, that may not always be the case. If one's EI is used in an antisocial way, it could assist an individual in manipulating others to engage in sociopathic acts (Davis & Nichols, 2016; Kilduff et al., 2010). Emotion regulation includes knowing how to modify one's own emotions to match a situation, and is proposed to be a contributing factor to both prosocial *and* deviant behavior (Bennett & Robinson, 2000).

Some researchers have chosen to assess the trait "Machiavellianism" in relation to emotional functioning. Machiavellianism is described as manipulating others for personal gain. Some of the associated traits include callousness, selfishness, and

malevolence in relationships. The three core components of this behavior include being deceptive during interpersonal interactions, having a cynical view of human nature (seeing others as weak and untrustworthy), and having a disregard for moral principles. These individuals tend to be detached and impersonal, and are able to look at situations critically without emotion. However, little research has been performed regarding the cognitive factors associated with Machiavellianism. It is generally assumed that these individuals are not influenced by emotions, and have little difficulty reading the emotions of others (Bereczkei, 2015).

Studies have indicated that individuals with Machivellian traits are good at accurately evaluating another person's personality, character, and thinking. This type of mind is necessary for skilled and deceptive manipulation of others (e.g., Christie & Geis, 1970; McIllwain, 2003; Paal & Bereczkei, 2007). The superiority of these individuals may not be related to cognitive abilities, but rather their emotional "coolness", which allows them to concentrate without being distracted (Bereczkei, 2015).

Results from a study by Côté et al. (2011) first identified emotion-regulation knowledge as a moderator between one's moral identity and his or her prosocial acts defining prosocial behavior as "the degree to which individuals refrained from depleting a common pool of resources" (p.1076). The study consisted of 131 undergraduate university students (41% male, 59% female; 18-26 years of age). The Situational Test of Emotion Management (STEM; MacCann & Roberts, 2008) was used to assess emotion-regulation knowledge. Moral identity was assessed using a measure of moral identity by Aquino and Reed (2002), and prosocial behavior was assessed using a social-dilemma situation created by Brewer & Kramer (1986). A second study by Côté et al. (2011)

indicated that knowledge of emotion-regulation was not correlated with deviant relationships, but did moderate the relationship between Machiavellianism and interpersonal deviance. In addition to using the three above-referenced instruments, researchers examined Machiavellianism using the MACH-IV scale (Christie & Geis, 1970), cognitive ability (Wonderlic Personnel Test; Wonderlic, 1992), and interpersonal deviance (Bennett & Robinson, 2000). This study may help explain the idea of individual differences regarding EI; depending upon the person, high EI could be used for either adaptive *or* maladaptive means.

Cleckley (1941) noted that just because an individual exhibits a number of antisocial traits does not make him or her a criminal; many antisocial, and even psychopathic, individuals are functioning members of society. Criminals tend to have issues with impulsivity, but that does not hold true for all antisocial individuals. In fact, according to Gao and Raine (2010), college students who score high on psychopathic traits showed similar cognitive and emotional deficits as incarcerated psychopaths.

Fix and Fix (2015) also noted that certain components of EI positively correlated with trait psychology. Higher trait psychology was predicted by lower intrapersonal and general mood scores, and higher stress management and interpersonal scores on the EQ-i (Bar-On, 2008). In addition, those with high trait psychology showed low levels of caring for others, difficulty understanding experienced emotions, and a pessimistic emotional outlook. The difference between successful and unsuccessful psychopaths, the authors noted, relates to relationships; successful psychopaths are able to use their manipulative and deviant traits to their own advantage while unsuccessful psychopaths

do not. Coldheartedness, a rather unemotional quality, is a key factor in psychopathy, even for those traits found in college students.

Research on socio-emotional intelligence also indicates that emotional skills are not always used in positive ways. Socio-emotional intelligence generally is seen as an adaptive, positive trait, but some components of it are quite similar to those present in emotional manipulation. For example, both involve an ability to influence the emotions of others (Austin, Farrelly, Black, & Moore, 2007). Nagler et al. (2014) assessed the relationships between what they called the “Dark Triad” traits (Machiavellianism, narcissism, and psychopathy) and emotional manipulation. Results suggested that emotional manipulation was related to all three Dark Triad traits, and, in fact, was found to be a core characteristic of a “dark personality”. Narcissism was correlated with nearly all aspects of Machiavellianism, and moderately correlated with psychopathy. From this research, the authors noted that some individuals may benefit by using their EI skills for manipulation, and some may not.

Aspects of Decision-Making

Motivation

Decision-making appears to be highly related to motivation. Research in this area focuses on looking at how one approaches positive states and avoids negative states. Decision-makers experiencing a “regulatory fit” more often tend to systematically investigate their environment. Regulatory fit suggests that there exists a match between one’s proximity to a goal and one’s means used to approach and achieve that goal; there is a “rightness” regarding the pursuit of the goal and the tasks that lead to recognizing it (Higgins et al., 2001).

Cooper, Worthy, and Maddox (2015) sought to test their hypothesis that chronic, or trait-driven, motivation works together with one's reward structure to influence one's decision-making strategies and cognitive processing. They argued that the relationship between motivation and cognition occurs as a result of an interaction among one's overall motivation, current motivation, and cognitive processing system. Results from their study indicated that if a reward structure of the environment aligns with one's expectations, that person will use all of his or her cognitive resources to achieve the goal. But, if rewards do not match up with expectations, the person just tries to work as quickly as possible to get through a task instead of putting forth more effort.

Neurological Factors

Neuromodulators, like serotonin and dopamine, help to shape decision-making so that it adjusts to match one's current environmental situation. Both are related to reinforcement learning and decision-making, but researchers have not investigated the specific effects related to serotonin, as has been done with dopamine. Serotonin works in opposition to dopamine to motivate individuals; dopamine works to teach one about rewards, serotonin to teach one about punishment (Boureau & Dayan, 2011; Dayan & Huys, 2008; Dayan & Huys, 2009). Past research has indicated that low serotonin is related to problems with impulsivity and disinhibition; with low serotonin, one tends not to contemplate the possible negative consequences associated with certain behaviors (Dutta, Gupta, Rau, Kumar, & Pawar, 2017; Fikke, Melinder, & Landrø, 2013; Walderhaug et al., 2007; Young, Regoli, Leyton, Pihl, & Benkelfat, 2014). Low serotonin is also related to depression and anxiety, both of which involve negative biases

in both behavior and cognition (e.g., Cohen, Amoroso, & Uchida, 2015; Eshel & Rosier, 2010).

Perceptual decision making is “the process by which information gathered from sensory systems is combined and used to influence our behavior” (Philiastides & Heekeren, 2009; p.185). Perceptual decisions go through three stages: sensory encoding, decision formation, and motor execution. Past research has focused mostly on decision formation and sequential sampling, which is where “a ‘decision variable’ builds with the integrated evidence in favor of a particular outcome and triggers action upon reaching a threshold” (Kelly & O’Connell, 2015; p. 28). Sequential sampling allows for the selection of adaptive actions to be chosen based on sensory information and is thought to explain reaction time and decision outcome probabilities on certain tasks. It also accounts for changing environments and internal brain states (Smith & Ratcliff, 2004; Sternberg, 1969; Usher & McClelland, 2001). At the sensory level, a stimulus will give off sensory signals that can be relevant or irrelevant. If relevant, the signal will be used in the decision-making process. A signal paired with a physical stimulus, though, does not mean the stimulus will automatically be identified as input to the decision process (Gold & Shadlen, 2007).

Miller and Schwarz (2014) asserted there is neurobiological evidence for an epiphenomenal view of consciousness, where brain activity appears to be correlated with a decision that can be observed before a person reports being aware of having made it. A later event (consciousness) cannot *cause* an earlier one (brain activity), so this indicates that one does not need to be conscious of his or her decisions for them to be made by his or her brain. The time it takes a person to report conscious awareness that a decision has

been made is subjective in that it can only be known to the individual having the experience. In tasks that assess spontaneous movements (Libet, Gleason, Wright, & Pearl, 1983), Miller and Schwarz (2014) noted that it seems likely the participants would already have had an urge to move because they knew it was expected, possibly being influenced by the instructor and knowledge of the task they were to perform. Even if a participant did decide to move after the urge gradually developed, this does not necessarily indicate anything regarding conscious awareness; it simply indicates that “they precede the point at which the criterion for acting and reporting awareness is reached” (p. 17).

Decision-Making Styles

Scott and Bruce (1995) suggested that there are five different decision-making styles: RAT, INT, DEP, AVO, and SPO. Rational decision-making occurs when someone uses logical deliberation to make a decision. Intuitive decision-making is when one relies on his or her emotions to make decisions. The SPO style identifies individuals who make very rapid decisions. Dependent decision-makers look for help from others to make choices. And those with an AVO style tend to put off making decisions (Delaney et al., 2015). Bruin de Bruin, Parker, and Fischhoff (1997) assert that decision-making styles account for more of the variance in everyday decision-making than cognitive ability or performance during decision-making tasks.

Using Scott and Bruce’s five decision-making styles, Delaney et al. (2015) looked at variations in decision-making according to both age and gender. The authors noted three profiles in the group studied: affective/experiential, who made intuitive, quick decisions without much advice or support from others; dependent, who often needed

advice or input from others; and independent/self-controlled, who showed an independence from others but a lack of spontaneity, coming to decisions in a slower and more controlled fashion. Findings from the study showed that as one ages, he or she is more likely to make decisions deemed as important with more reflection, not quickly and intuitively. In addition, the authors noted that females were 37% less likely to show an affective/experiential profile, and 45% more likely to show a dependent profile.

Rational and INT styles are considered ADA, whereas AVO, DEP, and SPO are considered MAL. Using the General Decision-Making Styles inventory (GDMS; Scott & Bruce, 1995), the Adult Decision-Making Competence (Bruine de Bruin, Parker, & Fischhoff, 2007), the World Health Organization Well-Being Index (WHO-5, 1998), the Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983), and the Beck Depression Inventory (Schmitt et al., 2003), Bovol'ár and Orosová (2015) conducted a study involving 427 European high school and university students (35.4% male, 64.6% female; 18-36 years of age) to analyze the relationship between decision-making styles and mental health. Findings suggested a strong, negative correlation between RAT and SPO styles, a discovery that was supported by previous literature (Baiocco, Laghi, & D'Alessio, 2009; Gambetti, Fabbri, Bensi, & Tonetti, 2008; Thunholm, 2004). Spontaneous decision-making was also found to be positively related to the INT style. Some research has suggested the SPO style is similar to the INT style, except that one engages in the SPO style at a faster rate (Baiocco et al., 2009). Participants who used the SPO style were also likely to be avoidant in decision-making. Authors suggested that if a person who generally uses the AVO style must make a decision, perhaps he or she would be likely to make that decision rapidly.

Bavol'ár and Orosová also found a negative correlation between AVO and DEP styles, indicating that those who depend on others' input to make decisions are not likely to avoid decision-making all together. Instead, the DEP style showed a positive correlation with the RAT style, indicating that some individuals who make rational decisions also strongly value the advice of others. Findings from the same study also indicated that those who use the INT style showed higher levels of wellbeing, and lower levels of stress and depression. Those who tended to use the avoidant decision-making style reported lower levels of wellbeing, and higher levels of stress and depression.

Thunholm (2004) suggested individuals are likely to use more than one decision-making style, but generally have a dominant style. In his study, Thunholm used a sample of 233 Swedish military officers (228 males, 5 females; 29-44 years of age), and had them complete the GDMS (Scott & Bruce, 1995), the Basic Self-Esteem Scale (Forsman & Johnson, 1996), the Earning Self-Esteem Scale (Forsman & Johnson, 1996), the Action Control Scale (Kuhl & Beckman, 1994), the Ravens Advanced Progressive Matrices (Raven et al., 1998), and the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960). Results from Thunholm's study indicated a correlation between decision-making style and both self-control and self-esteem. His results also suggested that the DEP and AVO styles were related to low self-esteem and self-regulation. Those who used a DEP style tended to report experiencing disturbing thoughts while trying to make a decision, which could be why they choose to turn to others for decision-making advice. Those who used the AVO style appeared to lack the ability to intentionally make a decision, or initiate the decision-making process. Thunholm disagreed with Scott and Bruce's (1995) idea that decision-making style is simply a habit one engages in when

faced with the decision-making process. Instead, Thunholm asserted that decision-making relies on general information processing, or one's cognitive style. Making decisions also relies on one's basic abilities to evaluate possibilities, and engage in self-regulation. Based on his results, Thunholm provided a new definition of decision-making style:

The response pattern exhibited by an individual in a decision-making situation. This response pattern is determined by the decision-making situation, the decision-making task and by the individual decision-maker. Individual differences between decision makers include differences in habits but also differences in basic cognitive abilities such as information processing, self-evaluation and self-regulation, which have a consistent impact on the response pattern across different decision-making tasks and situations. (p. 941)

Avsec (2012) investigated the role of trait EI in one's tendency to use certain decision-making styles. Data was collected from a sample of 489 individuals (151 males, 338 females; 17-58 years of age) using the Emotion Skills and Competence Questionnaire (Taksic, 2001), the GDMS (Scott & Bruce, 1995), and the Zuckerman-Kuhlman Personality Questionnaire (Aluja et al., 2006). Avsec asserted the findings from this study suggested that individual differences in decision-making styles may be partially explained by one's trait EI and personality. Trait EI strongly predicted the INT style, wherein individuals who scored high on the EI instrument also tended to make intuitive decisions. In addition, individuals who used the RAT style also tended to achieve high scores on the EI instrument. These findings support the idea that high levels of EI are related to more ADA styles.

Story-Telling

Giving others information to help them make a decision can result in better decision-making competence. Hogarth and Soyer (2015) claimed that giving such

information to others is similar to storytelling; one would need to know what to say, understand his or her audience, interpret his or her message, and match the message to the audience's preferences, similar to how a storyteller tells a story. The audience can then come to a conclusion based on the information, and not after having been told what to do. Hogarth and Soyer reminded readers, though, that there are limitations in the human mind. For example, an individual can only perceive a small bit of what he or she actually sees due to the nature of attention. Or, small attentional shifts could result in drawing false conclusions (Juslin, Winman, Hansson, 2007). Also, people will ignore information that may be important if it does not fit into what they already "know", or how they perceive a situation (Ioannidis, 2005). And, people remember things sequentially, not in an accumulating fashion, so one is more likely to base an impression on his or her most recent experience (Fiedler, 2000).

Most research that examines helping others make decisions has focused on giving people different information or descriptions. Hogarth and Soyer (2015) proposed "transforming" the problem to become a situation where people can learn through experience, allowing the individual to go through a situation "live". The downside, though, is that this tactic can be quite time consuming. But the more complex the problem, the more likely the person is to make errors in judgment if he or she solely makes a decision based off description alone. The authors suggested conducting research on this topic through the use of simulated storytelling. This gives an individual freedom of choice, and allows him or her to actively participate. In a simulation, the decision-maker needs to play an active role in the communication process, and descriptions need to be rich and thorough, as one would provide in an actual story.

Impaired Decision-Making

Studies note that stress negatively affects decision-making because it interferes with information processing, which then kicks in one's habitual behavioral responses. Stress has been shown to lead to risk seeking behavior and rapid decision-making. Under stress, a person is less likely to consider other possibilities, and it takes him or her longer to learn from cost-benefit associations of options (e.g., Hambrick, Finkelstein, & Mooney, 2005; Porcelli & Delgado, 2009; Preston, Buchanan, Stansfield, & Bechara, 2007). In a study by Leder, Häusser, and Mojzisch (2015), the authors found strong evidence that stress impairs strategic reasoning, especially with one's underlying beliefs. Their study consisted of 321 undergraduate students who were asked to take the Trier Social Stress Test (Frisch, Häusser, & Mojzisch, 2015) to measure mental strain. The participants were then asked to indicate their present level of anxiety, uncertainty, and stress using three Visual Analog Scales (Hellhammer & Schubert, 2012). Afterward, individuals were asked to participate in the "beauty contest game" (Nagel, 1995), wherein each individual was asked to choose a number between one and one hundred. The chosen numbers of all individuals were multiplied by $\frac{2}{3}$, and the individual whose original number was closest to the $\frac{2}{3}$ average won a monetary prize. Results suggested that, when stressed, participants tended to give inconsistent responses, and, it seemed, had more difficulty staying in line with their original belief system. Stress, then, seemed to contribute to one's ability to make strategic decisions.

Gender Differences

Some studies suggested men and women differ in the way they make decisions. Sadler-Smith (2011) noted that women were more likely to use INT styles, whereas men

were more likely to use RAT styles. Other studies, though, indicated no differences in gender when it comes to decision-making (e.g., Jiang, 2014). In general, it appears that women tend to include others and seek support when making decisions, and men tend to be more self-reliant in this area (Delaney et al., 2015).

Theories of Decision-Making

Naturalistic Decision-Making Theory

Naturalistic decision-making started in 1989 as a way to study how people make decisions in applied settings, and not under observation in a laboratory. Findings have suggested that people largely base decisions on intuition. Naturalistic decision-making views intuition as an expression of experience and patterns that help people assess situations to make snap decisions without having to consider other possibilities. In short, experience makes one better able to handle challenging decisions. How well one performs when making decisions, then, depends on reducing errors and increasing both insight and expertise (Klein, 1998; Klein, Calderwood, & Clinton-Cirocco, 2010).

A 2015 study by Gary Klein sought to give greater prominence to the role of experience in decision-making. His findings noted that experienced decision-makers rely on retrieving and matching patterns to come up with an option. Instead of creating two options and choosing between them, one needs to simply make sense of the situation at hand through situation awareness and sense-making. Expertise has to do with tacit knowledge (understanding of self that is difficult to verbalize) and not explicit knowledge (information that is readily accessed and verbalized). Expertise allows a person to make perceptual discriminations, recognize patterns, draw from mental models, and judge

typicality. To strengthen intuition, one needs to build up his or her own experiences in alignment with tacit knowledge, and thereby improve his or her own expertise.

The naturalistic decision-making model suggests five approaches to build tacit knowledge. The main purpose, according to this model, is to build up one's mental models (beliefs about causal relationships) and gain new beliefs. Behavioral approaches are concerned with using repetition to learn, but naturalistic decision-making approaches want to supply one with new insights or shifts in thinking. The five approaches rely on using tactical games to force an individual to reach a decision. One example is to use Tactical Decision Games, which are short pencil and paper scenarios that describe a situation, give available resources and a mission, bring something expected into the mission, and then require a rapid decision to be made (Klein, 2015).

Neuroeconomic Theory

Neuroeconomic theory postulates that there are multiple systems within the brain, all of which interact with one another. While different areas or systems are implicated for different functions, it is the coordinated effort of multiple systems that actually allow a function to perform. In the same way, making a decision is not just a result of one simple occurrence within the brain; multiple systems simultaneously engage in order for such a task to take place. Because of these interactions, Brocas and Carrillo (2014) described an individual as an "organization of systems" (p. 45). If an individual must make a choice, multiple systems that pertain to decision-making will begin to operate. Although the decision may be made quite rapidly, it actually comes about as a result of quite a complex process.

Traditional models of decision-making assumed people's preferences were much simpler in that individuals had a clear knowledge about their environments and exceptional learning skills. Brocas and Carrillo (2014) explained that this view is oversimplified, and is not always representative of observed behaviors. The authors did, though, agree with models that look at a person as a "succession of selves with different preferences and different levels of awareness of such preferences," as in hyperbolic discounting (one's tendency to choose a smaller reward received sooner over a larger reward received later; p. 46). They note that this type of concept may explain why a person chooses one decision one day, and another the next. Early dual-process theories assumed that an event can occur in one of two ways as a result of two different types of processes: an implicit, or automatic (unconscious) process versus an explicit, or controlled (conscious) process. But, as previously stated, decision-making seems to be a much more complex occurrence, and not something that happens as a result of a simple action.

Brocas and Carrillo's (2014) neuroeconomic theory does not completely ignore traditional models. Instead of assuming an individual is one, coherent unity that makes choices, the authors assert that it is the cells, or systems, of an individual involved in decision-making, and not the individual himself. If one is confronted with a decision, neurons that relate to specific brain functions involved in decision-making begin to fire in response to such input. It is not just one system of neurons that fire, but multiple systems, all performing different parts related to the one task of making a decision. One system must decipher information, one must transmit information, and one must encode

signals before a simple decision can be made. The more complex the decision, the more systems involved.

Decision-Making and Antisocial Behavior as Correlates

Individuals with ASPD, gambling problems, or substance abuse problems tend to engage in impulsive decision-making at higher rates. An impulsive choice involves preferring a smaller reward one will receive sooner, rather than choosing a larger reward one will receive later (Madden & Bickel, 2010). In addition, those with lower distress tolerance appear to be more likely to avoid delay-related aversive events, finding it difficult to think about uncomfortable inner experiences. Treatment for these individuals focuses on increasing one's experiences with powerful, delayed rewards by decreasing attempts to control and/or avoid such inner states through acceptance and mindfulness (Morrison, Madden, Odum, Friedel, & Twohig, 2014).

Morrison et al. (2014) conducted an acceptance-based training session based on the acceptance and commitment theory components of acceptance and values. Thirty undergraduate university males and females (50% male, 50% female; 18-41 years of age) were asked to welcome distress if they felt it arise, then were asked about decisions that they had made that may have caused problems later in life. Psychoeducation was used to teach participants about internal barriers to healthy decision-making, and the experimenters addressed why an individual's current strategies might not be working, showing participants their strategies were generally only short-term solutions. Afterwards, participants were informed about acceptance-based strategies, and were

asked to welcome distressing events while the experimenter helped them view their thoughts as thoughts, and their emotions as emotions.

The purpose of the exercise was to help participants see that behavior does not need to be dictated by one's inner experiences, but instead could be led by one's values. After training, a decrease in impulsive decision-making was seen with moderate effect size. Results suggested that distress tolerance plays a larger role than psychological flexibility in delay discounting. Delay discounting seems to be a stable trait, but results suggested there may be some interventions that could help when it relates to problem behaviors (Morrison et al., 2014).

Hosker-Field, Molnar, and Book (2016) found certain characteristics of erratic lifestyle psychopathy traits, such as impulsivity, irresponsibility, and sensation seeking, were associated with antisocial behavior. The study included 194 undergraduate students (48.5% men, 51.5% women, ages 18-51). The Self-Report Psychopathy Scale Version III (Paulhus, Neumann, & Hare, 2015) was used to assess psychopathy. Risk-taking was examined using the Domain Specific Risk-Taking Scale Revised (Blais & Weber, 2006). A second study by the same authors utilized 320 American and Canadian participants (40.6% male, 58.4% female; 19-82 years of age) to assess the same concepts within the general population. Results from the second study were similar to results from the first: An erratic lifestyle was closely related with risk-taking behavior. The concept of taking risks has often been associated with those risks resulting in poor decisions (e.g., Lambert & Laird, 2016; Mitchell et al., 2014), and this study helped to link the two concepts of poor decision-making and antisocial behaviors.

Additional research has suggested that personality characteristics such as spontaneity or impulsivity influence one to engage in problematic behaviors, presumably as a result of a poor decision. For example, a study of 304 respondents (49.3% male, 50.7% female; 19-78 years of age) showed results that indicated individuals with a greater propensity toward rash spontaneous impulsivity were more likely to engage in compulsive internet use (Meerkerk, van den Eijnden, Franken, & Garretsen, 2010). A study of 27 overweight or obese women (21-31 years of age) who had been diagnosed with Binge Eating Disorder suggested the disorder was more likely to occur in participants who engaged in rash spontaneous behavior in response to food (Schag et al., 2013).

As with EI, Machiavellianism has also been studied in relation to decision-making, although not extensively. Bereczkei (2015) declared that there is more evidence that Machiavellian decision-making is related to an individual's cognitive abilities, and not his or her emotional callousness. These individuals tend to be more flexible, and can adapt to their environment. They also have superior cognitive skills, which allow them to manipulate others.

Research has shown that low levels of "harm aversion", as is common in those who commit antisocial behaviors, may be related to reactive aggression (e.g., Blair, 2013; Cima & Raine, 2009; Gray, Waytz, & Young, 2012). Crockett et al. (2015) conducted a study to examine how monoaminergic influences (serotonin, dopamine, and norepinephrine) on aggression relate to antisocial behaviors. The authors pointed out that research had been performed in this area in the past, but how exactly aggression was influenced was still not well understood. Their results indicated that inhibiting central

serotonin reuptake (through use of pharmacological interventions) caused an increase in synaptic serotonin. This strongly and selectively then increased harm aversion for both self and others in participants. Increasing central dopamine levels reduced one's urge to place the good of others before oneself.

Emotional Intelligence & Decision-Making

Little research has been conducted on the relationship between EI and decision-making, but the available research suggests high EI is related to more adaptive decision-making strategies. In a study of 62 men and women (50% males, 50% females; 18-25 years of age), Alkozei, Schwab, and Killgore (2016) found individuals with higher levels of ability EI tended to use more available information when making emotional decisions than individuals with lower ability EI. For the study, participants were asked to complete the Bar-On EQ-i (2002), the MSCEIT (Mayer, Salovey, & Caruso, 2002), the Wechsler Abbreviated Scale of Intelligence (Wechsler, 1999), the Ekman 60 Faces Test (Ekman & Friesen, 1976), and the Karolinska Airport Task (Lundqvist, Flykt, & Öhman, 1998). During the Ekman test, participants were shown photographs of faces portraying all basic emotions at the same time, and were asked to select which expression best represented a particular emotion. The Karolinska task simulated an airport screening scenario wherein participants were asked to make decisions regarding a credible terrorist threat. Results from this study suggested individuals who scored higher on the MSCEIT were more likely to "detain" passengers with high negative and low positive trait ratings. The authors suggested this indicates that EI is indicative of one's sensitivity to extremes of socially relevant facial cues. High levels of EI may allow an individual to better attend to the emotions related to a social situation, in order make more informed decisions.

Fallon et al. (2016) conducted a study to examine the effect of EI on decisions made under stress. The study included 167 participants (57 males, 110 females, 18-33 years of age) who were asked to complete the Trait Meta-Mood Scale (Salovey, Mayer, Goldman, Turvey, & Palfai, 1995), the Letter Sets task (Ekstron, French, Harmon, & Derman, 1976), the Situational Judgment Test of Emotional Abilities (Roberts, MacCann, Matthews, & Zeidner, 2010), the Dundee Stress State Questionnaire (Matthews et al., 2002), and a tactical decision-making task (Kustubayeva, Matthews, & Panganiban, 2012). For the decision-making task, participants were asked to make a choice between two routes and were given either neutral or negative feedback (mostly negative) to induce a stressful environment. Findings from the study suggested the negative feedback from the decision-making task did, in fact, appear to induce stress in participants. In addition, negative feedback seemed to worsen one's abilities during the performance tasks. Tests of EI did not appear to predict stress, but were related to the experience of stress, wherein individuals with higher scores on the EI scales showed greater ability in managing stressful tasks. These findings bring notice to the importance of social attention in regards to EI.

Antisocial Behavior, Emotional Intelligence, & Decision-Making

A study by Osumi and Ohira (2010) used the Levenson Self-Report Psychopathy Scale (LSRP) (Levinson et al., 1995) to investigate the relationship between psychopathy, emotional detachment, and rational decision-making. A mixed-model analysis of variance on a sample of 128 Japanese college students indicated that individuals with high levels of psychopathy accepted unfair offers in an Ultimatum Game more often than

those with low levels of psychopathy. The Ultimatum Game is a laboratory model that created an interpersonal situation where one player receives a sum of money and proposed how to divide the amount between the proposer and second player. The responder chose to accept or reject the proposal. In this particular study, participants only played the role of responder. The experimenter set the role of proposer. A photograph of a “proposer” was shown to the participants (responders) to evoke subjective emotions. The higher the level of psychopathy in the individual, the higher the rate of accepted unfair offers. In addition, this study revealed a statistically significant relationship between fairness and psychopathy. Individuals with lower levels of psychopathy showed greater skin conductance response when faced with unfair offers than when faced with fair offers. The group with high levels of psychopathy showed no such differences in skin conductance response. Results from this study suggested individuals with higher levels of psychopathy showed lower levels of emotional arousal, and possibly were less sensitive to violations of fairness. Having a lower sensitivity to deviations of fairness, then, also resulted in these same individuals accepting higher rates of unfair offers than those with low psychopathy.

Aybek et al. (2015) examined moral judgment and emotional intelligence of 183 university students (52 male, 131 female). Students were asked to complete the Defining Issues Test (Rest, 1979) and the Emotional Intelligence Scale (Ergin, İşmen & Özabacı, 1999). Findings suggested individuals whose parents have completed higher levels of education exhibit higher levels of moral judgment, suggesting education level may influence one’s moral judgment, and that an individual’s sense of moral judgment may be learned from his or her parents. This study did not suggest any differences in gender.

Summary

This chapter focused on a review of literature relevant to the constructs examined in the present research. More specifically, the review centered on factors related to antisocial behavior, EI, and decision-making. This chapter attempted to provide the reader with a conceptual definition of the three variables, as well as an overview of related theories that assist in explaining the phenomenon behind each variable. This review has asserted that EI and decision-making may be important factors that contribute to the presence of antisocial behaviors.

This topic is of importance as it may provide insight into the current trend of an increase in antisocial behaviors and a decrease in empathy in the general population. Results from this study could be used as a foundation for understanding the contribution of one's emotions and decision-making abilities to his or her involvement in problematic behaviors. This review of literature has exposed a gap in research, as antisocial behavior in the general population has rarely been studied. Most research to date has examined antisocial behaviors in children and adolescents, or in more severe, pathological adult populations.

CHAPTER 3

METHODOLOGY

Introduction

This chapter describes the research methodology that was used to examine EI and decision-making as predictors of antisocial behavior in the general population of the United States. The current study used a multivariate, correlational research design. The dependent variable assessed was antisocial behavior. The independent variables examined were EI and decision-making. Gender differences were also examined. This chapter includes information regarding the research design, population, instrumentation used, reliability and validity of the instruments used, sampling and data collection procedures, and analysis procedures.

Research Questions

This study sought to answer the following questions:

1. Is the theoretical covariance matrix equal to the observed covariance matrix?
2. Does gender influence the fit of the theoretical covariance matrix?

Research Design

The current study used a quantitative, non-experimental, correlational, cross-sectional, survey design. A convenience sample was used to investigate the relationships between antisocial behavior, EI and decision-making in the general population of the United States. Quantitative research allows one to look at relationships between

variables, and can determine cause and effect in controlled situations. Non-experimental describes a type of study wherein the researcher does not control, manipulate, or alter the predictor variables (in this study, EI and decision-making). Instead, the research depends upon the researcher drawing conclusions based on interpretation and observations. This study was correlational because it attempted to find relationships between the three variables. This study was cross-sectional because sought to examine and compare different groups of individuals at one point in time.

Survey research allows a researcher to choose a sample of individuals from a population, and then administer to them a standardized questionnaire in order to collect data. Online surveys give the researcher a way to use questionnaires in a systematic way, and to select a target audience through a survey research company. One benefit of using online surveys is that data can be collected much faster than when using techniques such as pencil and paper or face-to-face interviews. In addition, data may be collected from many different groups of people anywhere in the world. Research has indicated that using this method is much more cost effective, and allows an individual to reach his or her target audience more effectively. Another benefit is a reduction in the possibility of data errors, as respondents' answers to items are automatically stored in a survey database for easy handling. Other benefits include an increase in response rates, as responding is more convenient to participants, and flexibility of design on behalf of the researcher.

There also exist some disadvantages to using online surveys. For example, as an interviewer is not present, researchers would not benefit from the use of open-ended questions (although this also could be a benefit in that a participant might feel more

comfortable answering truthfully without an interviewer present). Another disadvantage is that the researcher would likely not be able to reach all populations. People living in remote areas, or those without access to the Internet, such as the elderly, would not be able to participate in online research. Lastly, by using online data collection, a researcher runs the risk of encountering survey fraud. Some participants simply respond to surveys in order to receive the incentive involved, and may not pay particular attention to the answers given.

Population and Sample

This study examined EI and decision-making as predictors of antisocial behavior in adults of the general population. For the purposes of this study, adults were identified as participants over the age of 18. Participants were recruited through the use of convenience sampling from an online service called QuestionPro. This service allows researchers to quickly and easily create surveys, collect responses, and analyze results.

QuestionPro maintains a database with a network of 5 million active members who complete surveys for data collection purposes. QuestionPro asserts that these individuals are pre-screened and qualified. After completing a survey, members are rewarded with participation points they can later redeem for gift cards to their choice of retailer. QuestionPro declares it is a trustworthy site because it frequently updates the database with new respondents to limit over participation. They also monitor the site regularly for duplicate, fraudulent or suspect individuals.

The intent of this study was to collect data from 360 participants to ensure a statistically significant effect size. The target audience included adults 18 and above in the general United States population.

Research Hypothesis

The researcher hypothesized that the theoretical covariance matrix proposed would be equal to the empirical covariance matrix developed from collected data. In addition, it was hypothesized that the proposed structural model would achieve a good fit with the actual, observed data, thus validating the explanation of the phenomenon antisocial behavior through the predicted relationships of its latent variables. The conceptualized model shown in Figure 1 depicts this relationship. Emotional intelligence is represented by four subscales: WBE, SCN, EMO, and SOC. Decision-making is also represented by four subscales: ADA (this includes both Rational and Intuitive styles), AVO, DEP, and SPO. Antisocial Behavior is separated into two subscales: PRI and SEC. The proposed model indicates that EI has a direct effect on both PRI and SEC, and that decision-making has a direct effect on SEC.

The figure indicates a direct relationship between EI and both types of antisocial behavior exists. It also suggests a direct relationship between decision-making and SEC exists. In addition, the model shows a direct correlation between EI and decision-making. It was hypothesized that this model would differ according to gender.

Definition of Variables

Independent Variables

The present study identified two independent variables: Emotional intelligence and decision-making style. Emotional intelligence is defined as, “a set of skills hypothesized to contribute to the accurate appraisal and expression of emotion in oneself and in others, the effective regulation of emotion in self and others, and the use of

Figure 1. Conceptualized model of the predictive relationships of antisocial behavior

feelings to motivate, plan, and achieve in one’s life” (Salovey & Mayer, 1990; p. 189).

To measure this variable, the study utilized the TEIQue-SF, which uses 30 items to measure this variable. Sample items include: “Expressing my emotions with words is not a problem for me”, “on the whole, I’m able to deal with stress”, and “others admire me for being relaxed” (Petrides, 2010). The TEIQue-SF uses four different concepts to measure EI, including WBE, SCN, EMO, and SOC. The WBE, SCN, and SOC scales each include six items; the score for these scales are calculated by totaling the items for each scale separately (scores range from 7-42). The EMO scale includes eight items; the score for this scale is calculated by totaling the items (scores range from 7-56). A global trait EI score can also be attained, and is determined by adding up the item scores (scores range from 30-210). Fifteen items need to be reverse scored.

Decision-making is defined as habitual patterns individuals utilize to make decisions (Bavol'ár & Orosová, 2015). The GDMS questionnaire will be used to assess individual differences in decision-making competence. The GDMS includes 25 items. Sample items include “I make decisions in a logical and systematic way”, “I rarely make important decisions without consulting other people”, and “I generally make snap decision” (Scott & Bruce, 1995). The GDMS includes five subscales: RAT, INT, DEP, AVO, and SPO. Each subscale has five items with scores ranging from 5 to 25. If an individual achieves a higher score on any of the five scales, results would suggest the individual has a stronger preference for that particular style.

Dependent Variable

The dependent variable in the current study was antisocial behavior. Antisocial behavior is defined as disruptive acts characterized by covert and/or overt hostility and intentional aggression towards others (Longe, 2011). To analyze this variable, this study used the LSRP, which consists of 26 items. Example items include: “I find myself in the same kinds of trouble, time after time”, “I don’t plan anything very far in advance”, and “Looking out for myself is my top priority” (Levenson et al., 1995). The LSRP includes two subscales: PRI and SEC. Scores for each subscale are totaled, then divided by the number of items for that scale: 16 items for the PRI scale, and 10 items for the SEC scale. Seven items must be reverse scored.

Instrumentation

Levenson Self-Report Psychopathy Scale

The LSRP is a self-report measure that comprises 26 items designed to assess psychopathology in the general population on a Likert scale with responses ranging from

1 (“Strongly Disagree”) to 5 (“Strongly Agree”). This instrument includes two subscales: PRI (16 items) and SEC (10 items). The LSRP was developed by Levenson et al. (1995) in an attempt to capture psychopathy, or antisocial behavior, in the general population. Previous instruments had been designed only to measure these aspects in a correctional setting, and could not be applied to the general population (Brinkley, Schmitt, Smith, & Newman, 2001).

A multivariate analysis of the LSRP on a sample of 487 undergraduate students in psychology classes from the University of California at Davis (346 women, 135 men) determined that the LSRP assesses two different types of antisocial behavior: PRI and SEC (Levenson et al., 1995). Primary psychopathy was designed to “assess a selfish, uncaring, and manipulative posture towards others” (p. 152); a high score on this scale represents a lack of empathy for others and a high tolerance for antisocial behaviors. Scores on this scale range from 5-80. Secondary psychopathy was designed to “assess impulsivity and a self-defeating lifestyle” (p. 152); high scores indicate a likelihood to engage in antisocial behaviors, such as breaking rules, and a lack of effort towards socially rewarding behavior. Scores on this scale range from 5-50.

Although the original authors did not report on the internal consistency reliability of the LSRP, later research by Falkenbach, Poythress, Falki, and Manchak (2007) indicated a Cronbach’s coefficient alpha of 0.82 in a sample of 96 male college students. Levenson et al. (1995) did, however, provide data for the two individual scales. In the sample of 487 undergraduate students, internal consistency reliability of the LSRP was shown by a Cronbach’s alpha of .82 for the PRI scale, and .63 for the SE scale (Levenson et al., 1995). Levenson et al. noted that the .63 alpha for secondary psychopathy is likely

acceptable, as the scale only comprises ten items. Also, the authors report that deleting any of the ten items would not have improved the reliability coefficient. Levenson et al. found a statistically significant positive relationship between the two scales ($r = .40, p < .001$).

Trait Emotional Intelligence Questionnaire, Short Form

The TEIQue-SF was developed by Cooper and Petrides (2010) to provide a shorter version of Petrides's 2009 instrument, the TEIQue. The TEIQue-SF comprises 30 items and seeks to measure global trait EI. Responses are rated on a 7-point Likert-style scale, ranging from 1 ("Completely Disagree") to 7 ("Completely Agree").

Cooper and Petrides (2010) conducted two separate studies to test the psychometric properties of the TEIQue-SF. In a sample of 1,119 university students and general community members, internal consistency reliability was shown by a Cronbach's alpha of .89 for men ($N = 455$) and .88 for women ($N = 653$). In a sample of 866 university students and general community members, internal consistency reliability of the TEIQue-SF was shown by a Cronbach's alpha of .88 for men ($N = 432$) and .87 for women ($N = 416$). Overall, findings indicate that the TEIQue-SF is a useful instrument for evaluating one's EI.

General Decision Making Style

Scott and Bruce (1995) developed the GDMS questionnaire to examine decision-making styles, which they described as "individuals' characteristic mode of perceiving and responding to decision-making task's" (p. 819). The GDMS includes 25 self-report items using a Likert scale that ranges from 1 ("Strongly Disagree") to 5 ("Strongly

Agree”). The GDMS intends to examine traits and characteristics of individuals, instead of their behaviors.

Scott and Bruce (1995) used four different populations to develop the GDMS. The instrument was first evaluated on the original sample, and then replicated and validated using the other three samples. Sample 1 included 1,441 male military officers, Sample 2 included 84 MBA students from a large, Midwestern university, Sample 3 consisted of 229 upper-level undergraduate students in the business program at a large, Midwestern university, and Sample 4 was comprised of 189 engineers and technicians from an American industrial firm. Samples 2, 3, and 4 included both males and females. Internal consistency reliability of the GDMS was shown by a Cronbach’s alpha of .76 for Sample 1, .66 for Sample 2, and .78 for Sample 3. For Sample 4, the instrument was changed slightly to account for innovative behavior and innovativeness; the Cronbach’s alpha for this sample was .87.

Table 1

Reliability for Antisocial Behavior, Emotional Intelligence, and Decision-Making

Scale	No. of Items	Cronbach’s Alpha
Antisocial Behavior	26	.82
Primary Psychopathy	16	.82
Secondary Psychopathy	10	.63
Emotional Intelligence	30	
Males		.89
Females		.88
Decision-Making	25	.76-.86

Procedure

To the best of the researcher's knowledge, no research participants were harmed in the process of this study. The surveys used for this research were anonymous, and the subject matter assessed was not sensitive in nature. Participants were informed of the type of research utilized before partaking in the surveys, and had the freedom to discontinue the assessment at any time. Personal contact information of the principle investigator, as well as the information of the associated dissertation chair was provided to participants in case any concerns or questions had arisen during the assessment.

QuestionPro can be contacted directly at:

<http://www.questionpro.com/info/contactUs.html>.

The sample included adults over the age of 18 in the general population. Participants were recruited through an online survey company, QuestionPro. Responses were collected from 427 participants within two hours. QuestionPro was utilized because it is a reputable company that performs surveys for numerous well-known organizations, and because it ensured the anonymity of participants. The survey invitation included a brief overview of the study. Participants were asked to read and agree to an Informed Consent that included the research procedure. Participants agreed to the Informed Consent, and then were able to begin the survey. Afterwards, participants responded to the LSRP, then the TEIQUÉ-SF, and then the GDMS. After completion, participants were given participation points to be redeemed later for rewards.

Treatment of Data

QuestionPro ensures accurate transfer of data by transmitting it directly to the Statistical Package for Social Sciences (SPSS). This allowed for a reduction in human

error. Once the results were downloaded, data was password-protected and kept on a private computer with a backup version on an external hard drive. The principle researcher and committee members were the only ones with access to the data. After downloading the data, the surveys and responses were removed from QuestionPro.

Data Analysis

Survey data gathered was analyzed using SPSS GradPack 24 for Windows and Analysis of a Moment Structures (AMOS) 23 computer software. Analysis of descriptive statistics was performed by assessing frequency, means, and standard deviations. This study used structural equation modeling to analyze intercorrelations between the variables.

Summary

This chapter explored the methods used in the current study. The current study used a multivariate, correlational research design to examine EI and decision-making as predictors of antisocial behavior in the general population of the United States. This chapter discussed research questions and research design as related to the study. In addition, the population and sample was identified. Also identified were the three instruments used to measure the three above-mentioned variables: the LSRP (Levenson et al., 1995), the TEIQue-SF (Cooper and Petrides, 2010), and the GDMS (Scott & Bruce, 1995). Finally, the related procedure, treatment of data, and method of data analysis were explained. Chapter 4 discusses the results of the research. Chapter 5 explores the implications of the results as related to the original research questions and existing literature.

This study employed a quantitative, non-experimental, correlational, cross-sectional research design. The data was analyzed using structural equation modeling to examine the relationships among the variables and determine the model fit. This study is significant as the data is important for the field of Counseling Psychology. Antisocial behaviors are quite common, and can be indicative of other problematic disorders. This research may help to expand the knowledge base regarding the influence of EI and decision-making on antisocial behaviors, and how this knowledge might help to identify treatment plans to prevent these behaviors from occurring later in life, even when an individual engages in such behaviors in his or her adult life.

CHAPTER 4

RESULTS OF THE STUDY

Introduction

This chapter discusses the data analysis conducted. The research hypothesis for this study proposes that EI and decision-making predict antisocial behaviors in adults ages 18 and above in the general U.S. population. Structural Equation Modeling was used to test this hypothesis and analyze the relationships between the variables.

Demographic Characteristics

The researcher's intention was to collect survey responses from 360 individuals, but due to a "glitch" in the survey company's system, survey results were obtained from 427 participants ages 18 and older. All participants completed all items on the survey, and no participants exited the survey without finishing. Two cases were removed from the data set, as the participants were outside of the United States. Twelve additional cases were removed due to outliers.

Of the remaining $N = 413$ respondents, 42 were between the ages 18-24 (10.1%), 46 were between the ages 25-29 (11.1%), 59 were between the ages 30-34 (14.4%), 45 were between the ages 35-39 (11.0%), 43 were between the ages 40-44 (10.4%), 40 were between the ages 45-49 (9.7%), 25 were between the ages 50-54 (6.0%), 32 were

between the ages 55-59 (7.8%), 31 were between the ages 60-64 (7.5%), and 50 were age 65 or older (12.1%) ($\mu = 43.31$, $SD = 15.46$). Responses indicated that 156 participants were male (37.8%) and 257 were female (62.2%). Within the United States, 4.36% were from the New England region ($N = 18$), 24.45% were from the Mideast region ($N = 101$), 11.14% were from the Great Lakes region ($N = 46$), 3.63% were from the Plains region ($N = 15$), 23.97% were from the Southeast region ($N = 99$), 9.44% were from the Southwest region ($N = 39$), 2.91% were from the Rocky Mountain regions ($N = 12$), 14.53% were from the Far West region ($N = 60$), and 5.57% were from unknown locations (see Table 2).

Description of the Variables

The description of the variables, including mean, standard deviation, and skewness, are reported in Table 3. For the variable antisocial behavior, scores were obtained from the LSRP for PRI and SEC. For the variable EI, scores were obtained from the TEIQue-SF for WBE, SCN, EMO, and SOC. For the variable decision-making, scores were obtained from the General Decision Making Style inventory for the five different decision-making styles, including the ADA, which include RAT and INT styles, and the MAL styles, which include DEP, AVO, and SPO.

For the PRI aspect of antisocial behavior, respondents achieved an average rating of 44.79 with a standard deviation of 10.74. For the SEC scale, respondents indicated an average rating of 23.97 with a standard deviation of 6.98. Scores on the LSRP PRI scale range from 16-80. Typically, the scores on the SEC scale range from 10-50, but in this case, the survey company utilized to collect the data omitted a question from the SEC scale, so, for this data, the scores range from 9-45. The skewness statistics for PRI and

Table 2

Respondents' Demographic Statistics

Demographic	N	%
Gender		
Male	156	37.8
Female	257	62.2
Age		
18-24	45	10.6
24-29	47	11.1
30-34	62	14.6
35-39	45	10.5
40-44	45	10.5
45-49	42	9.9
50-54	25	5.9
55-60	32	7.5
61-64	31	7.3
65 and above	51	12.0
U.S. Region		
New England	20	4.7
Midwest	101	24.5
Great Lakes	48	13.4
Plains	17	4.0
Southeast	103	24.1
Southwest	40	9.4
Rocky Mountain	12	2.8
Far West	61	14.4
Unknown	21	5.5

SEC are acceptable, indicating that they are normally distributed (see Table 3).

Regarding EI, individuals had an average score of 123.63 ($SD = 23.51$) for Global EI. Scores on this scale range from 30-210, so the total score achieved by participants in this study was above average. For the WBE scale, respondents indicated an average rating of 27.37 ($SD = 5.09$). For SCN, respondents had an average score of 25.20 ($SD =$

Table 3

Respondents' Descriptive Statistics

Variable	N	Mean	SD	Min	Max	Skewness
Antisocial Behavior						
Primary Psychopathy	413	44.79	10.74	16.00	80.00	1.147
Male	156	47.26	12.89	16.00	80.00	.719
Female	257	43.30	8.89	24.00	80.00	1.374
Secondary Psychopathy	413	23.97	6.98	9.00	45.00	.719
Male	156	24.81	7.87	9.00	45.00	.641
Female	257	23.46	6.34	11.00	45.00	.677
Emotional Intelligence						
Wellbeing	413	27.37	5.09	6.00	42.00	-.211
Male	156	27.68	6.15	6.00	42.00	-.139
Female	257	27.18	4.32	6.00	42.00	-.448
Self-Control	413	25.20	5.85	6.00	42.00	.498
Male	156	25.91	6.69	6.00	42.00	.329
Female	257	24.77	5.24	6.00	42.00	.549
Emotionality	413	29.34	8.25	8.00	56.00	.946
Male	156	30.74	9.53	8.00	56.00	.840
Female	257	28.49	7.25	8.00	56.00	.840
Sociability	413	25.05	5.78	6.00	42.00	.532
Male	156	25.74	6.40	6.00	42.00	.670
Female	257	24.63	5.35	6.00	42.00	.293
Global	413	123.63	24.09	30.00	210.00	1.020
Male	156	127.13	29.52	30.00	210.00	.834
Female	257	121.50	19.85	30.00	210.00	.897
Decision Making						
Adaptive	413	34.42	5.78	9.00	45.00	-.677
Male	156	33.90	6.46	9.00	45.00	-.598
Female	257	34.74	5.31	14.00	45.00	-.673
Avoidant	413	10.58	4.17	4.00	20.00	.238
Male	156	10.90	4.30	4.00	20.00	.141
Female	257	10.39	4.08	4.00	20.00	.293
Dependent	413	16.59	4.09	5.00	25.00	-.296
Male	156	16.74	4.30	5.00	25.00	-.240
Female	257	16.50	3.97	5.00	25.00	-.352
Spontaneous	413	10.24	3.99	4.00	20.00	.405
Male	156	10.62	4.28	4.00	20.00	.312
Female	257	10.01	3.80	4.00	20.00	.440

5.85). Emotionality indicated an average rating of 29.34 ($SD = 8.25$). The average rating for SOC was 25.05 ($SD = 5.78$). Scores on the WBE, SCN and SOC scales range from 6-42. Scores on the EMO scale range from 8-56. The skewness statistics indicate that all four of the subscales are normally distributed, with all values falling between -1 and 1, or near 1 (see Table 3).

Scores on the GDMS were varied across the five different decision-making styles. Scores on all five scales typically range from 5-25, but for the purposes of this study, five items (items 1, 8, 11, 23 and 25) were removed due to either redundancy or problems with validity. Because of this, scores on the RAT scale ranged from 5-15, scores on the AVO, INT, and SPO scales ranged from 5-20, and scores on the DEP scale ranged from 5-25. Scores averaged at 11.76 ($SD = 2.28$) for RAT, 10.58 ($SD = 4.17$) for avoidant decision-making, 16.59 ($SD = 4.09$) for DEP, 14.91 ($SD = 2.96$) for INT, and 10.24 ($SD = 3.99$) for SPO. When the two ADA styles were combined, they achieved a mean of 34.47 with a standard deviation of 5.78. The skewness statistics indicated that all of the variables are normally distributed with values falling between -1 and 1 (see Table 3). Observations of the bivariate correlations between the variables are provided in Table 4.

Hypothesis Testing

Structural Model

The conceptualized model previously discussed in Chapters 1 and 3 included the predictor variables, EI and decision-making, and the outcome variables, PRI and SEC, which represent two aspects of antisocial traits. A direct path was drawn from EI to both PRI and SEC, as research suggests one's emotions likely affect both primary and

Table 4

Correlation Matrix of Variables

Variable	1	2	3	4	5	6	7	8	9	10	11
PRI	1										
SEC	.756**	1									
WBE	.477**	.397**	1								
SCN	.629**	.606**	.652**	1							
EMO	.700**	.707**	.518**	.659**	1						
SOC	.578**	.521**	.571**	.634**	.606**	1					
ADA	.207**	.083	.546**	.359**	.402**	.298**	1				
AVO	.533**	.594**	.157**	.378**	.502**	.410**	-.120*	1			
DEP	.383**	.367**	.379**	.428**	.440**	.430**	.266**	.470**	1		
SPO	.530**	.618**	.269**	.490**	.558**	.391**	-.012	.626**	.341**	1	
GEN	-.179**	-.095	-.047	-.095	-.132**	-.093	.071	-.060	-.029	-.075	1
Mean	44.79	23.97	23.37	25.20	29.34	25.05	34.02	10.58	16.59	10.24	1.62
St. Deviation	10.74	6.98	5.09	5.85	8.25	5.78	5.78	4.17	4.09	3.99	.485

** . Correlation is significant at the .01 level (2-tailed). * . Correlation is significant at the 0.05 level (2-tailed). PRI – Primary Psychopathy; SEC – Secondary Psychopathy; WBE – Wellbeing; SCN – Self-Control; EMO – Emotionality; SOC – Sociability; ADA – Adaptive Decision-Making Style; AVO – Avoidant Decision-Making Style; DEP – Dependent Decision- Making Style; INT – Intuitive Decision-Making Style; SPO – Spontaneous Decision-Making Style; GEN – Gender.

secondary antisocial traits. A path was also drawn from decision-making to SEC, as research suggests poor decision-making relates to participation in problematic behaviors. The EI component included four indicator variables: WBE, SCN, EMO, and SOC. The decision-making component also included four indicator variables: ADA (combined RAT and INT styles), AVO, DEP, and SPO. Structural equation modeling was used to analyze the collected data. This procedure allows one examine to what extent the indicator variables predict or define the latent variables. By combining a measurement model and a structural model, this technique captures both types of models simultaneously.

The hypothesized model showed a significant chi square of 444.989 ($df = 33$, $p = .000$). Although a significant p value is generally an indicator of poor fit, with a large sample size such as the one used in this study ($N = 413$), it is typical for the p value to be under 0.5. However, the model also yielded poor fit indexes for the Goodness of Fit Index (GFI = .793), Normed Fit Index (NFI = .815), Comparative Fit Index (CFI = .825), and Root Mean Square Error of Approximation (RMSEA = .174). For a good fit, the GFI value should be at or above .90, the NFI and CFI values at or above .95, and the RMSEA value at .05 or below. Based on these results from the original model, a respecification was conducted.

Respecified Structural Model

Because the original hypothesized model did not achieve an acceptable fit to explain PRI and SEC antisocial behaviors, the model was revised. A path was added from SEC to PRI, based on the theory that antisocial behaviors are learned, and develop due to the later development of problematic emotional regulation (Donnellan et al., 2005; Garofalo et al., 2016; Moudgil & Moudgil, 2017). Because the path from decision-

making to SEC was not statistically significant, a path was added from AVO to SEC, and from SPO to SEC, based on supportive theory.

The model was further respecified by adding correlations between error terms due to large covariances. Ten total correlations were added. Two correlations were added among the EI subgroups. Three correlations were added among the decision-making subgroups. Five correlations were added across the two variables. As a result of these changes, the respecified model produced a significantly improved fit as shown by the fit statistics. The chi-square decreased to 41.732 ($df = 20$), but was still statistically significant ($p = .003$). As suggested early, this may be due to the large sample size used for this study. The GFI increased to .980, the NFI increased to .983, the CFI increased to .991, and the RMSEA decreased to .051. These statistics indicate an excellent fit for the respecified model. The final model is shown in Figure 2. Table 5 shows the Goodness of Fit Indices.

Respecification by Gender

Males

The respecified model was also examined to determine if results varied by gender. For males, the model showed a chi square of 48.750 ($df = 20$, $p = .000$). This model indicated an excellent fit for three of the indices (GFI = .946, NFI = .964, CFI = .978), but a poor fit for the RMSEA index (RMSEA = .096). The final model based on the male gender is presented in Figure 3. Goodness of Fit indices are presented in Table 5.

Figure 2. Respecified Model

Table 5

Chi Square and Goodness of Fit for Models

Factor Model	X^2	df	GFI	NFI	CFI	RMSEA
Original Model						
Hypothesized	444.989	33	.793	.815	.825	.174
Adjusted	41.732	20	.980	.983	.991	.051
Males						
Adjusted	48.750	20	.946	.964	.978	.096
Females						
Adjusted	29.202	20	.979	.973	.992	.040

Figure 3. Respecified Model: Males

Females

When investigating the model based on only the female gender, the model achieved a significant chi-square of 28.202 ($df = 20$, $p = .105$). In addition, fit indices were as follows: GFI = .979, NFI = .973, CFI = .992, RMSEA = .040. These numbers indicate a superior fit for the model when based solely on the female gender. The final model for females is shown in Figure 4. Goodness of Fit indices can be presented in Table 5.

small, yet statistically significant correlations ($r = .220, .265$, respectively, $p < .001$).

Results from the final model indicate that it explains 69% of the variance of PRI, and 68% of SEC.

Effect sizes were also calculated to determine the magnitude of the differences and the strength of the relationship between variables. Rosenthal (1996) suggests using the following thresholds to determine the size of effect: small = .10; medium = .30; large = .50; very large = .70. The path coefficient between decision-making and SEC suggested a small effect size ($\beta^2 = .081$), indicating there is about 8% of shared variance between decision-making and antisocial behavior. The path coefficient between EI and PRI also showed a medium effect size ($\beta^2 = .319$), indicating the shared variance between these two variables is about 32%. Between EI and SEC there was a large effect, with the two variables sharing about 52% of variance ($\beta^2 = .516$). The correlation between EI and decision-making also indicated a large effect size, with the two variables sharing about 61% of variance ($\beta^2 r = .61$).

The added path from SEC to PRI showed a small effect size, explaining only about 10% of the variance between the two antisocial variables ($\beta^2 = .095$). The added paths from AVO to SEC and from SPO to SEC both suggested small effect sizes ($\beta^2 = .048, .070$, respectively), with about 5% of explained variance between AVO and SEC, and 7% of explained variance between SPO to SEC.

Males

Although the RMSEA fit index indicated a poor fit, some research suggests an RMSEA value below 0.1 is acceptable, as the model still denotes a 90% confidence interval (Barrett, 2007). Barrett asserts is not a substantive scientific consequence of

accepting a model with a confidence interval of .90 instead of .95. For males, the paths between EI and PRI ($r = .651; p < .001$), EI and SEC ($r = .834, p < .001$) SEC and PRI ($r = .270, p = .006$), AVO and SEC ($r = .172, p = .035$), and SPO and SEC ($r = .169, p = .050$) were statistically significant. The correlation between EI and decision-making was also statistically significant ($r = .834, p < .001$). The path between decision-making and SEC did not show statistical significance ($r = -.234, p = .138$).

Results showed a medium effect size for the path coefficient between EI and PRI ($\beta^2 = .424$) and a large effect size between EI and SEC ($\beta^2 = .696$). There existed a small effect between SEC and PRI, suggesting about 7% of shared variance ($\beta^2 = .073$). Findings regarding effect size also showed that the path coefficient between AVO and SEC, and between SPO and SEC each only indicate about 3% shared variance ($\beta^2 = .030, r = .029$, respectively). The shared variance between decision-making and EI is very strong, at about 70% ($\beta^2 = .696$).

Females

For the female model, all paths were statistically significant. A strong, positive correlation was present between EI and decision-making ($r = .724, p < .001$). There was a moderate, positive correlation between EI and PRI ($r = .459, p < .001$), and between EI and SEC ($r = .631, p < .001$). Low, positive correlations were seen between SEC and PRI ($r = .341, p < .001$), SPO and SEC ($r = .327, p < .001$), and AVO and SEC ($r = .259, p < .001$). A low, negative correlation was present between decision-making and SEC ($r = -.332, p = .041$).

An analysis of effect sizes suggested a large effect between EI and decision-making ($\beta^2 = .524$). A medium effect was indicated for the path coefficient between EI

and SEC ($\beta^2 = .398$). Small effects were seen in path coefficients between EI and PRI ($\beta^2 = .211$), SEC and PRI ($\beta^2 = .116$), SPO and SEC ($\beta^2 = .102$), and SEC and decision-making ($\beta^2 = .110$). A very low effect was suggested by the path coefficient between AVO and SEC ($\beta^2 = .067$).

Summary of the Findings

This study hypothesized that the theoretical covariance matrix proposed would be equal to the empirical covariance matrix developed from collected data. The fit statistics gathered from the structural equation model confirm the hypothesis, as the respecified model indicates a good fit. Most correlations between the variables were moderate to high. Although some low correlations were present, they were still significantly significant. The respecified model, shown in Figure 3, explained 69% of the variance of PRI, and 68% of the variance of SEC. When analyzing the model according to gender, the male model indicated an acceptable fit, and the female model indicated a superior fit. A more detailed discussion of the findings, as well as the influence of other contributing factors, will be discussed in the next chapter.

CHAPTER 5

SUMMARY, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Introduction

This chapter provides the reader with a brief overview of the study, including information regarding the research problem, hypothesis, purpose, literature review, research method, and significance of the study. It discusses the key findings from the study, and suggests implications for clinical psychologists, counseling psychologists, and educators.

Research Problem

As social creatures, humans naturally interact with each other in order to develop social skills, beliefs, values, and behaviors that help them function in society. An individual's interactions with other humans help him or her develop appropriate communication skills. Communication is a major developmental task all individuals must undertake from childhood to adulthood (Barnes & Olsen, 1985; Flavell, 1968; Wood, 1976). Problems with communication development often results in deficits in socialization skills (Irwin et al., 2002; Kjellmer et al., 2012; Longobardi et al., 2016), language skills (Bryan et al, 2007), and psychosocial and emotional development (Cohen,

2010). In addition, individual who fail to develop appropriate communication skills in childhood are more likely to participate in antisocial behaviors in adulthood (Gilmour et al., 2004; Tóth et al., 2008). Social Bond Theory suggests this is a result of the individual feeling rejected by, and not bonded to, society (Hirschi, 1969). Recent studies have suggested antisocial behaviors are increasing in America, which may be a result of a technologically advanced society that engages in less frequent communication (Arntfield, 2015; Mariani, 2016; Wood, 2017).

Research also suggests emotional development is related to one's behaviors (e.g., Crocetti et al., 2016; Komorosky & O'Neal, 2015; Schaffer et al., 2009; Thompson & Gullone, 2008), and that empathy levels in Americans are decreasing (Konrath et al., 2011). Studies that have analyzed the relationship between EI and antisocial behavior, though, show conflicting findings. On one hand, some studies show a positive relationship between EI and antisocial behavior (Ali et al., 2009; Baroncelli & Ciucci, 2014; Contreras & Cano, 2016; Visser et al., 2010; Winters et al., 2004). On the other, some studies suggest a negative relationship between the two variables (Côte et al., 2011; Fix & Fix, 2015; Grieve & Panebianco, 2013; Nagler et al., 2014).

Decision-making, too, appears to be related to one's complex emotions (Bechara et al., 2000; Levens et al., 2014; Roeser, 2006), and research has linked poor decision-making skills with higher levels of antisocial behavior (Crowley et al., 2010; De Brito et al., 2013; Fanti et al., 2016; Miranda et al., 2009). Levens et al. (2014) assert that decisions arise out of one's expectations regarding the emotions he or she will experience as a result of the decision. The resulting emotional experience, then, influences future decision-making. The recent findings of a decline in empathy among Americans

(Konrath et al., 2011) could also be leading individuals to engage in poor decision-making, which would then result in the recent rise in antisocial behaviors among Americans. Increased antisocial behaviors become problematic to society, as they could lead to desensitization to the behaviors, become normalized, and continue to increase (Huesmann, 2007; Mrug et al., 2016).

Gender differences regarding the rate of participation in antisocial behavior has been thoroughly studied, generally finding males commit these acts at a higher rate than females (e.g., Bennett et al., 2005). Reasons for this difference, though, are not clear. More recent research between antisocial behavior and EI suggests that females who have high levels of EI engage in higher levels of antisocial behaviors, but males with high levels of EI engage in fewer antisocial behaviors (Bacon et al., 2014; Bacon & Regan, 2016).

Research Hypothesis

The research hypothesis for this study was that the theoretical covariance matrix proposed would be equal to the empirical covariance matrix developed from the collected data. The hypothesized model was expected to achieve a good fit with the actual, observed data, which then would validate the explanation of the phenomenon antisocial behavior through the predicted relationships of the latent variables. The model was expected to differ according to gender.

Purpose of the Study

The purpose of this study was to examine EI and decision-making as predictors of antisocial behavior. The relationship between EI and decision-making was also being investigated. In addition, the influence of gender on the proposed model was examined.

Overview of the Literature

A literature review regarding this topic indicated that antisocial behavior is comprised of two concepts: emotional affect (represented by PRI), and behavior (represented by SEC). Social Learning Theory (Bandura et al., 1961) asserts aggression is a learned behavior children can learn to imitate at a very young age. Through reward and reinforcement, this behavior continues. Even if a reward is not positive, it can still encourage continued aggressive behavior if it aligns with the child's needs. Temperament-Based Theory (DeLisi & Vaughn, 2014) views temperament as a major contributor to the engagement of antisocial behaviors. Humans must learn very early how to self-regulate if they are to lead productive lives in society later on. Negative emotionality occurs when an individual perceives the environment and interactions with others as negative. The combination of a lack of effortful control and negative emotionality, then, may increase the likelihood of antisocial behaviors.

Regarding EI research, some studies suggest those with higher levels of EI engage in more prosocial behaviors (actions intended to help others) because they do well processing both their own emotional information and that of others (e.g., Brackett & Mayer, 2003; Brackett et al., 2006; Penner et al., 2005). On the other hand, some studies suggest those with high levels of EI can use their knowledge of emotions to manipulate others (Davis & Nichols, 2016; Kilduff et al., 2010). Research that has investigated the relationship between decision-making and antisocial behavior has suggested those individuals who engage in antisocial behaviors tend to be more impulsive in their decision-making (Madden & Bickel, 2010). A study by Osumi and Ohira (2010) that

examined antisocial behavior, EI, and decision-making found high levels of psychopathy was related to low levels of EI and poor decision-making.

Past studies have consistently shown males commit higher rates of antisocial behaviors than females, although the reasons for this remained unknown (Bennett et al., 2005). Possible suggestions for these differences included environmental differences (Benda, 2005; Javdani et al., 2011; Xie et al., 2011; Zheng & Cleveland, 2015), neurological factors (Raine et al., 2011; Seo et al., 2008; Twardosz & Lutzker, 2010), or greater exposure to risk factors for males in adolescence (Andershed et al., 2016; Benda, 2005; Gardner et al., 2015). More recent studies, however, have indicated that females with higher levels of EI are more likely to engage in antisocial behaviors, whereas males with higher levels of EI are less likely to engage in antisocial behaviors (Bacon et al., 2014; Bacon & Regan, 2016). Again, reasons for these differences are not well understood, although they also have not been thoroughly studied up to this point.

In general, females tend to perform better than males on tests of EI (Salguero et al., 2014), thus it is likely that only when females express *very* high levels of EI would they engage in the antisocial behaviors. In regards to decision-making, studies have found no significant differences in gender (Delaney et al., 2015), although some research suggests women are more likely to engage in intuitive styles, and men are more likely to engage in rational styles of decision-making (Sadler-Smith, 2011).

Research Method

This study employed a quantitative, non-experimental, correlational, cross-sectional research design. A convenience sample was used to analyze the relationship between the variables antisocial behavior, EI, and decision-making in the general

population. Data was collected using QuestionPro, an online survey company. The current study collected survey responses from 427 adults age 18 and up. The LSRP (Levenson et al., 1995) was used to assess antisocial behaviors in the general population. Emotional intelligence was analyzed using the TEIQue-SF (Petrides, 2010). Information regarding decision-making styles was collected utilizing the GDMS (Scott & Bruce, 1995). The data was analyzed using SPSS and AMOS to formulate a structural equation model in order to examine the relationships among the variables and determine the model fit.

Significance of the Study

This study is important for the field of Counseling Psychology, as these results may help counseling psychologists bring awareness to problematic behaviors present within the general population that are often dismissed or normalized. Although some antisocial behaviors may be adaptive or appropriate in certain scenarios, others only seem acceptable because they have often been ignored by society. This research may help to expand the knowledge base regarding the influence of EI and decision-making on antisocial behavior, and how this knowledge might help to identify treatment plans to prevent these behaviors from becoming normalized and increasing within society. Females and males have exhibited differences in how their behavior relates to EI, thus, it is important to consider that treatment plans regarding antisocial behaviors may need to be gender specific. Counseling psychologists need to fully understand the impact that emotions and decision-making have on antisocial behaviors so that they can develop adequate resources in order to provide proper treatment to clients. This research could assist therapists in developing interventions that could help improve emotional

knowledge and emotional regulation in clients, as well as improve decision-making skills to help clients make appropriate choices in their interpersonal relationships. In time, with additional research, it is even possible these interventions could be extended to more severe populations, such as in juvenile centers or prisons.

Discussion of the Findings

The findings of this study are based on results from a structural equation model analysis. The intent of this study was to analyze the influence of EI and decision-making on PRI and SEC antisocial traits. The PRI scale seeks to “assess a selfish, uncaring, and manipulative posture towards others” (Levenson, et al., p. 152); a high score on this scale represents a lack of empathy for others and a high tolerance for antisocial behaviors. Secondary psychopathy was designed to “assess impulsivity and a self-defeating lifestyle” (Levenson, et al., p. 152); high scores indicate a likelihood to engage in antisocial behaviors, such as breaking rules, and a lack of effort towards socially rewarding behavior. Emotional intelligence was assessed using four subscales: WBE, SCN, EMO, and SOC. Decision-making was assessed by analyzing one’s decision-making style: ADA, AVO, DEP, or SPO. The structural equation modeling hypothesis-testing procedure suggested an acceptable fit with the actual, observed data. Findings for the two research questions are discussed below.

Research Question 1

Is the theoretical covariance matrix equal to the observed covariance matrix?

Since the originally hypothesized model was not a good fit with the observed data, with the four fit indices achieving a poor fit (GFI = .793; NFI = .815; CFI = .825; RMSEA = .174), a respecified model was performed. For a good fit, the GFI value

should be at or above .90, the NFI and CFI values at or above .95, and the RMSEA value at .05 or below. The respecification included three added paths between observed variables (SEC to PRI, AVO to SEC, and SPO to SEC), and resulted in an excellent fit for the data (GFI = .980; NFI = .983; CFI = .991; RMSEA = .051).

Emotional Intelligence & Antisocial Behavior

The path from EI to PRI indicated a moderate effect ($\beta^2 = .319$) with statistical significance ($p < .001$), and the path from EI to SEC indicated a large effect ($\beta^2 = .516$) with statistical significance ($p < .001$). These findings indicate that, as predicted, EI influences both the emotional affect associated with antisocial behavior, as well as the behaviors associated with antisocial behavior. The statistical correlations are positive, which suggests that the higher one's EI, the *more* antisocial an individual is, both emotionally and behaviorally. These findings agree with some more recent research that suggests high levels of EI can actually serve as an advantage to those who participate in antisocial behaviors (Côté et al., 2011; Davis & Nichols, 2016; Kilduff et al., 2010).

Kilduff et al. (2010) propose a “dark side” of EI that has not been thoroughly looked at by research. The authors assert that past researchers (e.g., Jordan, Ashkanasy, & Ascough, 2007; Mayer, Roberts, & Barsade, 2008) have chosen to focus only on the positive side of EI, neglecting this darker side. Kilduff et al. (2010) made note that even Mayer (2008) admitted that those with a high level of EI could use this skill in manipulative and controlling ways. What seems to be a major contributor to this use of emotional knowledge in a “negative” way is one's competitiveness or motivation for personal gain. Kilduff et al. (2010) propose four tactics that might explain this phenomenon: focusing on strategically important targets, disguising and expressing

emotions for personal gain, stirring and shaping emotions through sensegiving and misattribution, and strategic control of emotion-laden information (pp. 133; 135).

Focusing on strategically important targets describes how individuals may learn what abilities allow others to succeed or get ahead. Disguising and expressing emotions for personal gain suggests individuals learn what types of emotions to present in order to make themselves appear more favorable to others. Stirring and shaping emotions through sensegiving and misattribution proposes that individuals can use their knowledge of emotions to “construe uncertain situations in terms that subtly advance their own agenda” (p. 135). Strategic control of emotion-laden information means these individuals are able to influence the emotions of others for personal gain.

Since Kilduff et al.’s (2010) study assessed the relationship between antisocial behavior and EI in the general population, it may be likely that the participants use their knowledge of emotions in order to further advance themselves either in school or their career. The instrument used to assess antisocial behaviors in this study intended to measure these behaviors in the general population, and so the participants were not asked about more severe antisocial behaviors, such as those associated with criminal behavior.

Other studies that found high EI to be related to antisocial behaviors assessed these variables within a university population (Côté et al., 2011). Kilduff et al. (2010) examined their concepts in relation to those within a professional environment. Côté et al. (2011) assert that knowledge of emotion-regulation does not necessarily have to be either positive or negative, but can fluctuate from one individual to another. In their 2011 study, Côte et al. found those with high levels of Machiavellianism tended to have low emotion regulation, but those who had high emotion regulation *and* high levels of

Machiavellianism were often more “interpersonally deviant” than those with low emotion regulation (p. 1078). Those with high levels of emotional knowledge, though, were likely to engage in actions that were more harmful to others. Again, what seems to be of importance is how the individual is motivated. If a person has a tendency to engage in prosocial behaviors, the individual’s high EI likely will not result in problematic behaviors. However, if a person portrays personal characteristics that align with Machiavellianism, where the individual has a tendency to be more self-focused, a high level of EI could result in the manipulation of others to benefit one’s self.

Emotions are extremely complex, and do not necessarily arise spontaneously. Humans can be calculating in how they use their emotions though, and this is something that may have been ignored in previous research on this topic. Being able to understand emotions to the extent that one learns how to succeed and get what they want from others may actually be an adaptable trait. And, in fact, EI may be the difference between this population who is getting their basic needs met and using antisocial behaviors adaptively, and the psychopathic population who use their knowledge of others’ emotions in harmful ways.

Kilduff et al. (2010) point out that having a high level of EI does not necessarily indicate an individual is more likely to engage in unethical or problematic behavior, however, their study did not gather information on the moral intent behind one’s actions. Rather, the findings simply suggested individuals may use their knowledge of emotions to better advance themselves in academics or careers. Other studies have suggested emotional abilities are essential to one’s success in an organization (e.g., George, 2000;

Mayer & Caruso, 2002). Such skills may help promote individuals to positions of high status or leadership.

There is some evidence to support that the recent rise in antisocial behaviors is linked to advances in technology and an increase in social media usage (Arntfield, 2015; Mariani, 2016; Wood, 2017). Personality traits associated with Machiavellianism (i.e., being manipulative, exploitative, and externally motivated) have shown significant correlations with social media use (Fox & Rooney, 2015; McCain et al., 2016). Fox and Rooney (2015) suggest individuals with high levels of Machiavellianism may use social networking to help them reach their social goals in spite of their antisocial traits. This research aligns more with the current study's finding that EI has a moderate, positive relationship with PRI. The emotional affect associated with antisocial traits, such as selfishness or manipulative attitude, is represented by PRI. Fox and Rooney's finding suggests that although these individuals portray antisocial traits, they are attempting to find ways to improve their social interactions with others. There is also evidence, though, that high levels of Machiavellianism, coupled with high levels of emotional regulation, have been linked to greater participation in harmful behaviors toward others (Côté et al., 2011). These findings, then, would support the relationship between EI and SEC, wherein SEC represents the actual presence of antisocial behavior. In sum, although the presence of antisocial traits may be present in some individuals, those individuals may not necessarily engage in antisocial behaviors that are harmful to others.

Other research points to the lack of face-to-face interaction of the Internet that emboldens users to behave in ways in which they might not normally behave (Valkenburg & Peter, 2010; Valkenburg et al., 2006; Wright, 2013). Concerns are also

growing regarding increased exposure to violence and aggression through media, movies, and video games (Mrug et al., 2016). Early research of this nature showed increases in depression and anxiety after participants watched violent movies (Linz et al., 1988). These symptoms, though, decreased after repeated exposure to the violence. Later research showed that, in addition to depression and anxiety symptoms decreasing, participants' empathy and sympathy for victims also lessened over repeated viewings (Fanti, Vanman, Henrich, & Avraamides, 2009).

In 1982, the National Institute of Mental Health declared that the presence of violence on television may lead to children becoming desensitized to the pain and suffering of others, more fearful of the world, and more likely to behave aggressively toward others. Studies of this nature have supported Bandura's theory of social learning (Bandura et al., 1961), finding early exposure to violence as a predictor of aggression later in adulthood (Coyne et al., 2011; Glymour, Glymour, & Glymour, 2008; Huesmann et al., 2003). Despite the declaration by the National Institute of Mental Health, studies continue to show that the rate of television watched by children is increasing. Lomonaco, Kim, & Ottaviano (2010) report the average child will witness 200,000 acts of violence through television, including 16,000 murders. Even in children's programming, violent acts take place about 20 times per hour. This repeated exposure might be helping to desensitize today's youth to violent acts, even with parental supervision, since the acts often take place within children's programming as well.

Decision-Making and Antisocial Behavior

Decision-making was found to have a small effect on SEC ($\beta^2 = .081$) with statistical significance ($p < .008$). Results suggest that those who engage in antisocial

behaviors tend to have poorer decision-making abilities. These findings follow the results from previous research. Madden and Bickel (2010) suggested that individuals with ASPD, gambling problems, or substance abuse problems partake in more impulsive decision-making. Having to deliberate about a decision seems to create discomfort in these individuals, thus there is a greater likelihood they will make quick conclusions.

The two MAL styles (AVO and SPO) had small, yet statistically significant effects on SEC. This suggests that individuals in the current study engage in impulsive, self-defeating behaviors that are related to poor decision-making, a finding that is supported by the literature (Baskin-Sommers, Stuppy-Sullivan, & Buckholtz, 2016; Crockett et al., 2015; Fanti et al., 2016; Hosker-Field et al., 2016; Mann et al., 2017). Individuals who commit high levels of antisocial behavior seem to focus solely on the immediate outcome of a decision, as opposed to weighing their options (Baskin-Sommers et al., 2016). This suggests these individuals would be less likely to use a rational, or adaptive, style of decision-making.

Avoidant Decision-Making

There was a statistically significant relationship between AVO and SEC ($\beta^2 = .048, p < .001$), although the effect was small. This correlation, at first glance, appears to be counterintuitive, as it seems those who exhibit AVO styles would be more aversive to risks and risk taking behaviors. Research, though, suggests that avoidant personality styles are related to social anxiety (Chabrol et al., 2012), and that social anxiety is correlated to antisocial behavior (Band & Ahamad, 2015). Band & Ahamad (2015) found a significant, positive relationship between social anxiety and the development of antisocial behaviors in youth ages 12 to 19 years old. Chabrol et al. (2012) found that

higher levels of antisocial behaviors were related to higher levels of social anxiety in adolescents from 14 to 21 years of age.

Results from a study by Kashdan et al. (2009) indicated that there are two types of individuals with SAD: those who exhibit patterns of inhibited behavior and risk aversion, and the less common type who show high levels of anger and aggression, and moderate to high levels of sexual impulsivity and substance use. Kashdan et al. suggest that individuals with SAD who exhibit antisocial behaviors do so as a means of survival in social situations. Instead of avoiding social situations, this individual attempts to overcompensate for his or her shortcomings by becoming aggressive, trying to dictate conversations, and rejecting others before he or she can be rejected. Individuals with SAD tend to be excessively concerned with social standings, and see themselves as very inadequate in comparison to others. This creates a preoccupation with one's own behaviors. Results from the 2009 study also indicated these individuals tend to be younger, less educated, make less money, and be in poorer health. The authors suggest that perhaps the antisocial behaviors, then, are socially acceptable behaviors utilized when the individual has not learned appropriate adaptive coping mechanisms.

A study by Galbraith et al. (2014) found SAD to be comorbid with ASPD, as well as with substance abuse. Antisocial Personality Disorder, of course, is highly comorbid with substance use (e. g., Brook et al., 2016; Compton et al., 2005; Moody et al., 2016; Ruiz et al., 2008; Westermeyer & Thruas, 2005). Likewise, Galbraith et al. (2014) found these individuals to have lower education levels, lower income, and poorer health. Individuals with both ASPD and SAD showed significant fear of social situations, especially small social gatherings. Small, intimate interactions with others may be

difficult for individuals with ASPD, as they tend to exhibit problems with relationships. It is not clear if these individuals engage in substance use in a situational manner in order to overcome social fears, or as a general coping mechanism.

Although the relationship between AVO and SEC may not be immediately recognizable, it seems the present study may have captured this small subset of individuals who are both socially anxious and who engage in antisocial behaviors. It seems likely that this type of individual would not engage in antisocial behaviors that would result in severe punishment, such as criminal activity, and so it is possible these individuals would be present in a study that focuses on evaluating antisocial behaviors in the general population.

Spontaneous Decision-Making

Spontaneous decision-making had a small, statistically significant effect on SEC ($\beta^2 = .070, p < .001$), indicating that, for this study, those who engaged in SPO were slightly more likely to also engage in antisocial behaviors. This finding supports research that the participation in antisocial behaviors is strongly linked to impulsivity, or spontaneity (e.g., Mann et al., 2017; Giannotta & Rydell, 2016; Thibodeau, Cicchetti, & Rogosch, 2015).

Emotional Intelligence and Decision-Making

A large, statistically significant effect was found between EI and decision-making ($\beta^2 = .61, p < .001$). The positive correlation between EI and decision-making indicates that as one's level of EI increases, the more likely he or she will be to engage in adaptive decision making styles. This finding is generally consistent with the literature (e.g.,

Alkozei et al., 2016; Fallon et al., 2014; Volz & Hertwig, 2016), although not much research has been devoted to these two constructs as correlates.

Other Findings

Results from the model also suggest SEC has a small, direct effect on PRI ($\beta^2 = .095, p < .001$). This finding lends support to Bandura's (1977) Social Learning Theory, which posits that aggression is learned through observation of others. While Bandura also asserted that individuals contemplate their actions before engaging in them, it seems that the purpose of this meditational process is to determine the consequences of an action as it pertains to the individual, not as it will affect others.

Moffitt (1993) conceptualized that antisocial behaviors, for some individuals, develop in childhood and continue into adulthood. In fact, Moffitt ascertains that antisocial behaviors do not suddenly develop in adulthood, nor do they develop in adolescence and then persist into adulthood. Moffitt's theory suggests that antisocial adults were also once antisocial children. Although, a certain amount of aggression in early childhood may be considered normal, some research indicates that a persistent, aggressive personality may be embedded in one's genetic composition (Bentley et al., 2013; Caspi et al., 2002; Ferguson, 2010; Thapar et al., 2005).

In addition, studies have shown that a young child's experiences with aggression and/or violence can influence his or her later emotional state, creating low self-esteem (Donnellan et al., 2005; Garofalo et al., 2016; Moudgil & Moudgil, 2017) and less acceptance by one's peers (Kretschmer et al., 2014; Twenge, Baumeister, DeWall, Ciarocco, & Bartels, 2007). The development of these behaviors may be related to poor attachment styles in one's youth (Chakraborty, Dasgupta, & Sanyal, 2015; Han et al.,

2016; Hart & Mueller, 2013) and, according to Hirschi's (1969) Social Control Theory, feelings of rejection and poor attachment to one's family may be what allow the behavior to persist into adulthood.

Research Question 2

Does gender influence the fit of the theoretical covariance matrix?

After examining the respecified model for males only, it was determined the observed data was an acceptable fit with the theoretical model. In the current study, males with higher levels of EI showed higher levels of antisocial behaviors, a finding that does not support previous literature. Past studies have indicated that males with high levels of EI tend to engage in fewer antisocial behaviors, and males with low levels of EI tend to engage in more antisocial behaviors (Bacon et al., 2014; Bacon & Regan, 2016). Males in the current study showed above-average levels of both EI and antisocial behavior. The results from the respecified model for both genders suggested higher levels of EI are related to higher participation in antisocial behaviors, which research has only shown to be true for females and not males (Bacon et al, 2014; Bacon & Regan, 2016).

When the respecified model was analyzed looking at only female participants, the hypothesized model showed strong consistency with previous findings in literature. A recent study by Bacon and Regan (2016) found similar conclusions, with females simultaneously exhibiting both higher levels of EI and antisocial behaviors than males. In addition, females with high EI scores admitted to participating in higher levels of both general delinquency (such as theft or vandalism) and interpersonal delinquency (such as bullying or social exclusion), including both overt and covert behaviors when compared

to females with low EI scores. Bacon and Regan further found these individuals had high levels of Machiavellian Tactics, as well as morality. Machiavellian Tactics tend to be composed of more overt behaviors, though, such as deceit, exploitation of friendships, or guilt induction (Christie & Geis, 1970). Machiavellian morality describes one's inclination to ignore traditional ethics or norms if one's behavior will help achieve one's goals. Interestingly, females in Bacon and Regan's study also showed high levels of both prosocial and non-prosocial behaviors. This may explain why they are able to maintain social relationships despite their participation in delinquent behaviors. In contrast, males with high EI scores indicated low levels of both types of delinquent behaviors. Low EI scores predicted delinquency in males.

An earlier study also found similar results, wherein females with high EI scores reported higher levels of delinquent behavior, and males with high EI scores reported lower levels of delinquent behavior (Bacon et al., 2014). Researchers suggested the gender difference might be due to the types of delinquent behavior in which males and females participate, in that males tend to commit more criminal and/or violent acts than females. Females are more likely to engage in relational aggression, which is not typically something that would bring about severe consequences, and, thus, likely would be present in a study of the general population. According to the authors, females with high levels of EI may be able to engage in successful social manipulation by having a strong understanding of the emotions of others. Overall, although the female model indicated a better overall fit than the male model, both models were acceptable, indicating no gender differences in the current sample.

Implications of the Study

Antisocial behaviors of participants in the current study were positively correlated with one's level of EI. This is an important finding because psychologists need to have a proper understanding of how an individual's emotions can be nurtured and enhanced to bring about positive results. More importantly, emotional knowledge can be taught to others to improve their competence in this area. Educators have seen great academic success by teaching their students the importance of regulating and understanding the emotions of both self and others (e.g., Howell & Buro, 2011; Ivcevic & Brackett, 2014; Pool & Qualter, 2012; Valiente, Swanson, & Eisenberg, 2012). In addition, success has been achieved among multiple age groups, from preschoolers, to college students, and even with adults in the workplace (Ashkanasy & Dorris, 2017; Brackett, Rivers, & Salovey, 2011). This suggests that the opportunity for learning appropriate emotional knowledge is not over once an individual has surpassed childhood. As stated before, many professionals view adults who participate in severe antisocial behaviors to be beyond the point of receiving treatment. Perhaps a less drastic change would be seen in more severe cases, but some level of improvement may be possible by teaching these individuals techniques to help them improve their knowledge of emotions. The *level* of EI, though, may not be of the greatest importance. What does seem to be of importance is *how* the emotional knowledge is used. When a person uses his or her knowledge of emotions to engage in more acceptable antisocial behaviors, such as presenting a more appealing version of his or herself, or telling others what they want to hear, the end results are not problematic, and may even be rewarding to that individual. It is only when

a person uses his or her knowledge of emotions in order to bring harm to another person that the behaviors begin to be challenging.

A study by Castillo, Salguero, Fernández-Berrocal, and Balluerka (2013) demonstrated that teaching adolescents about EI helped reduce aggressive behavior and enhanced empathy among adolescent males. In addition, some research suggests inmates have benefitted from learning mindfulness techniques, such as meditation and stress reduction (e.g., Bowen, et al., 2006; Bowen, Witkiewitz, Dillworth, & Marlatt, 2007; Perelman, et al., 2012; Samuelson, Carmody, Kabat-Zinn, & Bratt, 2007). Overall, these types of studies have shown improvement in affect, substance use, anger and hostility, relaxation capacity, self-esteem, and optimism (Shonin, Van Gordin, & Griffiths, 2014). By extension, then, it is plausible to assume that teaching inmates how to appropriately use emotional knowledge could be of some benefit.

There are implications for the practicing counseling psychologists who treat clients with antisocial behaviors. For example, if a young client is exhibiting signs that he or she may not have an appropriate level of emotion regulation, this could later serve as a warning sign to the clinician that the youth might engage in problematic behaviors. Implementing techniques aimed at improving the client's understanding of emotions, then, could be incorporated as part of the treatment plan. Educating clients about the importance of emotional knowledge, at any age, could serve to reduce these behaviors.

Antisocial behaviors are also negatively correlated with one's decision-making styles, indicating that those with more ADA styles tend to engage in lower rates of antisocial behavior, even within the general population. This is important because, again, decision-making skills are something that can be taught. Making "savvy" decisions is the

subject of many books aimed at improving one's business or academic strategies (e.g., Clemen & Reilly, 2013; Gigerenzer, 2015; Hammond, Keeney, & Raiffa, 2015). If a person's engagement in antisocial behaviors is due to poor decisions he or she is making, it is likely that individual would benefit from training aimed at improving decision-making skills. In fact, introducing such training when a person is still young may prevent that individual from making poor decisions as an adolescent. As previously discussed, interventions are more likely to be successful the earlier they are implemented.

Importantly, this study suggests that high rates of antisocial behaviors are currently present within the general population. Although these behaviors likely are not severe enough to bring about criminal punishment, it is just as likely that they are still causing harm to others. It is possible that some of these behaviors have become "normalized" in today's society, thus, previous research has suggested females engage in more relational types of aggression and covert antisocial behaviors (Bacon et al., 2014; Bacon & Regan, 2016; Javdani et al., 2011). Having intelligence about how to regulate emotions and how to predict the emotions of others can be beneficial in social relationships if the information is not used to manipulate the other person. It is essential to keep in mind that antisocial behaviors are committed for the betterment of the individual committing them. Some manipulative behavior may be used occasionally by all humans in an effort to put forward a best image of one's self, but these behaviors generally are not harmful to anyone. By contrast, a female who engages in relational aggression or social exclusion as a means to enhance her social status, is committing these behaviors at someone else's expense.

Society seems to promote competition amongst females, and portrays this competition as vindictive and aggressive (Lee, Kesebir, & Pillutla, 2016; Sheppard & Aquino, 2013). Women in high-level career positions may feel threatened by women who are also qualified, and so may try to keep others from attaining the same status (Duguid, 2011; Lee et al., 2016). Lee et al. (2016) found that women's same gender relationships tend to suffer when competition is present, but male-male relationships do not. In addition, women reported more negative emotions when in competition with other women than when in competition with men. Men reported fewer negative emotions when in competition with either gender. On a positive note, Lee et al. also showed that women were capable of cooperating with each other as well. The authors posit that perhaps women are not socialized to be competitive, and so feel more threatened in competitive scenarios. Competitiveness in males is thought to be desirable and healthy, whereas females are expected to behave in more communal ways.

Perhaps the unhealthy competitive dynamics in which females find themselves at least partially contributes to the presence of the antisocial behaviors captured in this study. As previously stated, behaviors associated with relational aggression are not behaviors that would lead to severe punishment for an individual. And, in some ways, this behavior may be considered normal, and even expected, in today's society.

Overall, the findings from the current study suggest there are high rates of antisocial behaviors present in the general population, and these behaviors are related to high levels of EI. At the same time, the participants in this study indicate they are most likely to use an ADA style of decision-making, although MAL decision-making styles were also moderately correlated with both PRI and SEC. Without knowing the types of

behaviors in which participants engage, it is unclear whether these antisocial behaviors are committed for adaptive purposes or in an attempt to harm other members of society.

Suggestions for Future Research

The findings of this study have resulted in four suggestions for further research:

1. First, the literature review suggests there are gaps in the present understanding of antisocial behaviors in the general adult population. Generally, research that focuses on antisocial behavior looks at such behaviors in youth (e.g., Davis & Nichols, 2016; Loney et al., 2010; Kokkinos & Kipritsi, 2011; Petrides et al., 2004; van den Bos et al., 2014). Most studies that focus on adults generally only examine severely problematic behaviors or those with ASPD (e.g., Ali et al., 2009; Angrilli et al., 2013; Hughes et al., 2016; Malterer et al., 2008). In reality, though, many individuals engage in antisocial behaviors, and these behaviors could be symptomatic of numerous disorders. In addition, it should be clear that an adult who *does* engage in antisocial behaviors is not necessarily past the point of successful treatment. In order to better serve individuals who engage in less severe (but still problematic) antisocial behaviors, more research is necessary to gain a better understanding of their involvement in such behaviors.

2. Second, research has indicated that teaching many different groups about emotions and emotional regulation has brought about positive results, including lower rates of aggression. Among criminal populations, violence and aggression seem to be the most difficult symptoms to treat (Day & Doyle, 2010; Gilbert & Daffern, 2010; Serin et al., 2009). It would likely be beneficial, then, to examine if this type of training could improve problematic behaviors in prison populations, and even lower rates of recidivism. Research has already shown that techniques like mindfulness and meditation can

advantageous to this population (e.g., Bowen, et al., 2006; Bowen et al., 2007; Perelman, et al., 2012; Samuelson et al., 2007). Gaining knowledge of one's own emotions and the emotions of others could bring forth the same type of awareness for these individuals.

3. Third, although not present in the current study, previous literature suggests there may be gender differences in the relationship between antisocial behavior and EI. The hypothesized model from this study aligns with previous research that suggests females with higher levels of EI engage in more antisocial behaviors (Bacon et al., 2014; Bacon & Regan, 2016). Future research could seek to examine the specific behaviors in which females are participating, and whether or not the behaviors are related to relational aggression. In addition, assuming these behaviors do not warrant severe punishment, one's motives behind the involvement in such behavior could also be examined. The relationship between antisocial behaviors and EI in males needs further assessment, as the current study conflicts with previous findings.

4. Past studies have indicated that females with high EI engage in higher rates of antisocial behaviors, while males with high EI engage in fewer antisocial behaviors, and males with low EI engage in higher rates of antisocial behaviors. Although the current study did not support the findings from previous studies regarding males, previous findings imply that the different treatment plans may be necessary for males and females who present with antisocial behaviors. Whereas helping individuals better understand and regulate their emotions may be helpful for males, the same cannot be said for females. Improving the EI of a female may actually result in *more* antisocial behaviors. Future studies could investigate other factors related to the presence of

antisocial behaviors in females in order to develop treatment plans to reduce such behaviors.

5. According to previous studies, there appears to be a link between antisocial behaviors, emotions, and violence in media (Arntfield, 2015; Mariani, 2016; Wood, 2017). Studies of this nature, however, are relatively new, and show that violence is related to increased antisocial behaviors and decreased empathy. This does not fully explain the findings in the current study, where higher rates of antisocial behavior were found to be related to higher rates of EI. Further research in this area, however, may shed light on this area.

6. Finally, it is also important to replicate this study with different cultural groups to examine any group differences. Racial and ethnic differences were not investigated as part of this study, and all participants resided in the United States. The results from this study cannot necessarily be generalized to all racial or ethnic groups, or to populations outside of the United States. Other different types of demographic information could be considered as well, such as education level or income level.

APPENDIX A

INFORMED CONSENT AND INSTRUMENT

Questions marked with a * are required

Emotional Intelligence & Decision-Making as Predictors of Antisocial Behavior**Andrews University****INFORMED CONSENT FORM *****Research Title:** Emotional Intelligence and Decision-Making as Predictors of Antisocial Behavior**Please read this consent document carefully before you decide to participate in this study.****Principal Investigator:** Melina Sample**Advisor:** Carole Woolford-Hunt, Ph.D.**Statements about the Research:**

This research study is part of my dissertation, in partial fulfillment for my doctoral degree requirements in Counseling Psychology at Andrews University, Berrien Springs, Michigan. Your participation in this study is greatly appreciated.

Purpose of Study: The purpose of this study is to examine if emotional intelligence and decision-making influence antisocial behaviors.

Procedures: You will be asked to complete a survey that asks questions about your emotions, decision-making style, and participation in certain behaviors.

Duration of participation in study: The survey will take approximately 15 minutes to complete.

Risks and Benefits: There are no foreseeable risks or benefits associated with this study. In accordance with SurveyMonkey's regular procedures, if you choose to complete this survey, you will be rewarded with a charitable donation or sweepstake entry.

Voluntary Participation: In order to participate in this study, you must be at least 18 years of age. Participation in this study is completely voluntary. Refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled. You may discontinue participation at any time without penalty or loss of benefits to which you may otherwise be entitled.

Confidentiality: Your survey responses will be anonymous. Your responses will be strictly confidential. Data collected from this study will be used for research purposes only.

Whom to Contact: If you have any questions about your rights as a subject/participant in this research, contact my advisor Carole Woolford-Hunt at (269) 471-3473 or cwh@andrews.edu; or the principle researcher Melina Sample at sample@andrews.edu. You can also contact the IRB Office at irb@andrews.edu or at (269) 471-6361.

Statement of Consent: By continuing forward and beginning the survey, you are giving your consent to participate in the research described above. If you would not like to participate in the survey described above, please close your browser window to exit this page. *

Please indicate how much you agree with each statement.

	Disagree			Neutral			Agree
Success is based on survival of the fittest; I am not concerned about the losers. *	☐		☐		☐		☐
I find myself in the same kinds of trouble time after time. *	☐		☐		☐		☐
For me, what's right is whatever I can get away with. *	☐		☐		☐		☐
I am often bored. *	☐		☐		☐		☐
In today's world, I feel justified in doing							

anything I can get away with to succeed. *	☐	☐	☐	☐	☐
I find I am able to pursue one goal for a long time. *	☐	☐	☐	☐	☐
My main purpose in life is getting as many goodies as I can. *	☐	☐	☐	☐	☐
My main purpose in life is getting as many goodies as I can. *	☐	☐	☐	☐	☐
Making a lot of money is my most important goal. *	☐	☐	☐	☐	☐
I quickly lose interest in tasks I start. *	☐	☐	☐	☐	☐
	Disagree		Neutral		Agree
I let others worry about higher values; my main concern is with the bottom line. *	☐	☐	☐	☐	☐
Most of my problems are due to the fact that other people just don't understand me. *	☐	☐	☐	☐	☐
People who are stupid enough to get ripped off usually deserve it. *	☐	☐	☐	☐	☐
Before I do anything, I carefully consider the possible consequences. *	☐	☐	☐	☐	☐
Looking out for myself is my top priority. *	☐	☐	☐	☐	☐
I have been in a lot of shouting matches with other people. *	☐	☐	☐	☐	☐
I tell other people what they want to hear so that they will do what I want them to do. *	☐	☐	☐	☐	☐
When I get frustrated, I often "let off steam" by blowing my top. *	☐	☐	☐	☐	☐
I would be upset if my success came at someone else's expense. *	☐	☐	☐	☐	☐
Love is overrated. *	☐	☐	☐	☐	☐
	Disagree		Neutral		Agree
I often admire a really clever scam. *	☐	☐	☐	☐	☐
I make a point of trying not to hurt others in pursuit of my goals. *	☐	☐	☐	☐	☐
I enjoy manipulating other people's feelings. *	☐	☐	☐	☐	☐
I feel bad if my words or actions cause someone else to feel emotional pain. *	☐	☐	☐	☐	☐
Even if I were trying very hard to sell something, I wouldn't lie about it. *	☐	☐	☐	☐	☐
Cheating is not justified because it is unfair to others. *	☐	☐	☐	☐	☐
<p>Please answer each statement below by selecting 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).</p>					
	Completely Disagree				Completely Agree
Expressing my emotions with words is not a problem for me. *	☐	☐	☐	☐	☐

I often find it difficult to see things from another person's viewpoint. *	☐	☐	☐	☐	☐	☐	☐
On the whole, I'm a highly motivated person. *	☐	☐	☐	☐	☐	☐	☐
I usually find it difficult to regulate my emotions. *	☐	☐	☐	☐	☐	☐	☐
I generally don't find life enjoyable. *	☐	☐	☐	☐	☐	☐	☐
I can deal effectively with people. *	☐	☐	☐	☐	☐	☐	☐
I tend to change my mind frequently. *	☐	☐	☐	☐	☐	☐	☐
Many times, I can't figure out what emotion I'm feeling. *	☐	☐	☐	☐	☐	☐	☐
I feel that I have a number of good qualities. *	☐	☐	☐	☐	☐	☐	☐
I often find it difficult to stand up for my rights. *	☐	☐	☐	☐	☐	☐	☐
	Completely Disagree			Completely Agree			
I'm usually able to influence the way other people feel. *	☐	☐	☐	☐	☐	☐	☐
On the whole, I have a gloomy perspective on most things. *	☐	☐	☐	☐	☐	☐	☐
Those close to me often complain that I don't treat them right. *	☐	☐	☐	☐	☐	☐	☐
I often find it difficult to adjust my life according to the circumstances. *	☐	☐	☐	☐	☐	☐	☐
On the whole, I'm able to deal with stress. *	☐	☐	☐	☐	☐	☐	☐
I often find it difficult to show my affection to those close to me. *	☐	☐	☐	☐	☐	☐	☐
I'm normally able to "get into someone's shoes" and experience their emotions. *	☐	☐	☐	☐	☐	☐	☐
I normally find it difficult to keep myself motivated. *	☐	☐	☐	☐	☐	☐	☐
I'm usually able to find ways to control my emotions when I want to. *	☐	☐	☐	☐	☐	☐	☐
On the whole, I'm pleased with my life. *	☐	☐	☐	☐	☐	☐	☐
	Completely Disagree			Completely Agree			
I would describe myself as a good negotiator. *	☐	☐	☐	☐	☐	☐	☐
I tend to get involved in things I later wish I could get out of. *	☐	☐	☐	☐	☐	☐	☐
I often pause and think about my feelings. *	☐	☐	☐	☐	☐	☐	☐
I believe I'm full of personal strengths. *	☐	☐	☐	☐	☐	☐	☐
I tend to "back down" even if I know I'm right. *	☐	☐	☐	☐	☐	☐	☐
I don't seem to have any power at all over other people's feelings. *	☐	☐	☐	☐	☐	☐	☐
I generally believe that things will work out fine in my life. *	☐	☐	☐	☐	☐	☐	☐

I find it difficult to bond well even with those close to me. *	☐	☐	☐	☐	☐	☐	☐
Generally, I'm able to adapt to new environments. *	☐	☐	☐	☐	☐	☐	☐
Others admire me for being relaxed. *	☐	☐	☐	☐	☐	☐	☐

Please indicate whether you agree or disagree with each statement, according to the five-point scale.

	Strongly Disagree	Disagree	Neutral (Neither Agree nor Disagree)	Agree	Strongly Agree
When making decision, I tend to rely on my intuition. *	☐	☐	☐	☐	☐
I rarely make important decisions without consulting other people. *	☐	☐	☐	☐	☐
When making a decision, it is more important for me to feel the decision is right than to have a rational reason for it. *	☐	☐	☐	☐	☐
I double check my information sources to be sure I have the right facts before making decisions. *	☐	☐	☐	☐	☐
I use the advice of other people in making my important decisions. *	☐	☐	☐	☐	☐
I put off making decisions because thinking about them makes me uneasy. *	☐	☐	☐	☐	☐
I make decisions in a logical and systemic way. *	☐	☐	☐	☐	☐
When making decisions I do what feels natural at the moment. *	☐	☐	☐	☐	☐
I generally make snap decisions. *	☐	☐	☐	☐	☐
I like to have someone steer me in the right direction when I am faced with important decisions. *	☐	☐	☐	☐	☐
	Strongly Disagree	Disagree	Neutral (Neither Agree nor Disagree)	Agree	Strongly Agree
My decision making requires careful thought. *	☐	☐	☐	☐	☐
When making a decision, I trust my inner feelings and reactions. *	☐	☐	☐	☐	☐
When making a decision, I consider various options in terms of a specified goal. *	☐	☐	☐	☐	☐
I avoid making important decisions until the pressure is on. *	☐	☐	☐	☐	☐
I often make impulsive decisions. *	☐	☐	☐	☐	☐
When making decisions, I rely upon my instincts. *	☐	☐	☐	☐	☐
I generally make decisions that feel right to me. *	☐	☐	☐	☐	☐
I often need the assistance of other people when making important decisions. *	☐	☐	☐	☐	☐
I postpone decision making whenever possible. *	☐	☐	☐	☐	☐

I often make decisions on the spur of the moment. *	☐	☐	☐	☐	☐
I often procrastinate when it comes to making important decisions. *	☐	☐	☐	☐	☐
If I have the support of others, it is easier for me to make important decisions. *	☐	☐	☐	☐	☐
I generally make important decisions at the last minute. *	☐	☐	☐	☐	☐
I make quick decisions. *	☐	☐	☐	☐	☐
When I make decisions, I tend to rely on my intuition. *	☐	☐	☐	☐	☐

Survey Software Powered by QuestionPro

APPENDIX B

DEFINITION OF VARIABLES

Variable	Conceptual Definition	Items
Primary Psychopathy (Antisocial Behavior)	Selfish, uncaring, and manipulative attitude toward others (emotional affect).	1. Success is based on survival of the fittest; I am not concerned about the losers. (+) 3. For me, what's right is whatever I can get away with. (+) 5. In today's world, I feel justified in doing anything I can get away with to succeed. (+) 7. My main purpose in life is getting as many goodies as I can. (+) 9. Making a lot of money is my most important goal. (+) 11. I let others worry about higher values; my main concern is with the bottom line. (+) 13. People who are stupid enough to get ripped off usually deserve it. (+) 15. Looking out for myself is my top priority. (+) 17. I tell other people what they want to hear so that they will do what I want them to do. (+) 19. I would be upset if my success came at someone else's expense. (-) 21. I often admire a really clever scam. (+) 22. I make a point of trying not to hurt others in pursuit of my goals. (-) 23. I enjoy manipulating other people's feelings. (+) 24. I feel bad if my words or actions cause someone else to feel emotional pain. (-) 25. Even if I were trying very hard to sell something, I wouldn't lie about it. (-) 26. Cheating is not justified because it is unfair to others. (-)
Secondary Psychopathy (Antisocial Behavior)	Participation in impulsive behaviors and a self-defeating lifestyle.	2. I find myself in the same kinds of trouble time after time. (+) 4. I am often bored. (+) 6. I find I am able to pursue one goal for a long time. (-) 8. I don't plan anything very far in advance. (+) question removed bc it was omitted by survey company 10. I quickly lose interest in tasks I start. (+) 12. Most of my problems are due to the fact that other people just don't understand me. (+)

		<p>14. Before I do anything, I carefully consider the possible consequences. (-)</p> <p>16. I have been in a lot of shouting matches with other people. (+)</p> <p>18. When I get frustrated, I often "let off steam" by blowing my top. (+)</p> <p>20. Love is overrated. (+)</p>
Well Being (Emotional Intelligence)	A state of happiness and contentment, with low levels of distress, overall good physical and mental health and outlook, or good quality of life.	<p>5. I generally don't find life enjoyable. (-)</p> <p>9. I feel that I have a number of good qualities. (+)</p> <p>12. On the whole, I have a gloomy perspective on most things. (-)</p> <p>20. On the whole, I'm pleased with my life. (+)</p> <p>24. I believe I'm full of personal strengths. (+)</p> <p>27. I generally believe that things will work out fine in my life. (+)</p>
Self-Control (Emotional Intelligence)	The ability to be in command of one's behavior (overt, covert, emotional, or physical), and to restrain or inhibit one's impulses.	<p>4. I usually find it difficult to regulate my emotions. (-)</p> <p>7. I tend to change my mind frequently. (-)</p> <p>15. On the whole, I'm able to deal with stress. (+)</p> <p>19. I'm usually able to find ways to control my emotions when I want to. (+)</p> <p>22. I tend to get involved in things I later wish I could get out of. (-)</p> <p>30. Others admire me for being relaxed. (+)</p>
Emotionality (Emotional Intelligence)	The degree to which an individual experiences and expresses emotions, irrespective of the quality of the emotional experience.	<p>1. Expressing my emotions with words is not a problem for me. (+)</p> <p>2. I often find it difficult to see things from another person's viewpoint. (-)</p> <p>8. Many times, I can't figure out what emotion I'm feeling. (-)</p> <p>13. Those close to me often complain that I don't treat them right. (-)</p> <p>16. I often find it difficult to show my affection to those close to me. (-)</p> <p>17. I'm normally able to "get into someone's shoes" and experience their emotions. (+)</p> <p>23. I often pause and think about my feelings. (+)</p> <p>28. I find it difficult to bond well even with those close to me. (-)</p>
Sociability (Emotional Intelligence)	The tendency and accompanying skills to seek out companionship, engage in interpersonal relations, and participate in social activities.	<p>6. I can deal effectively with people. (+)</p> <p>10. I often find it difficult to stand up for my rights. (-)</p> <p>11. I'm usually able to influence the way other people feel. (+)</p> <p>21. I would describe myself as a good negotiator. (+)</p> <p>25. I tend to "back down" even if I know I'm right. (-)</p>

		26. I don't seem to have any power at all over other people's feelings. (-)
Rational Decision-Making	Characterized by a thorough search for and logical evaluation of alternatives.	4. I double check my information sources to be sure I have the right facts before making decisions. (+) 7. I make decisions in a logical and systemic way. (+) 11. My decision making requires careful thought. (+) 13. When making a decision, I consider various options in terms of a specified goal. (+)
Avoidant Decision-Making	Characterized by attempts to avoid decision making.	6. I put off making decisions because thinking about them makes me uneasy. (+) 14. I avoid making important decisions until the pressure is on. (+) 19. I postpone decision making whenever possible. (+) 21. I often procrastinate when it comes to making important decisions. (+) 23. I generally make important decisions at the last minute. (+)
Dependent Decision-Making	Characterized by a search for advice and direction from others.	2. I rarely make important decisions without consulting other people. (+) 5. I use the advice of other people in making my important decisions. (+) 10. I like to have someone steer me in the right direction when I am faced with important decisions. (+) 18. I often need the assistance of other people when making important decisions. (+) 22. If I have the support of others, it is easier for me to make important decisions. (+)
Intuitive Decision-Making	Characterized by a reliance on hunches and feelings.	1. When making decisions, I tend to rely on my intuition. (+) 3. When making a decision, it is more important for me to feel the decision is right than to have a rational reason for it. (+) 12. When making a decision, I trust my inner feelings and reactions. (+) 16. When making decisions, I rely upon my instincts. (+) 17. I generally make decisions that feel right to me. (+) 25. When making decisions, I tend to rely on my intuition. (+)
Spontaneous Decision-Making	Tendency to make snap decisions.	8. When making decisions I do what feels natural at the moment. (+) 9. I generally make snap decisions. (+) 15. I often make impulsive decisions. (+) 20. I often make decisions on the spur of the moment. (+) 24. I make quick decisions. (+)

APPENDIX C
STATISTICAL OUTPUTS

Original Respecified Model

Estimates (Group number 1 - Default model)

Scalar Estimates (Group number 1 - Default model)

Maximum Likelihood Estimates

Regression Weights: (Group number 1 - Default model)

		Estimate	S.E.	C.R.	P Label
DM_Avoidant	<--- DM	1.591	.302	5.265	***
DM_Spontaneous	<--- DM	1.619	.287	5.641	***
ASB_Sec	<--- DM	-1.000	.377	-2.652	.008
ASB_Sec	<--- EI	1.195	.127	9.433	***
ASB_Sec	<--- DM_Spontaneous	.463	.096	4.844	***
ASB_Sec	<--- DM_Avoidant	.367	.082	4.455	***
EI_Social	<--- EI	1.000			
EI_SelfControl	<--- EI	1.108	.071	15.643	***
EI_Emotion	<--- EI	1.665	.100	16.669	***
EI_WellBeing	<--- EI	.755	.057	13.316	***
DM_Dependent	<--- DM	1.345	.239	5.635	***
DM_Adaptive	<--- DM	1.000			
ASB_Pri	<--- EI	1.443	.165	8.769	***
ASB_Pri	<--- ASB_Sec	.474	.086	5.519	***

Standardized Regression Weights: (Group number 1 - Default model)

		Estimate
DM_Avoidant	<--- DM	.759
DM_Spontaneous	<--- DM	.810
ASB_Sec	<--- DM	-.286
ASB_Sec	<--- EI	.719
ASB_Sec	<--- DM_Spontaneous	.265
ASB_Sec	<--- DM_Avoidant	.220
EI_Social	<--- EI	.728
EI_SelfControl	<--- EI	.798
EI_Emotion	<--- EI	.849
EI_WellBeing	<--- EI	.632

		Estimate
DM_Dependent	<--- DM	.657
DM_Adaptive	<--- DM	.349
ASB_Pri	<--- EI	.565
ASB_Pri	<--- ASB_Sec	.308

Covariances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P Label
EI <--> DM	6.541	1.195	5.475	***
e7 <--> e8	-3.015	.587	-5.133	***
e5 <--> e6	-9.205	1.045	-8.812	***
e4 <--> e8	-2.207	.602	-3.666	***
e4 <--> e6	-4.670	.677	-6.895	***
e4 <--> e5	10.123	1.205	8.403	***
e2 <--> e4	4.121	.869	4.740	***
e5 <--> e8	-6.535	1.077	-6.066	***
e1 <--> e4	2.169	.753	2.879	.004
e2 <--> e5	4.309	1.113	3.870	***
e2 <--> e6	-2.327	.611	-3.810	***

Correlations: (Group number 1 - Default model)

	Estimate
EI <--> DM	.779
e7 <--> e8	-.418
e5 <--> e6	-.631
e4 <--> e8	-.242
e4 <--> e6	-.441
e4 <--> e5	.485
e2 <--> e4	.301
e5 <--> e8	-.521
e1 <--> e4	.141
e2 <--> e5	.229
e2 <--> e6	-.243

Variances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P Label
EI	17.668	2.137	8.267	***
DM	3.986	1.316	3.029	.002

	Estimate	S.E.	C.R.	P Label
e6	7.408	.725	10.215	***
e8	5.488	.727	7.551	***
e9	15.702	1.433	10.960	***
e1	15.693	1.247	12.583	***
e2	12.362	1.093	11.305	***
e3	18.914	1.857	10.183	***
e4	15.172	1.179	12.871	***
e5	28.688	2.148	13.354	***
e7	9.487	.801	11.841	***
e10	35.609	2.857	12.462	***

Squared Multiple Correlations: (Group number 1 - Default model)

	Estimate
DM_Spontaneous	.656
DM_Avoidant	.577
ASB_Sec	.678
ASB_Pri	.691
DM_Dependent	.432
DM_Adaptive	.122
EI_WellBeing	.399
EI_Emotion	.721
EI_SelfControl	.637
EI_Social	.530

Respecified Model: Males

Estimates (Group number 1 - Default model)

Scalar Estimates (Group number 1 - Default model)

Maximum Likelihood Estimates

Regression Weights: (Group number 1 - Default model)

		Estimate	S.E.	C.R.	P Label
DM_Avoidant	<--- DM	1.311	.290	4.524	***
DM_Spontaneous	<--- DM	1.337	.281	4.762	***
ASB_Sec	<--- DM	-.666	.450	-1.482	.138
ASB_Sec	<--- EI	1.229	.156	7.856	***
ASB_Sec	<--- DM_Spontaneous	.311	.158	1.962	.050
ASB_Sec	<--- DM_Avoidant	.315	.150	2.106	.035
EI_Social	<--- EI	1.000			
EI_SelfControl	<--- EI	1.074	.079	13.674	***
EI_Emotion	<--- EI	1.586	.110	14.434	***
EI_WellBeing	<--- EI	.820	.066	12.340	***
DM_Dependent	<--- DM	1.135	.236	4.818	***
DM_Adaptive	<--- DM	1.000			
ASB_Pri	<--- EI	1.568	.256	6.114	***
ASB_Pri	<--- ASB_Sec	.440	.160	2.744	.006

Standardized Regression Weights: (Group number 1 - Default model)

		Estimate
DM_Avoidant	<--- DM	.846
DM_Spontaneous	<--- DM	.865
ASB_Sec	<--- DM	-.234
ASB_Sec	<--- EI	.834
ASB_Sec	<--- DM_Spontaneous	.169
ASB_Sec	<--- DM_Avoidant	.172
EI_Social	<--- EI	.838
EI_SelfControl	<--- EI	.864
EI_Emotion	<--- EI	.892
EI_WellBeing	<--- EI	.732
DM_Dependent	<--- DM	.735

		Estimate
DM_Adaptive	<--- DM	.437
ASB_Pri	<--- EI	.651
ASB_Pri	<--- ASB_Sec	.270

Covariances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P Label
EI <--> DM	12.353	2.824	4.374	***
e7 <--> e8	-2.043	.794	-2.574	.010
e5 <--> e6	-8.300	1.586	-5.235	***
e4 <--> e8	-2.307	.924	-2.497	.013
e4 <--> e6	-4.147	.980	-4.230	***
e4 <--> e5	13.624	2.224	6.127	***
e2 <--> e4	4.396	1.340	3.280	.001
e5 <--> e8	-6.176	1.677	-3.682	***
e1 <--> e4	3.536	1.109	3.187	.001
e2 <--> e5	4.787	1.855	2.580	.010
e2 <--> e6	-1.908	.815	-2.341	.019

Correlations: (Group number 1 - Default model)

	Estimate
EI <--> DM	.834
e7 <--> e8	-.327
e5 <--> e6	-.635
e4 <--> e8	-.263
e4 <--> e6	-.444
e4 <--> e5	.584
e2 <--> e4	.323
e5 <--> e8	-.503
e1 <--> e4	.249
e2 <--> e5	.251
e2 <--> e6	-.250

Variances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P Label
EI	28.548	4.489	6.359	***
DM	7.688	3.006	2.558	.011
e6	5.237	.891	5.877	***

	Estimate	S.E.	C.R.	P Label
e8	4.621	.951	4.861	***
e9	12.827	2.001	6.409	***
e1	12.120	1.614	7.511	***
e2	11.154	1.586	7.034	***
e3	18.414	2.780	6.624	***
e4	16.637	2.022	8.226	***
e5	32.661	4.011	8.143	***
e7	8.449	1.146	7.372	***
e10	32.033	4.368	7.333	***

Squared Multiple Correlations: (Group number 1 - Default model)

	Estimate
DM_Spontaneous	.748
DM_Avoidant	.716
ASB_Sec	.793
ASB_Pri	.806
DM_Dependent	.540
DM_Adaptive	.191
EI_WellBeing	.536
EI_Emotion	.796
EI_SelfControl	.747
EI_Social	.702

Respecified Model: Females

Estimates (Group number 1 - Default model)

Scalar Estimates (Group number 1 - Default model)

Maximum Likelihood Estimates

Regression Weights: (Group number 1 - Default model)

		Estimate	S.E.	C.R.	P Label
DM_Avoidant	<--- DM	1.894	.613	3.089	.002
DM_Spontaneous	<--- DM	1.913	.570	3.353	***
ASB_Sec	<--- DM	-1.399	.686	-2.041	.041
ASB_Sec	<--- EI	1.238	.220	5.633	***
ASB_Sec	<--- DM_Spontaneous	.547	.118	4.619	***
ASB_Sec	<--- DM_Avoidant	.398	.099	4.033	***
EI_Social	<--- EI	1.000			
EI_SelfControl	<--- EI	1.178	.134	8.767	***
EI_Emotion	<--- EI	1.797	.192	9.351	***
EI_WellBeing	<--- EI	.661	.097	6.816	***
DM_Dependent	<--- DM	1.584	.480	3.298	***
DM_Adaptive	<--- DM	1.000			
ASB_Pri	<--- EI	1.267	.236	5.363	***
ASB_Pri	<--- ASB_Sec	.479	.098	4.868	***

Standardized Regression Weights: (Group number 1 - Default model)

		Estimate
DM_Avoidant	<--- DM	.693
DM_Spontaneous	<--- DM	.759
ASB_Sec	<--- DM	-.332
ASB_Sec	<--- EI	.631
ASB_Sec	<--- DM_Spontaneous	.327
ASB_Sec	<--- DM_Avoidant	.259
EI_Social	<--- EI	.603
EI_SelfControl	<--- EI	.723
EI_Emotion	<--- EI	.798
EI_WellBeing	<--- EI	.495
DM_Dependent	<--- DM	.600

		Estimate
DM_Adaptive	<--- DM	.285
ASB_Pri	<--- EI	.459
ASB_Pri	<--- ASB_Sec	.341

Covariances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P Label
EI <--> DM	3.487	1.053	3.310	***
e7 <--> e8	-3.582	.839	-4.268	***
e5 <--> e6	-9.719	1.351	-7.194	***
e4 <--> e8	-2.046	.757	-2.701	.007
e4 <--> e6	-4.917	.883	-5.568	***
e4 <--> e5	7.285	1.330	5.479	***
e2 <--> e4	4.102	1.101	3.725	***
e5 <--> e8	-6.579	1.382	-4.762	***
e1 <--> e4	1.396	.986	1.416	.157
e2 <--> e5	3.776	1.357	2.783	.005
e2 <--> e6	-2.584	.861	-2.999	.003

Correlations: (Group number 1 - Default model)

	Estimate
EI <--> DM	.724
e7 <--> e8	-.460
e5 <--> e6	-.652
e4 <--> e8	-.223
e4 <--> e6	-.446
e4 <--> e5	.387
e2 <--> e4	.304
e5 <--> e8	-.530
e1 <--> e4	.088
e2 <--> e5	.207
e2 <--> e6	-.242

Variances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P Label
EI	2.092	4.944	***	
	10.343			

	Estimate	S.E.	C.R.	P Label
DM	2.245	1.265	1.775	.076
e6	8.721	1.083	8.052	***
e8	6.046	1.062	5.694	***
e9	16.959	1.967	8.621	***
e1	18.123	1.783	10.166	***
e2	13.100	1.485	8.822	***
e3	18.998	2.509	7.573	***
e4	13.913	1.358	10.246	***
e5	25.465	2.407	10.581	***
e7	10.031	1.089	9.212	***
e10	35.643	3.479	10.244	***

Squared Multiple Correlations: (Group number 1 - Default model)

	Estimate
DM_Spontaneous	.576
DM_Avoidant	.480
ASB_Sec	.574
ASB_Pri	.547
DM_Dependent	.360
DM_Adaptive	.081
EI_WellBeing	.245
EI_Emotion	.637
EI_SelfControl	.523
EI_Social	.363

REFERENCES

- Abell, L. & Brewer, G. (2014). Machiavellianism, self-monitoring, self-promotion and relational aggression on Facebook. *Computers in Human Behavior*, 36, 258-262.
- Agnoli, S., Pittarello, A., Hysenbelli, D., & Rubaltelli, E. (2015). "Give, but give until it hurts": The modulatory role of trait emotional intelligence on the motivation to help. *PLoS One*, 10(6), 1-22.
- Alegre, A. (2012a). Is there a relation between mothers' parenting styles and children's trait emotional intelligence? *Electronic Journal of Research in Educational Psychology*, 10(1), 5-34.
- Alegre, A. (2012b). The relation between the time mothers and children spent together and the children's trait emotional intelligence. *Child Youth Care Forum*, 41(5), 493-508.
- Ali, F., Amorim, I. S., Chamorro-Premuzic, T. (2009). Empathy deficits and trait emotional intelligence in psychopathy and Machiavellianism. *Personality and Individual Differences*, 47(7), 758-762.
- Alink, L. R., & Egeland, B. (2013). The roles of antisocial history and emerging adulthood development adaption in predicting adult antisocial behavior. *Aggressive Behavior*, 39(2), 131-140.
- Allen, J. L., Briskman, J., Humayun, S., Dadds, M. R., & Scott S. (2013). Heartless and cunning? Intelligence in adolescents with antisocial behavior and psychopathic traits. *Psychiatric Research*, 210(3), 1147-1153.
- Allen, J. G., Fonagy, P., & Bateman, A. (2008). *Mentalizing in clinical practice*. Arlington, VA: American Psychiatric Press.
- Alkozei, A., Schwab, Z., Killgore, W. (2016). The role of emotional intelligence during an emotionally difficult decision-making task. *Journal of Nonverbal Behavior*, 40(1), 39-54.
- Aluja, A., Rossier, J., Garcia, L. F., Angleitner, A., Kuhlman, M., & Zuckerman, M. (2006). A cross-cultural shortened form of the ZKPQ (ZKPQ-50-CC) adapted to English, French, German and Spanish languages. *Personality and Individual Differences*, 41(4), 619-628.
- Alvania, P., & Alikhani, M. A. (2014). Willingness to communicate reappraised in the light of emotional intelligence and gender differences. *Procedia – Social and Behavior Sciences*, 98, 143-152.

- American Psychiatric Association. (1980). *Diagnostic and statistical manual of mental disorders* (3rd ed.). Washington, DC: American Psychiatric Association.
- American Psychiatric Association. (1987). *Diagnostic and statistical manual of mental disorders* (rev. 3rd ed.). Washington, DC: American Psychiatric Association.
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders: DSM-IV-TR*. Washington, DC: American Psychiatric Association.
- American Psychiatric Association (2013). *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*. Arlington, VA: American Psychiatric Association.
- American Psychological Association. (2015). *APA Dictionary of Psychology, Second Edition* [Kindle 3.4.2 Version]. Retrieved from Amazon.com.
- Andershed, A. K., Gibson, C. L., & Andershed, H. (2016). The role of cumulative risk and protection for violent offending. *Journal of Criminal Justice*, 45, 78-84.
- Andershed, H., Hodgins, S., & Tengström, A. (2007). Convergent validity of the Youth Psychopathic Traits Inventory (YPI): Association with the Psychopathy Checklist: Youth Version (PCL:YV). *Assessment*, 14(2), 144-154.
- Andershed, H., Kerr, M., Stattin, H., & Levander, S. (2002). Psychopathic traits in non-referred youths: A new assessment tool. In E. Blauw & L. Sheridan (Eds.), *Psychopaths: Current international perspectives* (pp.131-158). The Hague, the Netherlands: Elsevier.
- Angrilli, A., Sartori, G., & Donzella, G. (2013). Cognitive, emotional and social markers of serial murdering. *Clinical Neuropsychologist*, 27(3), 485-494.
- Angold, A. & Costello, E. J. (2000). The Child and Adolescent Psychiatric Assessment (CAPA). *Journal of the American Academy of Child and Adolescent Psychiatry*, 39(1), 39-48.
- Angold, A. Prendergast, M., Cox, A., Harrington, R., Simonoff, E., & Rutter, M. (1995). The Child and Adolescent Psychiatric Assessment. *Psychological Medicine*, 25(4), 739-753.
- Aquino, K. & Reed, A., II. (2002), The self-importance of moral identity. *Journal of Personality and Social Psychology*, 83(6), 1423-1440.
- Armstrong, T. A., & Boutwell, B. B. (2012). Low resting heart rate and rational choice: Integrating biological correlates of crime in criminological theories. *Journal of Criminal Justice*, 40(1), 31-39.

- Arntfield, M. (2015). Toward a cybervictimology: Cyberbullying, routine activities theory, and the anti-sociality of social media. *Canadian Journal of Communication*, 40(3), 371-388.
- Arrigo, B. A., & Shipley, S. (2001). The confusion over psychopathy (I): Historical considerations. *International Journal of Offender Therapy and Comparative Criminology*, 45(3), 325-344.
- Ashkanasy, N., & Dorris, A. (2017). Emotions in the workplace. *Annual Review of Organizational Psychology and Organizational Behavior*, 4(1), 67-90.
- Augstein, H. F. (1996). J C Prichard's concept of moral insanity – A medical theory of the corruption of human nature. *Medical History*, 40(3), 311-343.
- Austin, E. J., Farrelly, D., Black, C., & Moore, H. (2007). Emotional intelligence, Machiavellianism and emotional manipulation: Does EI have a dark side? *Personality and Individual Differences*, 43(1), 179–189.
- Avsec, A. (2012). Do emotionally intelligent individuals use more adaptive decision-making styles? *Studia Psychologica*, 54(3), 209-220.
- Aybek, E. C., Çavdar, D., Özabacı, T. M. N. (2015). University students' moral judgment and emotional intelligence level: A model testing. *Procedia Social and Behavioral Sciences*, 191, 2740-2746.
- Bacchini, D., Miranda, M. C., & Affuso, G. (2011). Effects of parental monitoring and exposure to community violence on antisocial behavior and anxiety/depression among adolescents. *Journal of Interpersonal Violence*, 26(2), 269-292.
- Bacon, A. M., Burak, H., & Rann, J. (2014). Sex differences in the relationship between sensation seeking, trait emotional intelligence and delinquent behaviors. *Journal of Forensic Psychiatry & Psychology*, 25(6), 673-683.
- Bacon, A. M. & Regan, L. (2016). Manipulative relational behaviour and delinquency: Sex differences and links with emotional intelligence. *The Journal of Forensic Psychiatry & Psychology*, 27(3), 331-348.
- Baiocco, R. Laghi, F., & D'Alessio, M. (2009). Decision-making style among adolescents: Relationship with sensation seeking and locus of control. *Journal of Adolescence*, 32(4) 963-976.
- Band, Z., & Ahamad, R. (2015). Social anxiety as a predictor of antisocial behavior in adolescent students. *Journal of Pakistan Psychiatric Society*, 12(1), 52-53.
- Bandura, A. (1977). *Social Learning Theory*. Englewood Cliffs, NJ: Prentice Hall.

- Bandura, A., Ross, D., & Ross, S. A. (1961). Transmission of aggression through the imitation of aggressive models. *Journal of Abnormal and Social Psychology*, 63(3), 575-582.
- Bandura, A. & Walters, R. H. (1963). *Social learning and personality development*. New York, NY: Holt, Rinehart & Winston.
- Bao, X., Xue, S., & Kong, F. (2015). Dispositional mindfulness and perceived stress: The role of emotional intelligence. *Personality and Individual Differences*, 78, 48-52.
- Barnes, H. L. & Olson, D. H. (1985). Parent-adolescent communication and the circumplex model. *Child Development*, 56(2), 438-447.
- Bar-On, R. (2002). *EQ-i BarOn Emotional Quotient Inventory: A measure of emotional intelligence: User's manual*. North Tonawanda, NY: Multi-Health Systems.
- Bar-On, R. (2006). The Bar-On model of social and emotional intelligence (ESI). *Psicothema*, 18, 13-25.
- Bar-On, R. (2008). *Emotional Quotient Inventory: Higher Education (EQ-i: HEd)*. North Tonawanda, NY: Multi-Health Systems, Inc.
- Baron, R. & Parker, J. D. A. (2000). *E.Q.i:YV Baron Emotional Quotient Inventory: Youth Version. Technical manual*. Orth Towanda, NY: Multi-Health Systems Inc.
- Baron-Cohen, S. (2011). *The science of evil*. New York, NY: Basic Books.
- Baroncelli, A., & Ciucci, E. (2014). Unique effects of different components of trait emotional intelligence in traditional bullying and cyberbullying. *Journal of Adolescence*, 37(6), 807-815.
- Barondes, S. (2011). How to size up the people in your life. *New Scientist*, 211(2825), 29-29.
- Barratt, E. S. (1991). Measuring and predicting aggression within the context of a personality theory. *Journal of Neuropsychiatric and Clinical Neurosciences*, 3, 35-39.
- Barrett, P. (2007). Structural equation modeling: Adjudging model fit. *Personality and Individual Differences*, 42(5), 815-824.
- Barriga, A. Q., & Gibbs, J. C. (1996). Measuring cognitive distortion in antisocial youth: Development and preliminary validation of the "How I Think" questionnaire. *Aggressive Behavior*, 22(5), 333-343.

- Barriga, A. Q., Gibbs, J. C., Potter, G. B., & Liau, A. K. (2001). *How I Think (HIT) Questionnaire manual*. Champaign, IL: Research Press.
- Baskin-Sommers, A., Stuppy-Sullivan, A. M., & Buckholtz, J. W. (2016). Psychopathic individuals exhibit but do not avoid regret during counterfactual decision making. *Proceedings of the National Academy of Sciences of the United States of America*, 113(50), 14438-14443.
- Bateman, A. & Fonagy, P. (2012). *Handbook of mentalizing in mental health practice*. Arlington, VA: American Psychiatric Press.
- Batool, S. S., & Khalid, R. (2009). Low emotional intelligence: A risk factor for depression. *Journal of Pakistan Psychiatric Society*, 6(2), 65-72.
- Bavol'ár, J., & Orosová, O. (2015). Decision-making styles and their associations with decision-making competencies and mental health. *Judgment and Decision Making*, 10(1), 115-122.
- Bechara, A., Damasio, H. & Damasio, A. R. (2000). Emotion, decision making and the orbitofrontal cortex. *Cerebral Cortex*, 10(3), 295-307.
- Bell, R. A., Tremblay, S. W., & Buerkel-Rothfuss, N. L. (1987). Interpersonal attraction as a communication accomplishment: Development of a measure of affinity-seeking competence. *Western Journal of Speech Communications*, 51(1), 1-18.
- Benda, B. B. (2005). Gender differences in life-course theory of recidivism: A survival analysis. *International Journal of Offender Therapy and Comparative Criminology*, 49(3), 325-342.
- Bennett, S., Farrington, D. P., & Huesmann, L. R. (2005). Explaining gender differences in crime and violence: The importance of social cognitive skills. *Aggression and Violent Behavior*, 10(3), 263-288.
- Bennett, R. J., & Robinson, S. L. (2000). Development of a measure of workplace deviance. *Journal of Applied Psychology*, 85(3), 349-360.
- Bentley, M. J., Lin, H., Fernandez, T. V., Lee, M., Yrigollen, C. M., Pakstis, A. J., ... & Leckman, J. F. (2013). Gene variants associated with antisocial behaviour: A latent variable approach. *The Journal of Child Psychology and Psychiatry*, 54(10), 1074-1085.
- Bereczkei, T. (2015). The manipulative skill: Cognitive devices and their neural correlates underlying Machiavellian's decision making. *Brain and Cognition*, 99, 24-31.

- Berg, J. M., Lilienfeld, S. O. & Waldman, I. D. (2013). Bargaining with the devil: Using economic decision-making tasks to examine the heterogeneity of psychopathic traits. *Journal of Research in Personality*, 47(5), 472-482.
- Berntson, G. G., Cacioppo, J. T., & Quigley, K. S. (1991). Autonomic determinism: The modes of autonomic control, the doctrine of autonomic space, and the laws of autonomic constraint. *Psychological Review*, 98(4), 459-487.
- Black, D. S., Sussman, S., Johnson, C. A., & Milam, J. (2012). Psychometric assessment of the Mindful Attention Awareness Scale (MAAS) among Chinese adolescents. *Assessment*, 19(1), 42-52.
- Blair, R. J. R. (2013). The neurobiology of psychopathic traits in youths. *National Review of Neuroscience*, 14(11), 786-799.
- Blair, R. J. R., Mitchell, D. G. V., & Blair, K. S. (2005). *The psychopath: Emotion and the brain*. Oxford, UK: Blackwell.
- Blais, A. & Weber, E. U. (2006). A domain-specific risk-taking scale for adult populations (DOSPERT). *Judgment and Decision Making*, 1, 33-47.
- Blazei, R. W., Iacono, W. G., & Krueger, R. F. (2006). Intergenerational transmission of antisocial behavior: How do kids become antisocial adults? *Applied and Preventive Psychology*, 11(4), 230-253.
- Bogacz, R. (2007). Optimal decision-making theories: Linking neurobiology with behaviour. *Trends in Cognitive Sciences*, 11(3), 118-125.
- Boureau, Y. L., & Dayan, P. (2011). Opponency revisited: Competition and cooperation between dopamine and serotonin. *Neuropsychopharmacology*, 36(1), 74-97.
- Bowen, S., Witkiewitz, K., Dillworth, T. M., Chawla, N., Simpson, T. L., Ostafin, B. D. . , & Marlatt, G. A. (2006). Mindfulness meditation and substance use in an incarcerated population. *Psychology of Addictive Behavior*, 20(3), 243-347.
- Bowen, S., Witkiewitz, K., Dillworth, T. M., & Marlatt, G. A. (2007). The role of thought suppression in the relation between mindfulness meditation and alcohol use. *Addictive Behaviours*, 32(10), 2324-2328.
- Bowman, M. A., Prelow, H. M., & Weaver, S. R. (2007). Parenting behaviors, association with deviant peers, and delinquency in African American adolescents: A mediated-moderation model. *Journal of Youth and Adolescence*, 36(4), 517-527.

- Boyle, D. J., O’Leary, K. D., Rosenbaum, A., & Hassett-Walker, C. (2008). Differentiating between generally and partner-only violent subgroups: Lifetime antisocial behavior, family of origin violence, and impulsivity. *Journal of Family Violence*, 23(1), 47-55.
- Brackett, M. A., & Mayer, J. D. (2003). Convergent, discriminant, and incremental validity of competing measures of emotional intelligence. *Personality and Social Psychology Bulletin*, 29(9), 1147–1158.
- Brackett, M. A., Rivers, S. E., & Salovey, P. (2011). Emotional intelligence: Implications for personal, social, academic and workplace success. *Social and Personality Psychology Compass*, 5(1), 88-103.
- Brackett, M. A., Rivers, S., Shiffman, S., Lerner, N., & Salovey, P. (2006). Relating emotional abilities to social functioning: A comparison of self-report and performance measures of emotional intelligence. *Journal of Personality and Social Psychology*, 91(4), 780–795.
- Bränström, R., Duncan, L. G., & Moskowitz, J. T. (2011). The association between Dispositional mindfulness, psychological well-being, and perceived health in a Swedish population-based sample. *British Journal of Health Psychology*, 16(2), 300–316.
- Brewer, M. B., & Kramer, R. M. (1986). Choice behavior in social dilemmas: Effects of social identity, group size, and decision framing. *Journal of Personality and Social Psychology*, 50(3), 543-549.
- Brinkley, C. A., Schmitt, W. A., Smith, S. S., & Newman, J. P. (2001). Construct validation of a self-report psychopathy scale: Does Levenson’s Self-Report Psychopathy scale measure the same constructs as Hare’s Psychopathy Checklist-Revised? *Personality and Individual Differences*, 31(7), 1021-1038.
- Brocas, I., & Carrillo, J. D. (2014). Dual-process theories of decision-making: A selective survey. *Journal of Economic Psychology*, 41, 45-54.
- Brook, J. S., Zhang, C., Rubenstone, E., Primack, B. A., & Brook, D. W. (2016). Comorbid trajectories of substance use as predictors of Antisocial Personality Disorder, Major Depressive Disorder, and Generalized Anxiety Disorder. *Addictive Behaviors*, 62, 114-121.
- Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, 84(4), 822–848.

- Brown, K. W., Ryan, R. M., & Creswell, J. D. (2007). Mindfulness: Theoretical foundations and evidence for its salutary effects. *Psychological Inquiry*, 18(4), 211–237.
- Brown, S. D., & Heathcote, A. (2008). The simplest complete model of choice reaction time: Linear ballistic accumulation. *Cognitive Psychology*, 57(3), 153–178.
- Bruine de Bruin, W., Parker, A., & Fischhoff, B. (2007). Individual differences in adult decision-making competence. *Journal of Personality and Social Psychology*, 92(5), 938-956.
- Bryan, K., Freer, J., & Furlong, C. (2007). Language and communication difficulties in juvenile offenders. *International Journal of Language & Communication Disorders*, 42(5), 505-520.
- Buckholtz, J. W. (2015). Social norms, self-control, and the value of antisocial behavior. *Current Opinion in Behavioral Sciences*, 3, 122-129.
- Buker, H. (2011). Formation of self-control: Gottfredson and Hirschi's general theory of crime and beyond. *Aggression and Violent Behavior*, 16(3), 265-276.
- Buri, J. R. (1991). Parental Authority Questionnaire. *Journal of Personality Assessment*, 57(1), 110-119.
- Burnette, M. L. (2013). Gender and the development of oppositional defiant disorder: contributions of physical abuse and early family environment. *Child Maltreatment*, 18(3), 195-204.
- Burt, S. A. (2009). Are there meaningful etiological differences within antisocial behavior? Results of a meta-analysis. *Clinical Psychology Review*, 29(2), 163-178.
- Burt, S. A. (2012). How do we optimally conceptualize the heterogeneity within antisocial behavior? An argument for aggressive versus non-aggressive behavioral dimensions. *Clinical Psychology Review*, 32(4), 263-279.
- Buss, A. H. & Perry M. (1992). The Aggression Questionnaire. *Journal of Personality and Social Psychology*, 63(3), 452-459.
- Buss, A. H. & Warren, W. L. (2000). *Aggression Questionnaire*. Los Angeles, CA: Western Psychological Services.
- Cabello, R., & Fernández-Berrocal, P. (2015). Implicit theories and ability emotional intelligence. *Frontiers in Psychology*, 6, 1-8.

- Caldwell, M., Vitacco, M., & Van Rybroek, G. (2006). Are violent delinquents worth treating? A cost-benefit analysis. *Journal of Research in Crime and Delinquency*, 43(2), 148-168.
- Callahan, B. L., Ueda, K., Sakata, D., Plamondon, A., & Muray, T. (2011). Liberal bias mediates emotion recognition deficits in frontal traumatic brain injury. *Brain and Injury*, 77(3), 412-418.
- Card, N. A., Stucky, B. D., Sawalani, G. M., & Little, T. D. (2008). Direct and indirect aggression during childhood and adolescence: A meta-analytic review of gender differences, intercorrelations, and relations to maladjustment. *Child Development*, 79(5), 1185-1229.
- Caspi, A., & Bem, D. J. (1990). Personality continuity and change across the life course. In L. Pervin (Ed.), *Handbook of personality theory and research* (pp. 549-575). New York, NY: Guilford Press.
- Caspi, A., Bem, D. J., & Elder, G. H., Jr. (1989). Continuities and consequences of interactional styles across the life course. *Journal of Personality*, 57(2), 375-406.
- Caspi, A., Elder, G. H., Jr., & Bem, D. J. (1987). Moving against the world: Life-course patterns of explosive children. *Developmental Psychology*, 23, 308-313.
- Caspi, A., McClay, J., Moffitt, T., Mill, J., Martin, J., Craig, I. W., ..., Poulton, R. (2002). Role of genotype in the cycle of violence in maltreated children. *Science*, 297(5582), 851-854.
- Castillo, R., Salguero, J. M., Fernández-Berrocal, P., & Balluerka, N. (2013). Effects of an emotional intelligence intervention on aggression and empathy among adolescents. *Journal of Adolescence*, 36(5), 883-892.
- Catty, J. (2004). "The vehicle of success": Theoretical and empirical perspectives on the therapeutic alliance in psychotherapy and psychiatry. *Psychology and Psychotherapy: Theory, Research and Practice*, 77(2), 255-272.
- Cernkovich, S. & Giordano, P. (2001). Stability and change in antisocial behavior: The transition from adolescence to early adulthood. *Criminology*, 39(2), 371-410.
- Cernkovich, S. A., Lanctôt, N., & Giordano, P. C. (2008). Predicting adolescent and adult antisocial behavior among adjudicated delinquent females. *Crime & Delinquency*, 54(1), 3-33.
- Chabrol, H., Goutaudier, N., Melioli, T., van Leeuwen, N., & Gibbs, J. C. (2014). Impact of antisocial behavior on psychopathic traits in a community sample of adolescents. *Bulletin of the Menninger Clinic*, 78(3), 228-242.

- Chabrol, H., Valls, M., van Leeuwen, N., & Bui, E. (2012). Callous-unemotional and borderline traits in nonclinical adolescents: Personality profiles and relations to antisocial behaviors. *Personality and Individual Differences*, 53(8), 969-973.
- Chakraborty, R., Dasgupta, M., & Sanyal, N. (2015). A comparative psychosocial study of aggression, attachment styles and personality among orphans and normal children. *SIS Journal of Projective Psychology & Mental Health*, 22(2), 103-114.
- Christie, R., & Geis, F. L. (1970). *Studies in Machiavellianism*. New York, NY: Academic Press.
- Cima, M., & Raine, A. (2009). Distinct characteristics of psychopathy relate to different subtypes of aggression. *Personality and Individual Differences*, 47(8), 835-840.
- Claes, M., Lacourse, E., Ercolani, A. P., Pierro, A., Leone, L., & Presaghi, F. (2005). Parenting, peer orientation, drug use, and antisocial behavior in late adolescence: A cross-national study. *Journal of Youth and Adolescence*, 34(5), 401-411.
- Cleckley, H. (2015). *The mask of sanity: An attempt to clarify some issues about the so-called psychopathic personality*. Eastford, CT: Martino Fine Books.
- Clemen, R. T., & Reilly, T. (2013). *Making hard decisions with Decision Tools*. Boston, MA: Cengage Learning.
- Cohen, J. Y., Amoroso, M. W., & Uchida, N. (2015). Serotonergic neurons signal reward and punishment on multiple timescales. *eLife*, 4, e06346.
- Cohen, N. J. (2010). *The impact of language development on the psychosocial and emotional development of young children*. Toronto, ON: Hicks-Dellcrest Centre.
- Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, 24(4), 385-396.
- Collins, R. L., Parks, G. A., & Marlatt, G. A. (1985). Social determinants of alcohol consumption: The effects of social interaction and model status on the self-administration of alcohol. *Journal of Consulting and Clinical Psychology*, 53(2), 189-200.
- Compton, W. M., Conway, K. P., Stinson, F. S., Colliver, J. D., & Grant, B. F. (2005). Prevalence, correlates, and comorbidity of DSM-IV antisocial personality syndromes and alcohol and specific drug use disorders in the United States: Results from the National Epidemiologic Survey on alcohol and related conditions. *Journal of Clinical Psychiatry*, 66(6), 677-685.

- Contreras, L. & Cano, M. C. (2016). Social competence and child-to-parent violence: Analyzing the role of the emotional intelligence, social attitudes, and personal values. *Deviant Behavior*, 37(2), 115-125.
- Cooper, A., & Petrides, K. V. (2010). A psychometric analysis of the Trait Emotional Intelligence Questionnaire-Short Form (TEIQue-SF) using item response theory. *Journal of Personality Assessment*, 92(5), 449-457.
- Cooper, J. A., Worthy, D. A., & Maddox, W. T. (2015). Chronic motivational state interacts with task reward structure in dynamic decision-making. *Cognitive Psychology*, 83(2015), 40-53.
- Coopersmith, S. (1989). *Self Esteem Inventories*. Palo Alto, CA: Consulting Psychologists Press.
- Cornet, L. J. M., de Kogel, C. H., Nijman, H. L. I., Raine, A., & van der Laan, P. H. (2014). Neurobiological factors as predictors of cognitive-behavioral therapy outcome in individuals with antisocial behavior: A review of the literature. *International Journal of Offender Therapy and Comparative Criminology*, 58(11), 1279-1296.
- Côte, S., DeCelles, K. A., McCarthy, J. M., Van Kleef, G. A., & Hideg, I. (2011). The Jekyll and Hyde of emotional intelligence: Emotion-regulation knowledge facilitates both prosocial and interpersonally deviant behavior. *Psychological Science*, 22(8), 1073-1080.
- Coyne, S. M., Nelson, D. A., Graham-Kevan, N., Tew, E., Meng, K. N., Olsen, J. A. (2011). Media depictions of physical and relational aggression: Connections with aggression in young adults' romantic relationships. *Aggressive Behavior*, 37(1), 56-62.
- Craig, M. C., Catani, M., Deeley, Q., Latham, R., Daly, E., Kanaan, R . . . , & Murphy, D. G. (2009). Altered connections on the road to psychopathy. *Molecular Psychiatry*, 14(10), 946-953.
- Crick, N. R. & Grotpeter, J. K. (1995). Relational aggression, gender, and social-psychological adjustment. *Child Development*, 66(3), 710-722.
- Crocetti, E., Moscatelli, S., Van der Graaff, J., Keijsers, L., van Lier, P., Koot, H. M., . . . , & Branje, S. (2016). The dynamic interplay among maternal empathy, quality of mother-adolescent relationship, and adolescent antisocial behaviors: New insights from a six-wave longitudinal multi-informant study. *PLoS One*, 11(3), 1-17.
- Crockett, M. J., & Cools, R. (2015). Serotonin and aversive processing in affective and social decision-making. *Science Direct*, 5, 64-70.

- Crockett, M. J., Siegel, J. Z., Kurth-Nelson, Z., Ousdal, O. T., Story, G., Frieband, C., . . . , Dolan, R. J. (2015). Dissociable effects of serotonin and dopamine on the valuation of harm in moral decision making. *Current Biology*, 25(14), 852-1859.
- Crowne, D. P. & Marlowe, D. (1960). A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology*, 24(4), 349-354.
- Crowley, T. J., Dalwani, M. S., Mikulich-Gilbertson, S. K., Du, Y. P., Lejuez, C. W., Raymond, K. M., Banich, M. T. (2010). Risky decisions and their consequences: Neural processing by boys with antisocial substance disorder. *PLoS ONE*, 5(9), 1-20.
- Cumberland-Li, A., Eisenberg, N., Champion, C., Gershoff, E., & Fabes, R. A. (2003). The relation of parental emotionality and related dispositional traits to parental expression of emotion and children's social functioning. *Motivation and Emotion*, 27(1), 27-56.
- Curci, A., Lanciano, T., Soleti, E., Zammuner, V. L., & Salovey, P. (2013). Construct validity of the Italian version of the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) v2.0. *Journal of Personality Assessment*, 95(5), 486-494.
- Dadds, M. R., Hawes, D. J., Frost, A. D., Vassallo, V., Bunn, P., Hunter, K., & Merz, S. (2008). The measurement of empathy in children using parent reports. *Journal of Child Psychiatry and Human Development*, 39, 111-122.
- Dadds, M. R., Hawes, D. J., Frost, A. D., Vassallo, V., Bunn, P., Hunter, K., & Merz, S. (2009). Learning to 'talk the talk': The relationship of psychopathic traits to deficits in empathy across childhood. *Journal of Child Psychology and Psychiatry*, 50(5), 599-606.
- Damasio, A. R. (1994). *Descartes' error: Emotion, reason, and the human brain*. New York, NY: Avon Books.
- Damasio, A. R., Tranel, D., & Damasio, H. (1990). Individuals with psychopathic behavior caused by frontal damage fail to respond autonomically to social stimuli. *Behavioral Brain Research*, 41(2), 81-94.
- Damasio, H., Grabowski, T., Frank, R., Galaburda, A. M., & Damasio, A. R. (1994). The return of Phineas Gage: Clues about the brain from a skull of a famous patient. *Science*, 264(5162), 1102-1105.
- Davis, S. K., & Nichols, R. (2016). Does emotional intelligence have a "dark" side? A review of the literature. *Frontiers in Psychology*, 7, 1-10.

- Day, A. & Doyle, P. (2010). Violent offender rehabilitation and the therapeutic community model of treatment: Towards integrated service provision? *Aggression & Violent Behavior, 15*(5), 380-386.
- Dayan, P., & Huys, Q. J. M. (2008). Serotonin, inhibition, and negative mood. *PLoS Computational Biology, 4*(2), 2-11.
- Dayan, P., & Huys, Q. J. M. (2009). Serotonin in affective control. *Annual Review of Neuroscience, 32*, 95-126.
- De Brito, S. A. & Hodgins, S. (2009). Antisocial Personality Disorder. In M. Mc Murran & R. Howard (Eds.), *Personality, personality disorder, and violence* (pp.133-153). Chichester, UK: Wiley.
- De Brito, S. A., Viding, E., Kumari, V., Blackwood, N., Hodgins, S. (2013). Cool and hot executive function impairments in violent offenders with Antisocial Personality Disorder with and without psychopathy. *PLoS ONE, 8*(6), 1-12.
- De Quervain, D. J-F., Fischbacher, U., Treyer, V., Schellhammer, M., Schnyder, U., Buck, A., & Fehr, E. (2004). The neural basis of altruistic punishment. *Science, 305*(5688), 1254-1258.
- Delaney, R., Strough, J., Parker, A. M., & de Bruin, W. B. (2015). Variations in decision-making profiles by age and gender: A cluster-analytic approach. *Personality and Individual Differences, 85*(2015), 19-24.
- DeLisi, M., & Vaughn, M. G. (2014). Foundation for a temperament-based theory of antisocial behavior and criminal justice system involvement. *Journal of Criminal Justice, 42*(1), 10-25.
- Dijkstra, J. K., Lindenberg, S., Vernhulst, F. C., Ormel, J., & Veenstra, R. (2009). The relation between popularity and antisocial behaviors: Moderating effects of athletic abilities, physical attractiveness, and prosociality. *Journal of Research on Adolescence, 19*, 401-413.
- Dillard, J. P., Segrin, C., & Harden, J. M. (1989). Primary and secondary goals in the production of interpersonal influence messages. *Communication Monographs, 56*(1), 25-37.
- Dimitriu, O. & Negrescu, M. (2015). Emotional intelligence and the tendency to use dysfunctional cognitive schemas. *Procedia-Social and Behavioral Sciences, 187*, 301-306.
- Donnellan, M. B., Trzesniewski, K. H., Robins, R. W., Moffitt, T. E., & Caspi, A. (2005). Low self-esteem is related to aggression, antisocial behavior, and delinquency. *Psychological Science, 16*(4), 328-335.

- Donovan, D. M. & O'Leary, M. R. (1978). The Drinking-Related Locus of Control Scale: Reliability, factor structure and validity. *Journal of Studies on Alcohol*, 39(5), 759-784.
- Duguid, M. (2011). Female tokens in high-prestige work groups: Catalysts or inhibitors of group diversification? *Organizational Behavior and Human Decision Processes*, 116(1), 104-115.
- Dutta, S. E., Gupta, S., Raju, M. S. V. K., Kumar, A., & Pawar, A. (2017). Platelet serotonin level and impulsivity in human self-destructive behavior: A biological and psychological study. *Journal of Neurosciences in Rural Practice*, 8(2), 199-203.
- Dweck, C. S. (1999). *Self-theories: Their role in motivation, personality and development*. Philadelphia, PA: Taylor & Francis/Psychology Press.
- Dweck, C. S. (2012). Implicit theories. In P. Van Lange, A. Kruglanski, & T. Higgins (Eds.), *The handbook of theories of social psychology* (pp. 43-62). London, England: SAGE Publications Ltd.
- Eichelman, B. (1988). Toward a rational pharmacotherapy for aggressive and violent behavior. *Psychiatric Services*, 39(1), 31-39.
- Ekman, P. & Friesen, W. (1976). *Pictures of facial affect*. Palo Alto, CA: Consulting Psychologists Press.
- Ekstrom, R. B., French, J. W., Harmon, H. H., & Derman, D. (1976). *ETS kit of factor-referenced cognitive tests*. Princeton, NJ: Educational Testing Service.
- Elliott, D. S. & Ageton, S. (1980). Reconciling race and class differences in self-reported and official estimates of delinquency. *American Sociological Review*, 45(1), 95-110.
- Elliott, D. S., Ageton, S., Huizinga, D., Knowles, B., & Canter, R. (1983). *The prevalence and incidence of delinquent behavior: 1976-1980 National Youth Survey, Report no. 26*. Boulder, CO: Behavior Research Institute.
- Eme, R. (2013). MAOA and male antisocial behavior: A review. *Aggression and Violent Behavior*, 18(3), 395-398.
- Ergin, D. Y., İşmen, E., & Özabacı, N. (1999). *EQ of gifted youths: A comparative study*. Biennial World Conference, World Council for Gifted and Talented Children, İstanbul.

- Eshel, N., & Rosier, J. P. (2010). Reward and punishment processing in depression. *Biological Psychology*, 68(2), 118-124.
- Extremera, N. & Fernández-Berrocal, P. (2009). *MSCEIT, Test de Inteligencia Emocional de Mayer-Salovey-Caruso*. Madrid: TEA Ediciones.
- Falkenbach, D., Poythress, N., Falki, M., Manchak, S. (2007). Reliability and validity of two self-report measures of psychopathy. *Assessment*, 14(4), 341-350.
- Fallon, C. K., Panganiban, A. R., Wohleber, R., Matthews, G., Kustubayeva, A. M., & Roberts, R. (2014). Emotional intelligence, cognitive ability and information search in tactical decision-making. *Personality and Individual Differences*, 65, 24-29.
- Fanti, K. A., Vanman, E., Henrich, C. C., & Avraamides, M. N. (2009). Desensitization to media violence over a short period of time. *Aggressive Behavior*, 35(2), 179-187.
- Fanti, K., Kimonis, E., Hadjicharalambous, M., & Steinberg, L. (2016). Do neurocognitive deficits in decision making differentiate Conduct Disorder subtypes? *European Child & Adolescent Psychiatry*, 25(9), 989-996.
- Farrelly, D., & Austin, E. J. (2007). Ability EI as an intelligence? Associations of the MSCEIT with performance on emotion processing and social tasks and with cognitive ability. *Cognitive Emotion*, 21(5), 1043-1063.
- Faw, B. (2003). Pre-frontal executive committee for perception, working memory, attention, long term memory, motor control and thinking: a tutorial review. *Consciousness and Cognition*, 12(1), 83-139.
- Fehr, B., & Russell, J. A. (1984). Concept of emotions viewed from a prototype perspective. *Journal of Experimental Psychology: General*, 113(3), 464-486.
- Ferguson, C. (2010). Genetic contributions to antisocial personality and behavior: A meta-analytic review from an evolutionary perspective. *The Journal of Social Psychology*, 150(2), 160-180.
- Fergusson, D. M. & Horwood, L. J. (2002). Male and female offending trajectories. *Development and Psychopathology*, 14(1), 159-177.
- Fernández-Berrocal, P., Cabello, R., Castillo, R., & Extremera, N. (2012). Gender differences in emotional intelligence: The mediating effect of age. *Psychological Behavior*, 20(1), 77-89.
- Fiedler, K. (2000). Beware of samples! A cognitive-ecological sampling approach to judgment biases. *Psychological Review*, 107(4), 659-676.

- Fikke, L. T., Melinder, A., & Landrø, N. I. (2013). The effects of acute tryptophan depletion on impulsivity and mood in adolescents engaging in non-suicidal self-injury. *Human Psychopharmacology: Clinical & Experimental*, 28(1), 61-71.
- Fix, R. L., & Fix, S. T. (2015). Trait psychopathy, emotional intelligence, and criminal thinking: Predicting illegal behavior among college students. *International Journal of Law and Psychiatry*, 42, 183-188.
- Flavell, J. H. (1968). *The development of role-taking and communication skills in children*. New York, NY: John Wiley and Sons, Inc.
- Foley, D. L., Pickles, A., Simonoff, E., Maes, H. H., Silberg, J. L., Hewitt, J. K., & Eaves, L. J. (2001). Parental concordance and comorbidity for psychiatric disorder and associate risks for current psychiatric symptoms and disorders in a community sample of juvenile twins. *Journal of Child Psychology and Psychiatry*, 42(3), 381-394.
- Fontaine, N., Carbonneau, R., Vitaro, F., Barker, E. D., & Tremblay, R. E. (2009). Research review: A critical review of studies on the developmental trajectories of antisocial behavior in families. *The Journal of Child Psychology and Psychiatry*, 50(4), 363-385.
- Forsman, L. & Johnson, M. (1996). Dimensionality and validity of two scales measuring different aspects of self-esteem. *Scandinavian Journal of Psychology*, 37(1), 1-15.
- Forsman, M., Lichtenstein, P., Andershed, H., & Larsson, H. (2010). A longitudinal twin study of the direction of effects between psychopathic personality and antisocial behavior. *Journal of Child Psychology and Psychiatry*, 51(1), 39-47.
- Fox, J. & Rooney, M. C. (2015). The Dark Triad of trait self-objectification as predictors of men's use and self-presentation behaviors on social networking sites. *Personality and Individual Differences*, 76, 161-165.
- Frick, P. J. & Hare, R. D. (2002). *The Antisocial Process Screening Device*. Toronto: Multi-Health Systems.
- Frick, P. J., Lahey, B. B., Loeber, R., Stouthamer-Loeber, M., Christ, M. A. G., & Hanson, K. (1992). Familial risk factors to Oppositional Defiant Disorder and Conduct Disorder: Parental psychopathology and maternal parenting. *Journal of Consulting and Clinical Psychology*, 60(1), 49.
- Frisch, J. U., Häusser, J. A., & Mojzisch, A. (2015). The Trier Social Stress Test as a paradigm to study how people respond to threat in social interactions. *Frontiers in Psychology*, 6, 113-126.

- Furnham, A., Richards, S. C., & Paulhus, D. L. (2013). The Dark Triad of personality: A ten year review. *Social & Personality Psychology Compass*, 7, 199-216.
- Galboda-Liyange, K. C., Prince, M. J., & Scott, S. (2003). Mother-child joint activity and behavior problems of pre-school children. *Journal of Child Psychology and Psychiatry*, 44(7), 1037-1048.
- Galbraith, T., Heimberg, R. G., Wang, S., Schneier, F. R., & Blanco, C. (2014). Comorbidity of Social Anxiety Disorder and Antisocial Disorder in the National Epidemiological Study on Alcohol and Related Conditions (NESARC). *Journal of Anxiety Disorders*, 28(1), 57-66.
- Gambetti, E. Fabbri, M., Bensi, L., & Tonetti, L. (2008). A contribution to the Italian validation of the General Decision-Making Style inventory. *Personality and Individual Differences*, 44(4), 842-852.
- Gao, Y., & Raine, A. (2010). Successful and unsuccessful psychopaths: A neurobiological model. *Behavioral Sciences and the Law*, 28(2), 194-210.
- Gao, Y., Raine, A., Venables, P., Dawson, M., & Mednick, S. (2010). Association of poor childhood fear conditioning and adult crime. *American Journal of Psychiatry*, 167(1), 56-60.
- Gard, T., Brach, N., Hölzel, B. K., Noggle, J. J., Conboy, L. A., & Lazar, S. W. (2012). Effects of a yoga-based intervention for young adults on quality of life and perceived stress: The potential mediating roles of mindfulness and self-compassion. *The Journal of Positive Psychology*, 7(3), 165-175.
- Gardner, F., Waller, R., Maughan, B., Cluver, L., Boynes, M. (2015). What are the risk factors for antisocial behavior among low-income youth in Cape Town? *Social Development*, 24(4), 798-814.
- Garofalo, C., Holden, C. J., Ziegler-Hill, V., & Velotti, P. (2016). Understanding the connection between self-esteem and aggression: The mediating role of emotion dysregulation. *Aggressive Behavior*, 42(1), 3-15.
- Gawryluk, J. R., & McGlone, J. (2007). Does the concept of emotional intelligence contribute to our understanding of temporal lobe resections? *Epilepsy & Behavior*, 11(3), 421-426.
- George, J. M. (2000). Emotions and leadership: The role of emotional intelligence. *Human Relations*, 53(8), 1027-1055.

- Giannotta, F. & Rydell, A. (2016). The prospective links between hyperactive/impulsive, inattentive, and oppositional-defiant behaviors in childhood and antisocial behavior in adolescence: The moderating influence of gender and the parent-child relationship quality. *Child Psychiatry & Human Development*, 47(6), 857-870.
- Gigerenzer, G. (2015). *Risk savvy: How to make good decisions*. Westminster, London: Penguin Books.
- Gilbert, F. & Daffern, M. (2010). Integrating contemporary aggression theory with violent offender treatment: How thoroughly do interventions target violent behavior? *Aggression & Violent Behavior*, 15(3), 167-180.
- Gilmour, J., Hill, B., Place, M., Skuse, D. H. (2004). Social communication deficits in Conduct Disorder: A clinical and community survey. *Journal of Child Psychology & Psychiatry*, 45(5), 967-978.
- Giovannini, C., Giromini, L., Bonalume, L., Tagini, A., Lang, M., & Amadei, G. (2014). The Italian Five Facet Mindfulness Questionnaire: A contribution to its validity and reliability. *Journal of Psychopathology and Behavioral Assessment*, 36(3), 415-423.
- Glenn, A. L., & Raine, A. (2014). Neurocriminology: Implications for the punishment, prediction and prevention of criminal behaviour. *Nature Reviews Neuroscience*, 15(1), 54-63.
- Glymour, B., Glymour, C., & Glymour, M. (2008). Watching social science: The debate about the effects of exposure to televised violence on aggressive behavior. *American Behavioral Scientist*, 51(8), p. 1231-1259.
- Gohm, C. L. & Clore, G. L. (2002). Four latent traits of emotional experience and their involvement in well-being, coping, and attributional style. *Cognition & Emotion*, 16(4), 495-518.
- Gold, J. I., & Shadlen, M.N. (2007). The neural basis of decision making. *Annual Review of Neuroscience*, 30, 535–574.
- Goleman, D. (1998). *Working with emotional intelligence*. New York, NY: Bantam Publishing.
- Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A research note. *Journal of Child and Psychology and Psychiatry*, 38(5), 581-586.
- Gottfredson, M., & Hirschi, T. (1990). *A general theory of crime*. Stanford, CA: Stanford University Press.

- Gratz, K. L. & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in Emotion Regulation Scale. *Journal of Psychopathy and Behavioral Assessment*, 26(1), 41-54.
- Gray, K., Waytz, A., and Young, L. (2012). The moral dyad: A fundamental template unifying moral judgment. *Psychological Inquiry*, 23(2), 206–215.
- Gretton, H. M., McBride, M., Hare, R. D., O'Shaughnessy, R., & Kumka, G. (2001), Psychopathy and recidivism in adolescent sex offenders. *Criminal Justice and Behavior*, 28(4), 427-449.
- Grieve, R., & Panebianco, L. (2013). Assessing the role of aggression, empathy, and self-serving cognitive distortions in trait emotional manipulation. *Australian Journal of Psychology*, 65(2), 79-88.
- Grunes, P., Gudmundsson, A., & Irmer, B. (2013). To what extent is the Mayer and Salovey (1997) model of emotional intelligence a useful predictor of leadership style and perceived leadership outcomes in Australian educational institutions? *Educational Management Administration & Leadership*, 42(1), 112-135.
- Ha, O. K. & Beauregard, E. (2016). Sex offending and low self-control: An extension and test of the general theory of crime. *Journal of Criminal Justice*, 47, 62-73.
- Hadjam, M. N. R., & Chizannah, L. (2015). The effect of traumatic brain injury to the emotional intelligence. *Procedia Social and Behavioral Sciences*, 165, 160-169.
- Hahm, H. C., Lee, Y., Ozonoff, A., & Van Wert, M. J. (2010). The impact of multiple types of child maltreatment on subsequent risk behaviors among women during the transition from adolescence to young adulthood. *Journal of Youth and Adolescence*, 39(5), 528-540.
- Hambrick, D. C., Finkelstein, S., & Mooney, A. C. (2005). Executive job demands: New insights for explaining strategic decisions and leader behaviors. *Academy of Management Review*, 30(3), 472–491.
- Hammond, J., Keeney, R., & Raiffa, H. (2015). *Smart choices: A practical guide to making better decisions*. Brighton, MA: Harvard Business Review Press.
- Han, Y., Kim, H., & Lee, D. (2016). Application of Social Control Theory to examine parent, teacher, and close friend attachment and substance use initiation among Korean Youth. *School Psychology International*, 37(4), 340-358.
- Hare, R. (2003). *Hare psychopathy checklist—revised (PCL-R): 2nd Edition Technical Manual*. Toronto, Canada: Multihealth Systems.

- Hare, R. D. (1993). *Without conscience: The disturbing world of the psychopaths among us*. New York, NY: The Guilford Press.
- Harris, J. R. (2010). Explaining individual differences in personality: Why we need a modular theory. In Buss, D. M. & Hawley, P. H. (Eds.), *The evolution of personality and individual differences*. Oxford Scholarship Online.
- Hart, C. O. & Mueller, C. E. (2013). School delinquency and social bond factors: Exploring gendered differences among a national sample of 10th graders. *Psychology in the Schools*, 50(2), 116-133.
- Hart, J. L., O'Toole, S. K., Price-Sharps, J. L., & Shaffer, T. W. (2007). The risk and protective factors of violent juvenile offending: An examination of gender differences. *Youth Violence and Juvenile Justice*, 5(4), 367-382.
- Hellhammer, J. & Schubert, M. (2012). The psychological response to Trier Social Stress Test relates to subjective measures of stress during but not before or after the test. *Psychoneuroendocrinology*, 37(1), 119-124.
- Higgins, E. T., Friedman, R. S., Harlow, R. E., Idson, L. C., Ayduk, O. N., & Taylor, A. (2001). Achievement orientations from subjective histories of success: Promotion pride versus prevention pride. *European Journal of Social Psychology*, 31(1), 3-23.
- Hill, J., Harrington, R., Fudge, H., Rutter, M., & Pickles, A. (1989). The Adult Personality Functioning Assessment (APFA): An investigator-based standardized interview. *British Journal of Psychiatry*, 155, 24-35.
- Hirschi, T. (1969). *Causes of delinquency*. Berkley, CA: University of California Press.
- Hogarth, R. M., & Soyer, E. (2015). Providing information for decision making: Contrasting description and stimulation. *Journal of Applied Research in Memory and Cognition*, 4(3), 221-228.
- Hogg, M. A. & Cooper, J. (2007). *The SAGE Handbook of Social Psychology*. London, England: SAGE Publications Ltd.
- Holodynski, M., & Friedlmeier, W. (2006). *Development of emotions and emotion regulation*. New York, NY: Springer Science & Business Media, Inc.
- Hormes, J. M., Kearns, B., Timko, C. A. (2014). Craving Facebook? Behavioral addiction to online social networking and its association with emotion regulation deficits. *Addiction*, 109(12), 2079-2088.

- Hosker-Field, A. M., Molnar, D. S., & Book, A. S. (2016). Psychopathy and risk taking: Examining the role of risk perception. *Personality and Individual Differences*, 91, 123-132.
- Howell, A., & Buro, K. (2011). Relations among mindfulness, achievement-related self-regulation, and achievement emotions. *Journal of Happiness Studies*, 12(6), 1007-1022.
- Howes, C. (2011). Children's social development within the socialization context of child care and early childhood education. In P. K. Smith & C. H. Hart (Eds.) *The Wiley-Blackwell Handbook of Childhood Social Development, Second Edition* (pp. 246-262). Hoboken, NJ: Blackwell Publishing Ltd.
- Hsieh, I. & Chen, Y. Y. (2017). Determinants of aggressive behavior: Interactive effects of emotional regulation and inhibitory control. *PLoS One*, 12(4), 1-9.
- Huesmann, L. R. (2007). The impact of electronic media violence: Scientific theory and research. *Journal of Adolescent Health*, 41(6), 6-13.
- Huesmann, L. R. & Eron, L. D. (1986). *Television and the aggressive child: A cross-national comparison*. Hillsdale, NJ: Erlbaum.
- Huesmann, L. R., Lefkowitz, M. M., & Eron, L. D. (1978). Sum of MMPI scales F, 4, and 9 as a measure of aggression. *Journal of Consulting and Clinical Psychology*, 46(5), 1071-1078.
- Huesmann, L. R., Moise-Titus, J., Podolski, C., & Eron, L. D. (2003). Longitudinal relations between children's exposure to TV violence and their aggressive and violent behavior in young adulthood: 1977-1992. *Developmental Psychology*, 39, 201-221.
- Hughes, M. A., Dolan, M. C., & Stout, J. C. (2016). Decision-making in psychopathy. *Psychology & Law*, 23(4), 521-537.
- Huizinga, D., Esbensen, F. A., & Weiher, A. W. (1991). Are there multiple paths to delinquency? *The Journal of Criminal Law and Criminology*, 82, 83-118.
- Hyler, S. E. (1994). *Personality Questionnaire (PDQ-4+)*. New York: New York State Psychiatric Institute.
- Ingels, S. J., Pratt, D. J., Wilson, D., Siegel, P. H., & Stutts, E. S. (2004). *Educational longitudinal study of 2002: Base year data file user's manual*. NCES2004-405. National Center for Education Statistics.
- Ioannidis, J. P. A. (2005). Why most published research findings are false. *PLoS Medicine*, 2(8), 696-701.

- Irwin, J. R., Carter, A. S., & Briggs-Gowan, M. J. (2002). The social-emotional development of 'late-talking' toddlers. *Journal of the American Academy of Child & Adolescent Psychiatry*, 41(11), 1324-1332.
- Ivcevic, Z., & Brackett, M. (2014). Predicting school success: Comparing conscientiousness, grit, and emotion regulation ability. *Journal of Research in Personality*, 52, 29-36.
- Iyer, S. N., Denson, H., Lazar, N., & Oller, D. K. (2016). Volubility of the human infant: Effects of parental interaction (or lack of it). *Clinical Linguistics & Phonetics*, 30(6), 470-488.
- Jackson, D. B., & Beaver, K. M. (2015). A shared pathway of antisocial risk: A path model of parent and child effects. *Journal of Criminal Justice*, 43(2), 154-163.
- Jaušovec, N. & Jaušovec, K. (2008). Spatial rotation and recognizing emotions: Gender related differences in brain activity. *Intelligence*, 36(5), 383-393.
- Javdani, S., Sadeh, N., & Verona, E. (2011). Expanding our lens: Female pathways to antisocial behavior in adolescence and adulthood. *Clinical Psychology Review*, 31(8), 1324-1348.
- Jerison, H. J. (1973). *Evolution of the brain and intelligence*. London: Academic Press.
- Jiang, Z. (2014). Emotional intelligence and career decision-making self efficacy: National and gender differences. *Journal of Employment Counseling*, 51(3), 112-214.
- John, O. P., Naumann, L. P., & Soto, C. J. (2008). Paradigm shift to the integrative Big Five trait taxonomy: History measurement and conceptual issues. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of personality* (pp. 114-158). New York, NY: Guilford Press.
- Jonason, P. K. & Webster, G. D. (2010). The Dirty Dozen: A concise measure of the Dark Triad. *Psychological Assessment*, 22(2), 420-432.
- Jones, D. J., Forehand, R., Rakow, A., Colletti, C. J. M., McKee, L., & Zalot, A. (2008). The specificity of maternal parenting behavior and child adjustment difficulties: A study of inner-city African American families. *Journal of Family Psychology*, 22(2), 181-192.
- Jordan, G. (2011). Gender differences in the developmental trajectories, risk factors and outcomes of antisocial behaviors. *Gender & Behaviour*, 9(1), 3528-2542.

- Jordan, P. J., Ashkanasy, N. M., & Ascough, K. W. (2007). Emotional intelligence in organizational behavior and industrial–organizational psychology. In G. Matthews, M. Zeidner, & R. D. Roberts (Eds.), *The science of emotional intelligence: Knowns and unknowns* (pp. 356–375). New York, NY: Oxford University Press.
- Juslin, P., Winman, A., & Hansson, P. (2007). The naïve intuitive statistician: A naïve sampling model of intuitive confidence intervals. *Psychological Review*, 114(3), 678–703.
- Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, 47(2), 263–291.
- Karim, J. & Weisz, R. (2010). Cross-cultural research on the reliability and validity of the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT). *Cross-Cultural Research*, 44(4), 374–404.
- Kashdan, T. B., McKnight, P. E., Richey, J. A., & Hofmann, S. G. (2009). When social anxiety disorder co-exists with risk-prone, approach behavior: Investigating a neglected, meaningful subset of people in the National Comorbidity Survey-Replication. *Behaviour Research and Therapy*, 47(7), 559–568.
- Kaukiainen, A., Salmivalli, C., Björkqvist, K., Österman, K., Lahtinen, A., Kostamo, A., & Lagerspetz, K. (2001). Overt and covert aggression in work settings in relation to the subjective well-being of employees. *Aggressive Behavior*, 27(5), 360–371.
- Kelly, S. P., & O’Connell R. G. (2015). The neural processes underlying perceptual decision making in humans: Recent progress and future directions. *Journal of Physiology*, 109(1), 27–37.
- Kessler, R. C., Berglund, P., Chiu, W. T., Demler, O., Heeringa, S., Hiripi, E., . . . , Zheng, H. (2004). The US National Comorbidity Survey Replication (NCS-R): Design and field procedures. *International Journal of Methods in Psychiatric Research*, 13(2), 69–92.
- Khalifa, N., Duggan, C., Stoffers, J., Huband, N., Völlm, B. A., Ferriter, M., & Lieb, K. (2010). Pharmacological interventions for Antisocial Personality Disorder. *The Cochrane Library*. New York, NY: John Wiley & Sons, Ltd.
- Kiehl, K., & Buckholtz, J. (2010). Inside the mind of a psychopath. *Scientific American*, 21, 22–29.
- Kilduff, M., Chiaburu, D. S., & Menges, J. I. (2010). Strategic use of emotional intelligence in organizational settings: Exploring the dark side. *Research in Organizational Behavior*, 30, 129–152.

- Kirkpatrick, L. A., Wangh, C. E., Valencia, A., & Webster, G. D. (2002). The functional domain specificity of self-esteem and the differential predictions of aggression. *Journal of Personality and Social Psychology*, 82(5), 756-767.
- Kjellmer, L., Hedvall, A., Fernell, E., Gillberg, C., & Norrelgen, F. (2012). Language and communication skills in preschool children with Autism Spectrum Disorders: Contribution of cognition, severity of autism symptoms, and adaptive functioning to the variability. *Research in Developmental Disabilities*, 33(1), 172-180.
- Klein, G. (1998). *Sources of power: How people make decisions*. Cambridge, MA: MIT Press.
- Klein, G. (2015). A naturalistic decision making perspective on studying intuitive decision making. *Journal of Applied Research in Memory and Cognition*, 4(3), 164-168.
- Klein, G., Calderwood, R., & Clinton-Cirocco, A. (2010). Rapid decision making on the fire ground: The original study plus a postscript. *Journal of Cognitive Engineering and Decision Making*, 4(3), 186–209.
- Klein, J. (2015). Call now or later? The waiting game in decision-making. *International Journal of Educational Research*, 74, 38-48.
- Knight, D. K., Dansereau, D. F., Becan, J. E., Rowan, G. A., & Flynn, P. M. (2015). Effectiveness of a theoretically-based judgment and decision making intervention for adolescents. *Journal of Youth and Adolescence*, 44(5), 1024–1038.
- Koenen, K. C., Caspi, A., Moffitt, T. E., Rijdsdijk, F., & Taylor, A. (2006). Genetic influences on the overlap between low IQ and antisocial behavior in young children. *Journal of Abnormal Psychology*, 115(4), 787.
- Koenigs, M., Kruepke, M., & Newman, J. P. (2010). Economic decision-making in psychopathy: A comparison with ventromedial prefrontal lesion patients. *Neuropsychologia*, 48(7), 2198-2204.
- Kokkinos, C. M., & Kipritsi, E. (2012). The relationship between bullying, victimization, trait emotional intelligence, self-efficacy and empathy among preadolescents. *Social Psychology of Education*, 15(1), 41-58.
- Komorosky, D. & O’Neal, K. K. (2015). The development of empathy and prosocial behavior through humane education, restorative justice, and animal-assisted programs. *Contemporary Justice Review*, 18(5), 395-406.
- Konrath, S. H., O’Brien, E. H., & Hsing, C. (2011). Changes in dispositional empathy in American college students over time: A meta-analysis. *Personality and Social Psychology Review*, 15(2), 180-198.

- Korea National Youth Policy Institute. (2010). *User's guide for junior high school (W1-W6)*. Republic of Korea: National Youth Policy Institute.
- Kosson, D. S., Steuerwald, B. L., Forth, A., Kirkhart, K. J. (1997). A new method for assessing the interpersonal behavior of psychopathic individuals: Preliminary validation studies. *Psychological Assessment*, 9(2), 89-101.
- Kramer, L. & Conger, K. J. (2009). What we learn from our sisters and brothers: For better or worse. *New Directions for Child & Adolescent Development*, 2009(126), 1-12.
- Kretschmer, T., Sentse, M., Dijkstra, J. K., Veenstra, R. (2014). The interplay between peer rejection and acceptance in preadolescence and early adolescence, serotonin transporter gene, and antisocial behavior in late adolescence: The TRAILS study. *Merrill-Palmer Quarterly*, 60(2), 193-216.
- Kuhl, J. & Beckmann, J. (Eds.) (1994). *Volition and personality: Action versus state orientation*. Göttingen, Germany: Hogrefe & Huber Publishers.
- Kustubayeva, A., Matthews, G., & Panganiban, A. R. (2012). Emotion and information search in tactical decision-making: Moderator effects of feedback. *Motivation and Emotion*, 36(4), 529-543.
- La Greca, A. M. (1999). The Social Anxiety Scales for children and adolescents. *The Behavior Therapist*, 22(7), 133-136.
- Laird, R. D., Criss, M. M., Pettit, G. S., Dodge, K. A., & Bates, J. E. (2008). Parents' monitoring knowledge attenuates the link between antisocial friends and adolescent delinquent behavior. *Journal of Abnormal Child Psychology*, 36(3), 299-310.
- Laird, R. D., Marks, L. D., & Marrero, M. D. (2011). Religiosity, self-control, and antisocial behavior: Religiosity as a promotive and protective factor. *Journal of Applied Developmental Psychology*, 32(2), 78-85.
- Lambert, E. & Laird, R. (2016). Reasoned and reactive decision-making processes as predictors of between-person and within-person differences in risk-taking behavior. *Journal of Child & Family Studies*, 25(1), 321-335.
- Lanctôt, N. & Le Blanc, M. (2002). Explaining deviance by adolescent females. *Crime and Justice*, 29, 113-202.
- Larrington, C. (1999). *The Poetic Edda*. Oxford, UK: Oxford University Press.

- Leder, J., Häusser, J. A., & Mojzisch, A. (2015). Exploring the underpinnings of impaired strategic decision-making under stress. *Journal of Economic Psychology*, 49, 133-140.
- Lee, S., Quigley, B. M., Nesler, M. S., Corbett, A. B., & Tedeschi, J. T. (1998). Development of a self-presentation tactics scale. *Personality and Individual Differences*, 26, 710-722.
- Lee, S. Y., Kesebir, S., & Pillutla, M. M. (2016). Gender differences in response to competition with same-gender coworkers: A relational perspective. *Journal of Personality and Social Psychology: Interpersonal Relations and Group Processes*, 110(6), 869-886.
- Lennox, R. D. & Wolfe, R. N. (1984). Revision of the self-monitoring scale. *Journal of Personality and Social Psychology*, 46, 1349-1364.
- Levens, S. M., Larsen, J. T., Bruss, J., Tranel, D., Bechara, A., & Mellers, B. A. (2014). What might have been? The role of the ventromedial prefrontal cortex and lateral orbitofrontal cortex in counterfactual emotions and choice. *Neuropsychologia*, 54, 77-86.
- Levenson, M. R., Kiehl, K. A., & Fitzpatrick, C. M. (1995). Assessing psychopathic attributes in a noninstitutionalized population. *Journal of Personality and Social Psychology*, 68(1), 151-158.
- Li P., Becker, J. B., Heitzeg, M. M., McClellan, M. L., Reed, B. G., & Zucker, R. A. (2017). Gender differences in the transmission of risk for antisocial behavior problems across generations. *PLoS One*, 12(5), 1-16.
- Libet, B., Gleason, C. A., Wright, E. W., Jr., & Pearl, D. K. (1983). Time of conscious intention to act in relation to onset of cerebral activity (readiness-potential): The unconscious initiation of a freely voluntary act. *Brain*, 106(3), 623-642.
- Linz, D., Donnerstein, E., & Penrod, S. (1984). The effects of long-term exposure to filmed violence against women. *Journal of Communication*, 34, 130-147.
- Linz, D. G., Donnerstein, E., & Penrod, S. (1988). Effects of long-term exposure to violent and sexually degrading depictions of women. *Journal of Personality and Social Psychology*, 55(5), 758-68.
- Lomonaco, C., Kim, T., & Ottaviano, L. (2010). Fact sheet: Media violence. In Southern California Academic Center of Excellence on youth violence prevention, Riverside, CA: University of California.

- Loney, B. R., Frick, P. J., Clements, C. B., Ellis, M. L., & Kerlin. (2010). Callous-unemotional traits, impulsivity, and emotional processing in adolescents with antisocial behavior problems. *Journal of Clinical Child & Adolescent Psychology*, 32(1), 66-80.
- Longe, J. L. (2011). *The Gale Encyclopedia of Children's Health: Infancy through Adolescence*. Detroit, MI: Gale.
- Longobardi, E., Spataro, P., Frigerio, A., & Rescoria, L. (2016). Language and social competence in typically developing children and late talkers between 18 and 25 months of age. *Early Child Development & Care*, 186(3), 436-452.
- Lundqvist, D., Flykt, A., & Öhman, A. (1998). The Karolinska Directed Emotional Faces (KDEF). *CD Rom from Department of Clinical Neuroscience, Psychology Section, Karolinska Institutet*. <http://www.emotionlab.se/resources/kdef>.
- Ma, W., Tsai, G. E., Change, J. P., & Lane, H. (2010). Reliability and validity of three Chinese-version tasks of Mayer-Salovey-Caruso Emotional Intelligence Test. *Journal of Clinical Nursing*, 19(17-18), 2656-2658.
- MacCann, C. & Roberts, R. D. (2008). New paradigms for assessing emotional intelligence: Theory and data. *Emotion*, 8(4), 540-551.
- Madden, G. J., & Bickel, W. K. (2010). *Impulsivity: The behavioral and neurological science of discounting*. Washington, DC: American Psychological Association.
- Malterer, M. B., Glass, S. J., & Newman, J. P. (2008). Psychopathy and trait emotional intelligence. *Personality and Individual Differences*, 44(3), 735-745.
- Mangina, C. A. & Beuzeron-Mangina, J. H. (1992). Psychophysiological treatment for learning disabilities: Controlled research and evidence. *International Journal of Psychophysiology*, 12(3), 243-250.
- Mann, F. D., Engelhardt, L., Briley, D. A., Grotzinger, A. D., Patterson, M. W., Tackett, J. L., . . . , & Harden, K. P. (2017). Sensation seeking and impulsive traits as personality endophenotypes for antisocial behavior: Evidence from two independent samples. *Personality and Individual Differences*, 105, 30-39.
- Mariani, M. (2016). The antisocial network. *Psychology Today*, 48(5), 80-88.
- Martos, M. P. B., Lopez-Zafra, E., Pulido-Martos, M., & Augusto, J. M. (2013). Are emotional intelligent workers also more empathic? *Scandinavian Journal of Psychology*, 54(5), 407-414.

- Matthews, G., Campbell, S. E., Falconer, S., Joyner, L. A., Huggins, J., Gilliland, K., G., . . . , & Warm, J. S. (2002). Fundamental dimensions of subjective state in performance settings: Task engagement, distress, and worry. *Emotion*, 2(4), 315-340.
- Matthews, G., Zeidner, M., & Roberts, R. D. (2002). Development and schooling of emotional intelligence. In G. Matthews, M. Zeidner & R. D. Roberts (Eds.), *Emotional intelligence: Science & myth* (pp. 419–466). Boston, MA: MIT Press.
- Mayer, J. D., Roberts, R. D., & Barsade, S. G. (2008). Human abilities: Emotional intelligence. *Annual Review of Psychology*, 59, 507–536.
- Mayer, J. D., & Salovey, P. (1997). What is emotional intelligence? In P. Salovey & D. Sluyter (Eds.), *Emotional development and emotional intelligence: Educational implications* (pp. 3-31). New York, NY: Basic Books.
- Mayer, J. D., Salovey, P., & Caruso, D. R. (2002). *Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) user manual*. Toronto, ON: MHS.
- McCain, J. L., Borg, Z. G., Rothenberg, A. H., Churillo, K. M., Weiler, P., & Campbell, W. K. (2016). Personality and selfies: Narcissism and the Dark Triad. *Computers in Human Behavior*, 64, 126-133.
- McCrae, R. R. (2000). Emotional intelligence from the perspective of the five-factor model of personality. In Bar-On, R. & Parker, J. D. A. (Eds.), *The Handbook of Emotional Intelligence* (pp. 263-276). San Francisco, CA: Jossey-Bass.
- McEvoy, A., & Welker, R. (2000). Antisocial behavior, academic failure, and school climate: A critical review. *Journal of Emotional and Behavioral Disorders*, 8(3), 130-140.
- McIllwain, D. (2003). Bypassing empathy: A Machiavellian theory of mind and sneaky power. In B. Repacholi & V. Slaughter (Eds.), *Individual differences in theory of mind* (pp. 39-66). Hove, E. Sussex: Psychology Press
- Meerkerk, G. J., van den Eijnden, R. J. J. M., Franken, I. H. A., & Garretsen, H. F. L. (2010). Is compulsive internet use related to sensitivity to reward and punishment, and impulsivity? *Computers in Human Behavior*, 26(4), 729-735.
- Meloy, J. R. (2007). Antisocial Personality Disorder. In G. Gabbard (Ed.), *Gabbard's Treatment of Psychiatric Disorders*. Washington, DC: American Psychiatric Press.
- Miller, J., & Schwarz, W. (2014). Brain signals do not demonstrate unconscious decision making: An interpretation based on graded conscious awareness. *Consciousness and Cognition*, 24, 12-21.

- Miller, W., R., Tonigan, J. S., & Longabaugh, R. (1995). *The Drinker Inventory of Consequences (DrInC). Project MATCH Monograph Series, Vol. 4.*
- Millon, T. (2008). *MCMI-III manual* (3rd ed.). Minneapolis, MN: Pearson.
- Millon, T., Simonsen, E. & Birket-Smith, M. (1998). Historical conceptions of psychopathy in the United States and Europe. In T. Millon, E. Simonsen, M. Birket-Smith & R. D. Davis (Eds.), *Psychopathy: Antisocial, criminal and violent behavior* (pp. 3-31). New York, NY: Guilford.
- Miranda, Jr., R., MacKillop, J., Meyerson, L. A., Justus, A., & Lovallo, W. R. (2009). Influence of antisocial and psychopathic traits on decision-making biases in alcoholics. *Alcoholism: Clinical & Experimental Research*, 33(5), 817-825.
- Mitchell, M. R., Weiss, V. G., Beas, B. S., Morgan, D., Bizon, J. L., & Setlow, B. (2014). Adolescent risk taking, cocaine self-administration, and striatal dopamine signaling. *Neuropsychopharmacology*, 39(4), 955-962.
- Moffitt, T. E. (1993). Adolescence-limited and life-course-persistent antisocial behavior: A developmental taxonomy. *Psychological Review*, 100(4), 674-701.
- Moffitt, T. E. (2005). The new look of behavioral genetics in developmental psychopathy: Gene-environment interplay in antisocial behaviors. *Psychological Bulletin*, 131(4), 533.
- Moffitt, T. E. & Silva, P. A. (1998). Self-reported delinquency, neuro-psychological deficit, and history of Attention Deficit Disorder. *Journal of Abnormal Child Psychology*, 16(5), 553-569.
- Monahan, K. C., Steinberg, L., & Cauffman, E. (2009). Affiliation with antisocial peers, susceptibility to peer influence, and antisocial behavior during the transition to adulthood. *Developmental Psychology*, 45(6), 1520.
- Montoya, E. R., Terburg, D., Bos, P. A., & van Honk, J. (2012). Testosterone, cortisol, and serotonin as key regulators of social aggression: A review and theoretical perspective. *Motivation and Emotion*, 36(1), 65-73.
- Moody, L. Franck, C., & Bickel, W. K. (2016). Comorbid depression, antisocial personality, and substance dependence: Relationship with delay discounting. *Drug & Alcohol Dependence*, 160, 190-196.
- Moos, R. H. & Moos, B. S. (1974). *Family Environment Scale*. Palo Alto, CA: Mind Garden, Inc.

- Morrison, K. L., Madden, G. J., Odum, A. L., Friedel, J. E., Twohig, M. P. (2014). Altering impulsive decision making with an acceptance-based procedure. *Behavior Therapy*, 45(5), 630-639.
- Moudgil, R. & Moudgil, N. (2017). Parenting styles and self-esteem as predictors of aggression. *Indian Journal of Health & Wellbeing*, 8(2), 168-172.
- Mrug, S., Madan, A., & Windle, M. (2016). Emotional desensitization to violence contributes to adolescents' violent behavior. *Journal of Abnormal Child Development*, 44(1), 75-86.
- Nagel, R. (1995). Unraveling in guessing games: An experimental study. *American Economic Review*, 85(5), 1313-1326.
- Nagler, U. K. J., Reither, K. J., Furtner, M. R., & Rauthmann, J. F. (2014). Is there a "dark intelligence"? Emotional intelligence is used by dark personalities to emotionally manipulate others. *Personality and Individual Differences*, 65, 47-52.
- National Institute of Mental Health (1982). Television and behavior: Ten years of scientific progress and implications for the eighties, Vol. 1. Rockville, MD: U.S. Department of Health and Human Services.
- Newman, J. P., Curtin, J. J., Bertsch, J. D., Baskin-Sommers, A. R. (2010). Attention moderates the fearlessness of psychopathic offenders. *Biological Psychiatry*, 67(1), 66-70.
- Niswander, K. R. & Gordon, M. (1972). The women and their pregnancies: The collaborative perinatal study of the National Institute of Neurological Diseases and Stroke. Washington DC: National Institutes of Health.
- Noll, S. M. & Fredrickson, B. L. (1998). A mediational model linking self-objectification, body shame, and disordered eating. *Psychology of Women Quarterly*, 22(4), 623-636.
- Norbeck, J. S., Lindsey, A. M., & Carrieri, V. L. (1981). The development of an instrument to measure social support. *Nursing Research*, 30(5), 264-269.
- Osumi, T., & Ohira, H. (2010). The positive side of psychopathy: Emotional detachment in psychopathy and rational decision-making in the ultimatum game. *Personality and Individual Differences*, 49(5), 451-456.
- Paal, T., & Bereczkei, T. (2007). Adult theory of mind, cooperation, Machiavellianism: The effect of mindreading on social relations. *Personality and Individual Differences*, 43(3), 541-551.

- Paradis, A. D., Fitzmaurice, G. M., Koenen, K. C., Buka, S. L. (2015). A prospective investigation of neurodevelopmental risk factors for adult antisocial behavior combining official arrest records and self-reports. *Journal of Psychiatric Research*, 86, 363-370.
- Parks, G. A. (2001). *The Daily Drug-Taking Questionnaire (DDTQ) – Version 1: A measure of typical and peak drug use*. Unpublished manuscript, University of Washington.
- Patterson, G. R., DeBaryshe, B., & Ramsey, E. (1990). A developmental perspective on antisocial behavior. *American Psychologist*, 44(2), 329-335.
- Paulhus, D. L., Neumann, C. S., & Hare, R. D. (2015). *Self-report psychopathy scale: Version III*. Toronto: Multi-Health Systems.
- Pemmet, J. (2013). Psychopathy versus sociopathy: Why the distinction has become crucial. *Aggression and Violent Behavior*, 18(5), 458-461.
- Penner, L. A., Dovidio, J. F., Piliavin, J. A., & Schroeder, D. A. (2005). Prosocial behavior: Multilevel perspectives. *Annual Review of Psychology*, 56, 365–392.
- Perelman, A. M., Miller, S. L., Clements, C. B., Rodriguez, A., Allen, K., & Cavanaugh, R. (2012). Meditation in a deep south prison: A longitudinal study of the effects of Vipassana. *Journal of Offender Rehabilitation*, 51(3), 176-198.
- Perry, D. G. & Bussey, K. (1979). The social learning theory of sex differences: Imitation is alive and well. *Journal of Personality and Social Psychology*, 37(10), 1699-1712.
- Petrides, K. V. (2009). *Technical manual for the Trait Emotional Intelligence Questionnaires (TEIQue)*. London: London Psychometric Laboratory.
- Petrides, K. V. (2010). Trait emotional intelligence theory. *Industrial and Organizational Psychology*, 3(2010), 136-139.
- Petrides, K. V., & Furnham, A. (2000). Gender differences in measured and self-estimated trait emotional intelligence. *Sex Roles*, 42(5), 449-461.
- Philiastides, M. G. & Heekeren, H. R. (2009). Spatiotemporal characteristics of perceptual decision making in the human brain. In Dreher, J. & Tremblay, L. (Eds.), *Handbook of reward and decision making* (pp. 185-212). Amsterdam, NL: Elsevier Science.
- Pool, L. D., & Qualter, P. (2012). Improving emotional intelligence and emotional self-efficacy through a teaching intervention for university students. *Learning and Individual Differences* 22(3), 306-312.

- Porcelli, A. J., & Delgado, M. R. (2009). Acute stress modulates risk taking in financial decision making. *Psychological Science*, 20(3), 278–283.
- Preston, S. D., Buchanan, T. W., Stansfield, R. B., & Bechara, A. (2007). Effects of anticipatory stress on decision making in a gambling task. *Behavioral Neuroscience*, 121(2), 257–263.
- Purcell, B. A., Heitz, R. P., Cohen, J. Y., Schall, J. D., Logan, G. D., & Palmeri, T. J. (2010). Neurally constrained modeling of perceptual decision making. *Psychological Review*, 117(4), 1113–1143.
- Raine, A., Lencz, T., Bihrlé, S., LaCasse, L., & Colletti, P. (2000). Reduced prefrontal gray matter volume and reduced autonomic activity in Antisocial Personality Disorder. *Archives of General Psychiatry*, 57(2), 119-127.
- Raine, A., Yang, Y., Narr, K. L., & Toga, A. W. (2011). Sex differences in orbitalfrontal gray as a partial explanation for sex differences in antisocial personality. *Molecular psychiatry*, 16(2), 227-236.
- Rauthmann, J. F. (2013). Investigating the MACH-IV with item response theory and proposing the trimmed MACH*. *Journal of Personality Assessment*, 95(4), 388-397.
- Raven, J., Raven, J. C., & Court, J. H. (1998). *Manual for Raven's progressive matrices and vocabulary scales, section 4: Advanced progressive matrices*. Oxford, England: Oxford Psychologists Press.
- Rest, J. (1979). *Revised manual for the Defining Issues Test*. Minneapolis, MN: Moral Research Projects.
- Reynolds, W. M. (2001). *Reynolds Adolescent Adjustment Screening Inventory: RAASI: Professional manual*. Lutz, FL: Psychological Assessment Resources.
- Roberton, T., Daffern, M., & Bucks, R. S. (2012). Emotion regulation and aggression. *Aggression and Violent Behavior*, 17(1), 72-82.
- Roberts, R. D., MacCann, C., Matthews, G., & Zeidner, M. (2010). Emotional intelligence: Towards a consensus of models and measures. *Social and Personality Psychology Compass*, 3(10), 1-20.
- Robins, L. N. (1978). Sturdy childhood predictors of adult antisocial behaviour: Replications from longitudinal studies. *Psychological Medicine*, 8(4), 611-622.

- Rockhill, C. M. & Greener, S. H. (1999). *Development of the Trait Meta-Mood Scale for elementary school children*. Poster presented at the Biennial Meeting of the Society for Research in Child Development Albuquerque, NM.
- Roeser, S. (2006). The role of emotions in judging the moral acceptability of risks. *Safety Science*, 44(8), 689-700.
- Rosenberg, J. & Egbert, N. (2011). Online impression management: Personality traits and concerns for secondary goals as predictors of self-preservation tactics on Facebook. *Journal of Computer-Mediated Communication*, 17(1), 1-18.
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
- Rosenthal, J. A. (1996). Qualitative descriptors of strength of association and effect size. *Journal of Social Service Research*, 21(4), 37-59.
- Rothmund, Y., Ziegler, S., Hermann, C., Gruesser, S. M., Foell, J., Patrick, C. J., & Flor, H. (2012). Fear conditioning in psychopaths: event-related potentials and peripheral measures. *Biological Psychology*, 90(1), 50-59.
- Ruiz, M. A., Pincus, A. L., Schinka, J. A. (2008). Externalizing pathology and the five-factor model: A meta-analysis of personality traits associated with Antisocial Personality Disorder, Substance Use Disorder, and their co-occurrence. *Journal of Personality Disorders*, 22(4), 365-368.
- Sacco, D. F., Merold, S. J., Lui, J. H., Lustgraaf, C. J., & Barry, C. T. (2016). Social and emotional intelligence moderate the relationship between psychopathy traits and social perception. *Personality and Individual Differences*, 95, 95-104.
- Sadler-Smith, E. (2011). The intuitive style: Relationships with local/global and verbal/visual styles, gender, and superstitious reasoning. *Learning and Individual Differences*, 21(3), 263-270.
- Salekin, R., Worley, C., & Grimes, R. (2010). Treatment of psychopathy: A review and brief introduction to the mental model approach for psychopathy. *Behavioral Sciences and the Law*, 28(2), 235-266.
- Salguero, J. M., Extremera, N., Cabello, R., & Fernández-Berrocal, P. (2014). If you have high emotional intelligence (EI), you must trust in your abilities: The interaction effect of ability EI and perceived EI on depression in women. *Journal of Psychoeducational Assessment*, 33(1), 46-56.
- Salovey, P., Bedell, B., Detweiler, J. B., & Mayer, J. D. (2000). Current directions in emotional intelligence research. In M. Lewis & J. M. Haviland-Jones (Eds.), *Handbook of emotions* (2nd ed.) (pp. 504–520). New York, NY: Guilford Press.

- Salovey, P., & Grewal, D. (2005). The science of emotional intelligence. *American Psychologist Society*, 14(6), 281-285.
- Salovey, P., & Mayer, J. D. (1990). Emotional intelligence. *Imagination, Cognition and Personality*, 9(3), 185-211.
- Salovey, P., Mayer, J. D., & Caruso, D. (2002). The positive psychology of emotional intelligence. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of positive psychology* (pp. 159-171). New York, NY: Oxford University Press.
- Salovey, P., Mayer, J. D., Goldman, S., Turvey, C., & Palfai, T. (1995). Emotional attention, clarity, and repair: Exploring emotional intelligence using the Trait Meta-Mood Scale. In J. W. Pennebaker (Ed.), *Emotion, disclosure, and health* (pp.125-154). Washington, DC: American Psychological Association.
- Salovey, P., & Sluyter, D. (1997). *Emotional development and emotional intelligence: Educational implication*. New York, NY: Basic Books.
- Samuelson, M., Carmody, J., Kabat-Zinn, J., & Bratt, M. A. (2007). Mindfulness-based stress reduction in Massachusetts correctional facilities. *The Prison Journal*, 87(2), 254-268.
- Sanchez-Garcia, M., Extremera, N., & Fernandez-Berrocal, P. (2016). The factor structure and psychometric properties of the Spanish version of the Mayer-Salovey-Caruso Emotional Intelligence Test. *Psychological Assessment*, 28(11), 1404-1415.
- Sánchez-Nuñez, M. T., Fernández-Berrocal, P., & Latorre, J. M. (2013). Assessment of emotional intelligence in the family: Influences between parents and children on their own perception and that of others. *The Family Journal*, 21(1), 65-73.
- Schaffer, M., Clark, S., & Jeglic, E. L. (2009). The role of empathy and parenting style in the development of antisocial behaviors. *Crime & Delinquency*, 55(4), 586-599.
- Schag, K., Teufel, M., Junne, F., Preissl, H., Hautzinger, M., Zipfel, S., & Giel, K. E. (2013). Impulsivity in Binge Eating Disorder: Food cures elicit increased reward responses and disinhibition. *PLoS One*, 8(10), 1-8.
- Scheier, M. F. & Carver, 1985). Optimism, coping and health: Assessment and implications of generalized outcomes expectancies. *Healthy Psychology*, 4(3), 219-247.
- Schlaghecken, F., Refaat, M., & Maylor, E. A. (2011). Multiple systems for cognitive control: Evidence from a hybrid prime-Simon task. *Journal of Experimental Psychology. Human Perception & Performance*, 37(5), 1542–1553.

- Schmitt, M., Beckmann, M., Dusi, D., Maes, J., Schiller, A., & Schonauer, K. (2003). Messgüte des vereinfachten Beck-Depressions-Inventars (BDI-V). *Diagnostica*, 49(4), 147-156.
- Schwab-Stone, M., Chen, C., Greenberger, E., Silver, D., Lichtman, J., & Voyce, C. (1999). No safe haven. II: The effects of violence exposure on urban youth. *Journal of the American Academy of Child and Adolescent Psychiatry*, 38(4), 359-367.
- Scott, D., Valley, B., & Simecka, B. (2017). Mental health concerns in the digital age. *International Journal of Mental Health & Addiction*, 15(3), 604-613.
- Scott, S. G., & Bruce, R. A. (1995). Decision-making style: The development and assessment of a new measure. *Educational and Psychological Measurement*, 55(5), 818-831.
- Semerari, A., Carcione, A., Dimaggio, G., Nicolò, G., & Procacci, M. (2007). Understanding minds, different functions and disorders? The contributions of psychotherapeutic research. *Psychotherapy Research*, 17(1), 106-119.
- Semerari, A., Colle, L., Pellecchia, G., Buccione, I., Carcione, A., Dimaggio, G.,..., & Pedone, R. (2014). Metacognitive dysfunctions in personality disorders: Correlations with disorder severity and personality styles. *Journal of Personality Disorders*, 28(6), 751-766.
- Seo, D., Patrick, C. J., & Kennealy, P. J. (2008). Role of serotonin and dopamine system interactions in the neurobiology of impulsive aggression and its comorbidity with other clinical disorders. *Aggression and Violent Behavior*, 13(5), 383-395.
- Sellers, C. S. (1999). Self-control and intimate violence: An examination of the scope and specification of the General Theory of Crime. *Criminology*, 37(2), 375-404.
- Seto, M. & Barbaree, H. E. (2006). Toward the future: Translating basic research into prevention and treatment strategies. In C. J. Patrick (Ed.), *Handbook of psychopathy* (pp.598-601). New York, NY: Guilford Press.
- Shenk, C. E., Dorn, L.D., Kolko, D. J., Susman, E. J., Noll, J. G., & Buksein, O. G. (2012). Predicting response to treatment for Oppositional Defiant Disorder and Conduct Disorder using pre-treatment adrenal and gonadal hormones. *Journal of Child and Family Studies*, 21(6), 973-981.
- Sheppard, L. D. & Aqino, K. (2013). Much ado about nothing? Observations' problematization of women's same-sex conflict at work. *The Academy of Management Perspectives*, 27(1), 52-62.

- Shonin, E., Van Gordon, W., & Griffiths, M. D. (2014). Mindfulness meditation in American correctional facilities: A “what works” approach to reducing reoffending. *Corrections Today*, 76(2), 48-52.
- Siegel, J. Z. & Crockett, M. J. (2013). How serotonin shapes moral judgment and behavior. *Annals of the New York Academy of Sciences*, 1299(1), 42-51.
- Siegling, A. B., Veseley, A. K., Petrides, K. V., & Saklofske, D. H. (2015). Incremental validity of the Trait Emotional Intelligence Questionnaire-Short Form (TEIQue-SF). *Journal of Personality Assessment*, 97(5), 525-535.
- Smith, P.L., & Ratcliff, R., 2004. Psychology and neurobiology of simple decisions. *Trends in Neuroscience*, 27(3), 161–168.
- Snyder, M. (1974). Self-monitoring of expressive behavior. *Journal of Personality and Social Psychology*, 30(4), 526-537.
- Spitzer, R. L., Williams, J. B., & Gibbon, M. (1987). *Structured clinical interview for DSM-III-R*. New York, NY: Biometrics Research Division, New York State Psychiatric Institute.
- Stanković, M., Nešić, M., Obrenović, J., Stojanović, D., & Milošević, V. (2015). Recognition of facial expressions of emotions in criminal and non-criminal psychopaths: Valence-specific hypothesis. *Personality and Individual Differences*, 82, 242-247.
- Stephenson, M. T., Hoyle, R. H., Palmgreen, P., & Slater, M. D. (2003). Brief measures of sensation seeking for screening and large-scale surveys. *Drug and Alcohol Dependence*, 72(3), 279-286.
- Sternberg, S. (1969). The discovery of processing stages: Extensions of Donders’ method. In: Koster, W.G. (Ed.), *Attention and performance II*. *Acta Psychologica*, 30, 276–315.
- Sterzer, P. (2010). Born to be a criminal? What to make of early biological risk factors for criminal behavior. *American Journal of Psychiatry*, 167, 1-3.
- Sundram, F., Deeley, Q., Sarkar, S., Daly, E., Latham, R., Craig, M . . . , & Murphy, D. G. M. (2012). White matter microstructural abnormalities in the frontal lobe of adults with Antisocial Personality Disorder. *SciVerse ScienceDirect*, 48(2), 216-229.
- Synnott, J., Coulias, A., & Ioannou, M. (2017). Online trolling: The case of Madeleine McCann. *Computers in Human Behavior*, 71, 70-78.

- Taksic, V. (2001). Emotional competence questionnaires. In K. Lackovic-Grgin & Z. Penezic (Eds.), *The collection of psychological instruments*. Zadar, Croatia: Faculty of Philosophy in Zadar, Croatia.
- Tamatea, A. J. (2011). *Face validity: Exploring the relationship between facial affect recognition and psychopathic traits with high-risk prisoners in New Zealand*. (Unpublished doctoral dissertation). Massey University, Palmerston, North New Zealand.
- Tamir, M., John, O. P., Srivastava, S., & Gross, J. J. (2007). Implicit theories of emotion: Affective and social outcomes across a major life transition. *Journal of Personality and Social Psychology*, 92(4), 731-744.
- Tapper, K. & Boulton, M. J. (2005). Victim and peer group responses to different forms of aggression among primary school children. *Aggressive Behavior*, 31(3), 238-253.
- Thapar, A., Langley, K., Fowler, T., Rice, F., Turic, D., Whittinger, N., . . . , & O'Donovan, M. (2005). Catechol O-Methyltransferase gene variant and birth weight predict early-onset antisocial behavior in children with Attention-Deficit/Hyperactivity Disorder. *Archives of General Psychiatry*, 62(11), 1275–1278.
- Theophrastus. (1881). *The characters of Theophrastus*. Boston, MA: Frederic S. Hill.
- Thibodeau, E. L., Cicchetti, D., & Rogosch, F. A. (2015). Child maltreatment, impulsivity, and antisocial behavior in African American children: Moderation effects from a cumulative dopaminergic gene index. *Development & Psychopathology*, 27(4), 1621-1636.
- Thompson, K. L. & Gullone, E. (2008). Prosocial and antisocial behaviors in adolescents: An investigation into associations with attachment and empathy. *Anthrozoös*, 21(2), 123-137.
- Thorndike, E. L. (1920). Intelligence and its uses. *Harper's Magazine*, 140, 227-235.
- Thunholm, P. (2004). Decision-making style: Habit, style or both? *Personality and Individual Differences*, 36(4), 931-944.
- Tiegs, E. W. & Clark, W. W. (1970). *California Achievement Test*. New York, NY: McGraw-Hill.
- Tóth, M., Halász, J., Mikics, É., Barys, B., & Haller, J. (2008). Early social deprivation induces disturbed social communication and violent aggression in adulthood. *Behavioral Neuroscience*, 122(4), 848-854.

- Tremblay, R. E. (2008). Understanding development and prevention of chronic physical aggression: Towards experimental epigenetic studies. *Philosophical Transactions of Royal Society B*, 363(1503), 2613-2622.
- Trzesniewski, K. H., Moffitt, T. E., Caspi, A., Taylor, A., & Maughan, B. (2006). Revisiting the association between reading achievement and antisocial behavior: New evidence of an environmental explanation from a twin study. *Child Development*, 77(1), 72-88.
- Tuvblad, C., Gao, Y., Wang, P., Raine, A., Botwick, T., & Baker, L. A. (2013). The genetic and environmental etiology of decision-making: A longitudinal study. *Journal of Adolescence*, 36(2), 245-255.
- Twardosz, S., & Lutzker, J. R. (2010). Child maltreatment and the developing brain: A review of neuroscience perspectives. *Aggression and Violent Behavior*, 15(1), 59-68.
- Twenge, J. M., Baumeister, R. F., DeWall, C. N., Ciarocco, N. J., & Bartels, J. M. (2007). Social exclusion decreases prosocial behavior. *Journal of Personality and Social Psychology*, 92(1), 56.
- Twenge, J. M. & Campbell, W. K. (2003). "Isn't it fun to get the respect that we're going to deserve?" Narcissism, social rejection, and aggression. *Personality and Social Psychology Bulletin*, 29(2), 261-272.
- Usher, M., & McClelland, J. L. (2001). The time course of perceptual choice: The leaky, competing accumulator model. *Psychological Review* 108(3), 550-592.
- Valiente, C., Swanson, J., & Eisenberg, N. (2012). Linking students' emotions and academic achievement: When and why emotions matter. *Child Development Perspectives*, 6(2), 129-135.
- Valkenburg, P. & Peter, J. (2010). Online communication among adolescents: An integrated model of its attraction, opportunities, and risks. *Journal of Adolescent Health*, 48(2), 121-127.
- Valkenburg, P., Peter, J., & Schouten, A. (2006). Friend networking sites and their relationship to adolescents' well-being and social self-esteem. *Cyberpsychology, Behavior, & Social Network*, 9(5), 584-590.
- Van den Bos, W., Vahl, P., Güroglu, B., van Nunspeet, F., Colins, O., Markus, M., . . . , & Crone, E. A. (2014). Neural correlates of social decision-making in severely antisocial adolescents. *Social Cognitive & Affective Neuroscience*, 9(12), 2059-2066.

- Van Zyl, C. J. J. (2016). Measurement invariance across gender and ethnicity on the Emotional Quotient Inventory 2.0. *Journal of Psychology in Africa*, 26(2), 141-148.
- Vaughn, M. G., Salas-Wright, C. P., DeLisi, M., & Maynard, B. R. (2014). The immigrant paradox: Immigrants are less antisocial than native-born Americans. *Social Psychiatry and Psychiatric Epidemiology*, 49(7), 1129-1137.
- Velotti, P., Garofalo, C., D'Aguanno, M., Petrocchi, C., Popolo, R., Salvatore, G., Dimaggio, G. (2016). Mindfulness moderates the relationship between aggression and Antisocial Personality Disorder traits: Preliminary investigation with an offender sample. *Comprehensive Psychiatry*, 64(2016), 38-45.
- Verhoeven, M., Junger, M., Aken, C. V., Dekovic, M., Van Aken, M. A. G. (2010). Mothering, fathering, and externalizing behavior in toddler boys. *Journal of Marriage & Family*, 72(2), 307-217.
- Verona, E., Reed, A., Curtin, J. J., & Pole, M. (2007). Gender differences in emotional and overt/covert aggressive responses to stress. *Aggressive Behavior*, 33(3), 261-271.
- Vieno, A., Nation, M., Pastore, M., & Santinello, M. (2009). Parenting and antisocial behavior: A model of the relationship between adolescent self-disclosure, parental closeness, parental control, and adolescent antisocial behavior. *Developmental Psychology*, 45(6), 1509-1519.
- Visser, B. A., Bay, D., Cook, G. L., & Myburgh, J. (2010). Psychopathic and antisocial, but not emotionally intelligent. *Personality and Individual Differences*, 48(5), 644-648.
- Vollum, B. Gibbon, S., Khalifa, N., Duggan, C., Stoffers, J., Huband, N.,...& Lieb, K. (2010). S08-01 – Cochrane reviews of pharmacological and psychological interventions for Antisocial Personality Disorder (ASPD). *European Psychiatry*, 1(25), 90.
- Volz, K. G. & Hertwig, R. (2016). Emotions and decisions. *Perspectives on Psychological Science*, 11(1), 101-116.
- Wagner, L. A. (2015). When your smartphone is too smart for your own good: How social media alters human relationships. *Journal of Individual Psychology*, 71(2), 114-121.
- Wagner, P. & Walsh, A. (2016). States of Incarceration: The global context. Retrieved from <https://www.prisonpolicy.org/global/2016.html>.

- Walderhaug, E. Magnusson, A., Neumeister, A., Lappalainen, J., Lunde, H., Refsum, H., & Landrø, N. I. (2007). Interactive effects of sex and 5-HTTLPR on mood and impulsivity during tryptophan depletion in healthy people. *Biological Psychiatry* 62(6), 593-599.
- Waller, R. & Hyde, L. W. (2017). Callous-unemotional behaviors in early childhood: Measuring, meaning, and the influence of parenting. *Child Development Perspectives*, 11(2), 120-126.
- Wechsler, D. *Wechsler Adult Intelligence Scale: Revised*. (1981). San Antonio, TX: Psychological Corporation.
- Wechsler, D. *Wechsler Intelligence Scale for Children*. 3rd ed. (1992). London, England: Psychological Corporation.
- Wechsler, D. (1999). *Wechsler Abbreviated Scale of Intelligence*. Bloomington, MN: Psychological Corporation.
- Weinstein, E. A. (1969). The development of interpersonal competence. In D. A. Goslin (ed.) *Handbook of socialization theory and research*. Chicago, IL: Rand McNally.
- Weiss, D. B., & MacKenzie, D. L. (2010). A global perspective on incarceration: How an international focus can help the United States reconsider its incarceration rates. *Victims and Offenders*, 5(3), 268-282.
- Westermeyer, J., & Thruas, P. (2005). Association of Antisocial Personality Disorder and Substance Disorder morbidity in a clinical sample. *American Journal of Drug & Alcohol Abuse*, 31(1), 93-110.
- Western, B., & Pettit, B. (2010). Incarceration & social inequality. *Daedalus*, 139(3), 8-19.
- Whiteman, S. D., Becerra, J. M., & Kiloren, S. E. (2009). Mechanisms of sibling socialization in normative family development. *New Directions for Child & Adolescent Development*, 2009(126), 29-43.
- Whiteside, S. P. & Lynam, D. R. (2001). The five factor model and impulsivity: Using a structural model of personality to understand impulsivity. *Personality and Individual Differences*, 30(4), 669-689.
- WHO Collaborating Centre in Mental Health. (1998). *WHO (Five) Well-Being Index* (1998 version). Hillerød, Denmark: WHO Collaborating Center for Mental Health, Frederiksborg General Hospital.

- Wilkowski, B. M. & Robinson, M. D. (2008). The cognitive basis of trait anger and reactive aggression: An integrative analysis. *Personality and Social Psychology Review*, 12(1), 3-21.
- Wilson, S. & Durbin, C. E. (2012). Dyadic parent-child interaction during early childhood: Contributions of parental and child personality traits. *Journal of Personality*, 80(5), 1313-1338.
- Windle, M., Brener, N., Cuccaro, P., Dittus, P., Kanouse, D. E., Murray, N., . . . , & Schuster, M. A. (2010). Parenting predictors of early-adolescents' health behaviors: Simultaneous group comparisons across sex and ethnic groups. *Journal of Youth Adolescence*, 39(9), 594-606.
- Winstok, Z. & Enosh, G. (2007). Exploring the intention to react to aggression among Israeli youth. *Journal of Research on Adolescents*, 17(3), 506-524.
- Winstok, Z. & Perkis, E. (2008). Inter- and intragenerational transmission of aggressive tendencies among adolescents. *Journal of Child & Adolescent Trauma*, 1(2), 153-162.
- Winters, J., Clift, R. J. W., & Dutton, D. G. (2004). An exploratory study of emotional intelligence and domestic abuse. *Journal of Family Violence*, 19(5), 255-267.
- Wonderlic. (1992). *Wonderlic Personnel Test & Scholastic Level Exam user's manual*. Libertyville, IL: Author.
- Wood, B. S. (1976). *Children and communication: Verbal and nonverbal language development*. Englewood Cliffs, NJ: Prentice-Hall, Inc.
- Wood, M. A. (2017). Antisocial media and algorithmic deviancy amplification: Analysing the id of Facebook's technological unconscious. *Theoretical Criminology*, 21(2), 168-185.
- Wood, R. M., Rilling, J. K., Sanfey, A. G., Bhagwagar, Z., & Rogers, R. D. (2006). Effects of tryptophan depletion on the performance of an iterated prisoner's dilemma game in healthy adults. *Neuropsychopharmacology*, 31(5), 1075-1084.
- Wood, R., & Tolley, H. (2003), *Inteligența emoțională prin teste*. București: Meteor Press.
- Wright, M. F. (2013). The relationship between young adults' beliefs about anonymity and subsequent cyber aggression. *Cyberpsychology, Behavior, and Social Networking*, 16(12), 858-862.

- Xie, H., Drabick, D. A., & Chen, D. (2011). Developmental trajectories of aggression from late childhood through adolescence: Similarities and differences across gender. *Aggressive Behavior*, 37(5), 387-404.
- Yang, Y., Raine, A., Colletti, P., Toga, A. W., & Nar, K. L. (2009). Abnormal temporal and prefrontal cortical gray matter thinning in psychopaths. *Molecular Psychiatry*, 14(6), 561-562.
- Young, S., Regoli, M., Leyton, M., Pihl, R., & Benkelfat, C. (2014). The effect of acute tryptophan depletion on mood and impulsivity in polydrug ecstasy users. *Psychopharmacology*, 231(4), 707-716.
- Zheng, Y., & Cleveland, H. H. (2015). Differential genetic and environmental influences on developmental trajectories of antisocial behavior from adolescence to young adulthood. *Journal of Adolescence*, 45, 204-213.
- Zhu, J., Yu, C., Zhang, W., Bao, Z., Jiang, Y., Chen, Y., Zhen, S. (2016). Peer victimization, deviant peer affiliation and impulsivity: Predicting adolescent problem behaviors. *Child Abuse & Neglect*, 58, 39-50.
- Zucker, R. (1999). *Manual for the Antisocial Behavior Checklist*. Ann Arbor, MI: IPA Associates.
- Zucker, R. A., Ellis, D., Bingham, C. R., & Fitzgerald, H. (1996). The development of alcoholic subtypes: Risk variation among alcoholic families during the early childhood years. *Alcohol Health & Research World*, 20(1), 46-55.
- Zucker, R. A., Ellis, D. A., Fitzgerald, H. E., Bingham, C. R., & Sanford, K. (1996). Other evidence for at least two alcoholisms II: Life course variation in antisociality and heterogeneity of alcoholic outcome. *Development and Psychopathology*, 8(4), 831-848.

VITA

MELINA MARIE SAMPLE

EDUCATION:

Ph.D., Counseling Psychology, 2017
Andrews University, Berrien Springs, Michigan

M.A., Clinical Mental Health Counseling
Andrews University, Berrien Springs, Michigan

B.S., Business and Retail Management
Purdue University, West Lafayette, Indiana

PROFESSIONAL EXPERIENCE

2016-present	Doctoral Psychology Intern Andrews University Berrien Springs, Michigan
2014-2015	Doctoral Practicum Extern Andrews University Berrien Springs, Michigan
2013-present	Graduate Assistant, Department of Graduate Psychology and Counseling Andrews University Berrien Springs, Michigan
2012-2014	Doctoral Practicum Andrews University Berrien Springs, Michigan
2011-2012	Master's Internship Andrews University Berrien Springs, Michigan
2011	Master's Practicum Andrews University Berrien Springs, Michigan