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INVENTORY OF COGNITIVE DISTORTIONS: VALIDATION OF A

MEASURE OF COGNITIVE DISTORTIONS IN A FORENSIC SAMPLE

By Eguono Voke Akpoduado

Submitted in Partial Fulfillment of the Requirements for the Degree of

Doctor of Psychology

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DISSERTATION APPROVAL

This is to certify that the thesis presented to us by Eguono Akpoduado on

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requirements for the degree of Doctor of Psychology, has been examined and is

acceptable in both scholarship and literary quality.

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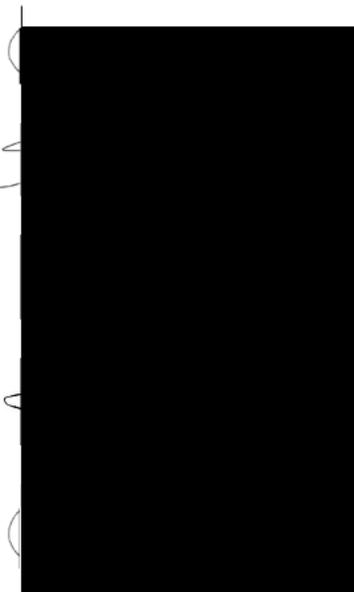
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Abstract

Statistics suggest that crime is occurring at a startling rate and recidivism is a persistent problem in the American criminal justice system. Past research revealed that treatment focused on challenging criminogenic thinking aided in reducing recidivism. Hence, the purpose of this study was to examine cognitive distortions used by criminals and to enhance evidence-based psychotherapy focused on challenging criminogenic cognitions. This study explored the psychometric properties of a self-report inventory of cognitive distortions using a forensic sample and examined overall differences in levels of cognitive distortions. Participants were recruited through social networking sites. Measures were the Inventory of Cognitive Distortions (ICD), the Texas Christian University-Criminal Thinking Scale (TCU-CTS), a criminal history questionnaire, and a demographics questionnaire. Results revealed positive psychometric properties for the ICD. Internal consistency reliability was strong, with a coefficient alpha of .98. Factor analysis revealed five factors, three of which were identical to factors from the original study: externalization of self-worth, perfectionism, and emotional reasoning and decision making. Two new factors were identified: negative expectations and jumping to conclusions and absolutistic/dichotomous thinking. Criminal participants endorsed higher levels of cognitive distortions. The ICD correlated positively and significantly with five of the six subscales on the TCU-CTS. Although cognitive distortions have been shown to perpetuate criminal behavior and recidivism, future research should explore the relationship between cognitive distortions and other factors that contribute to criminal behavior and recidivism.

Keywords: Cognitive distortions, criminogenic distortion, ICD, TCU-CTS

Chapter 1: Introduction

Crime is a serious legal and public health concern. Individuals who commit crimes, like other individuals, actively process information about themselves, their environment, and their future. Such individuals may engage in specific distorted processes that justify their acts, reduce negative feelings, create distance from the victim, promote attributions that support their behavior, and externalize responsibilities for their actions. Although many of these distortions are specific to criminal behavior, an important question remains as to whether such individuals are more generally distorted in their overall thinking.

Statement of the Problem

The Uniform Crime Reporting Program (UCR) by the Federal Bureau of Investigation estimated 1,206,808 violent crimes occurred in 2019 (U.S. Department of Justice, 2020). Aggravated assaults accounted for 68.2% of violent crimes, 22.3% of robbery offenses, 8.2% of rape offenses, and 1.4% of murders (U.S. Department of Justice, 2020). However, trends between 2015 and 2019 indicated a reduction in the rate of violent crime (U.S. Department of Justice, 2020). For example, the UCR indicated that there were 366.7 violent crimes per 100,000 inhabitants in 2019, a 1.0% reduction compared to 2018 and a 15.1% reduction from 2009 (U.S. Department of Justice, 2018). Crimes rates are nonetheless alarming. Empirical investigations to better understand criminal behavior would improve treatment to reduce criminal thinking, activity, and recidivism.

Research on criminal behavior has found that certain maladaptive and unhealthy cognitions, otherwise known as cognitive distortions, may play a role in promoting

criminal behavior. Cognitive distortions are irrational thought patterns involved in the

perpetuation of pathological behaviors (Panourgia & Comoretto, 2017). Additionally,

cognitive distortions are thought processes utilized in justifying criminal behavior.

Research has also found that criminals use cognitive distortions at different stages in

criminal behavior: before the criminal act, during the criminal act, and after the criminal

act. For example, Howitt and Sheldon (2007) found that sex offenders are more likely to

use cognitive distortions such as minimization in explaining the details of their crime,

whereas Yochelson and Samenow (1976) found that criminals may use the cognitive

distortion *cut off* before committing their criminal offenses. *Cut off* is a situation whereby

the criminal compartmentalizes and cuts off their conscience before a criminal act

(Yochelson & Samenow, 1976). Barriga and Gibbs (1996) divided cognitive distortions

into two types: primary and secondary.

Primary cognitive distortions are characterized as self-centered attitudes and

beliefs, whereby the criminal focuses only on their needs, desires, and wants to the extent

that the needs of others are not considered. Secondary cognitive distortions include

minimizations, blaming others, and assuming the worst. *Minimizing* is the process

whereby the criminal reduces the severity of their offense to make their behavior seem

acceptable. In *blaming others*, the criminal misattributes blame for their offense. For

example, a sex offender may justify their criminal behavior by making statements like

"she wanted it." By *assuming the worst*, the criminal attributes hostile intentions to others

and expects the negative outcome (Barriga & Gibbs, 1996). According to Barriga et al.

(2001), primary cognitive distortions are sustained by an egocentric bias, commonly

found among children who have yet to develop strong moral judgments. Barriga and

Gibbs (1996) posited that criminals possess a stunted moral development and, as a result, believe they can do whatever they want and are above the law. Consequently, secondary cognitive distortions serve to protect the criminal's identity by neutralizing feelings of shame and guilt.

Various theories explain the developmental process of cognitive distortions (Cuadra et al., 2014; Szumski et al., 2018). Cuadra et al. (2014) examined the relationship between childhood maltreatment and criminal thinking in criminal behavior. Results indicated that experiences of abuse create schemas that support criminal thinking, thereby leading to criminal behavior. Similarly, Szumski et al. (2018) explained that cognitive distortions can be understood through a multi-mechanism approach. The first mechanism includes implicit schemas that develop in childhood. The second mechanism involves cognitive distortions that develop prior to committing a crime, and the third mechanism consists of cognitive distortions generated upon completing the crime. For example, a child who experienced maltreatment may develop a schema that the world is hostile. This schema remains dormant until the opportunity to offend arises. When the opportunity arises, the criminal accesses this schema and accesses other related examples of how the world is hostile (mechanism II). This mechanism enables the offender *to cut off* their moral conscience and engage in criminal behavior. After committing the offense, the offender may then rationalize their actions by either minimizing intent or denying the severity of damage caused to the victim (mechanism III). Research by Marshall et al. (2009) found that treatment focused on mechanism III (the general standard of treatment) was not effective. Instead, they suggested that treatment should focus on addressing mechanisms I and II, identifying and challenging maladaptive schemas.

Primary cognitive distortions, i.e., self-centered attitudes and beliefs, impede readiness to treatment (Chambers et al., 2008). As cognitive distortions become more entrenched, the criminal strongly denies the existence of a problem, making it difficult to successfully treat the individual. Additionally, Egan et al. (2000) explained that criminals utilize these cognitive distortions to neutralize feelings of guilt and shame due to their criminal behavior. Criminals attempt to achieve this by changing their perception of the event, their behavior, or both. This may involve varying levels of denial. including complete denial of responsibility, denial of intent, denial of harm, denial of frequency, denial of intrusiveness, denial of fantasy, making excuses, and minimization of behavior (Cuadra et al., 2014; Egan et al., 2000; Panourgia & Comoretto, 2017; Szumski et al., 2018). The impact of primary cognitive distortions on treatment success underscores the importance of engaging violent criminals in treatment and challenging their resistance.

Several measures exist to examine criminal cognitive distortions and thinking styles. Some measures focus on cognitive content (criminal thought), whereas others focus on cognitive processing, in which thoughts may lead to criminal actions (Collie et al., 2007). Examples of instruments that used to measure cognitive distortions include the Psychological Inventory of Criminal Thinking (PICTS; Walters, 1995), which measures the processes and content of thinking that promote and maintain a criminal lifestyle. The Criminal Attitudes to Violence Scale (CAVS; Polaschek et al., 2004), Criminal Sentiments Scale-Modified (CSS-M; Simourd, 1997), and the Measure of Criminal Attitudes and Associates (MCAA; Mills et al., 2002) are other measures that examine criminal cognitive distortions. The Inventory of Cognitive Distortions (ICD; DiTomasso & Yurica, 2011) is a measure of cognitive distortions that has been empirically tested and

validated among different populations, including community samples and individuals with psychological disorders (Roberts, 2015; Rosenfield, 2004). However, no research to date has examined the efficacy of the ICD in a criminal population; therefore, this study was designed to expand the research by validating the ICD in this group.

Purpose of the Study

The present study was designed to test the reliability and validity of the ICD in a forensic population to identify determine cognitive distortions utilized by individuals who engage in crime. The goal of this study was to aid future treatment endeavors. For example, if results were to indicate that sex offenders tend to use minimization, clinicians would prioritize this cognitive distortion and address it in treatment. Additionally, research into treatment for offenders has demonstrated that cognitive behavioral therapy (CBT) is efficacious (Hickey, 2012). Given the focus of CBT on targeting maladaptive thoughts, this study investigated unhealthy thoughts in criminal populations using the ICD. Exploring cognitive distortions would help clinicians understand the cognitive process behind offending, facilitating creation of treatment goals and improving outcomes. Understanding cognitive distortions would not only improve treatment outcomes, but also help to increase public safety and reducing recidivism rates.

Research Questions and Hypotheses

What are the psychometric properties of the ICD in a forensic sample?

H_1: The factor structure of the ICD in a forensic population would be similar to the identified factor structure in a previously identified mental health population.

Rationale for H_1: Consistent with previous research, the ICD has been validated in a community sample and in individuals with mental health disorders (Roberts, 2015;

Yurica & DiTomasso, 2011). Additionally, the ICD has been found to correlate with many known psychological disorders, including including personality disorders (Rosenfield, 2004). Psychopathology has been found to be a mediator of criminal behavior (Sinnamon, 2017).

Will criminal behavior be related to cognitive distortions measured on the ICD?

H_2: Participants who endorsed a history of criminal behavior would have significantly higher ICD total scores than individuals who did not endorse engaging in any prior criminal behavior.

Rationale for H_2: The literature suggests that certain psychopathologies are associated with antisocial behaviors that increase the risk for criminality, including personality disorders, psychotic disorders, and affective disorders, such as anxiety, depression, and bipolar disorders (Sinnamon, 2017). Using the ICD, Rosenfield (2004) analyzed the relationship between distorted thinking and either an Axis I or Axis II disorder. There was a positive relationship between the number of Axis I and Axis II disorders and total scores on the ICD. In other words, individuals with psychological disorders were more likely to have higher levels of cognitive distortions.

Will mental health history among criminals be associated with scores on the ICD?

H_3: Criminally involved participants who endorsed a history of mental health disorders would have higher scores on the ICD.

Rationale for H_3: Previous research has indicated that individuals with mental illnesses are overrepresented in the criminal justice system (Prins, 2014), and mental illness overall has been shown to be associated with cognitive distortions (Sinnamon, 2017).

Will the ICD be correlated with the TCU-CTS?

Hypothesis 4: Overall scores on the ICD would be positively correlated with overall scores on the TCU-CTS.

Rationale for H4: Past research has shown that criminals tend to utilize cognitive distortions that foster criminal behavior (Wallinius et al., 2011).

Chapter 2: Review of the Literature

At the end of 2017, over 1.5 million individuals were incarcerated in the United States (Bronson & Carson, 2017). Approximately 650,000 ex-offenders are released every year (U.S. Department of Justice, 2020). Similarly, James (2014) reported that 95% of all inmates will eventually be released and required to have some form of community supervision. Under community supervision, the ex-offender is sentenced to either probation or parole and must adhere to certain conditions. These conditions may include a requirement to complete treatment programs, such as drug and alcohol treatment, sex offender treatment, and relational violence programs (James, 2014). Given this trend, the effectiveness of treatment tailored to ex-offenders is an important public safety consideration.

Offender recidivism is another factor that underscores the importance of effectiveness of offender treatment. Recidivism is defined as the rearrest, reconviction, or reincarceration of an offender within a given period (James, 2014). In a longitudinal study by the Bureau of Justice that examined postrelease offending, 83% were rearrested within 9 years (Alper & Durose, 2018). This high rate of recidivism indicates a failure of the criminal justice system to achieve its goals of deterrence and rehabilitation (Berghuis, 2018). However, meta-analyses have indicated that specific offender treatments are effective in reducing recidivism and criminal behavior (Bogue et al., 2004; Smith et al., 2009).

Martinson's (1974) proclamation that nothing works in rehabilitating offenders began the inquiry into effective treatments for criminal populations (Smith et al., 2009). Beginning in the 1970s, numerous meta-analyses were conducted to challenge the idea

that nothing works (Smith et al., 2009). However, there were significant differences in

effect size, and studies were inconclusive in identifying treatments that worked for

offender populations (Gendreau et al., 2006; Lipsey & Cullen, 2007).

However, Andrews et al. (2006) explained that these differences in treatment

effectiveness were associated with the type of treatment. Consequently, the varying

results of these meta-analyses led to the development of specific principles of effective

intervention: the risk, needs, and responsivity principle (Andrews et al., 2006; Gendreau

et al., 2006). According to the principles of effective intervention, an effective program

with the goal of rehabilitation must provide treatment to high-risk offenders (risk

principle), target criminogenic needs (need principle), and utilize cognitive-behavioral

treatment programs (responsivity principle).

Risk, Need, and Responsivity (RNR) Principles of Effective Treatment

The Risk Principle

This principle consists of two parts: criminal behavior can be predicted, and levels

of treatment services should match the offenders' level of risk (Andrews et al., 1990).

Risk assessments should be administered that focus on dynamic and static factors for

criminal behavior. Dynamic factors, otherwise known as criminogenic needs, include

antisocial attitudes and values, lack of self-control, substance abuse, and self-

management skills, whereas static factors are unchangeable risk factors, such as criminal

history and biological factors (Andrews et al., 2006; Smith et al., 2009). Additionally,

research has indicated that dynamic factors are predictive of recidivism (Bonta &

Andrews, 2003). Because criminogenic needs are predictive of criminal behavior, these

factors should continue to be assessed among offenders (Andrew et al., 2006; Gendreau et al., 2006). Assessments inform treatment plans, which enhance treatment outcomes.

The Criminogenic Need Principle

This principle recommends that offenders to be placed in treatment that targets the following: history of criminal behavior, antisocial personality, criminal thinking patterns, interaction with antisocial peers, family instability, employment, and prosocial activities (Andrews et al., 2006). This principle implies that recidivism will be reduced when offenders receive treatment that targets their specific needs (Andrew et al., 1990, 2006). Studies of pro-criminal attitudes have consistently revealed a positive relationship between criminal attitudes and adult criminal behavior (Bonta & Andrews, 2016; Douglas & Skeem, 2005; Walters, 1996). A positive relationship between recidivism and pro-criminal attitudes has also been identified (Andrews & Wormith, 1984). Hence, treatment addressing criminal thinking paired with interventions targeting other needs, such as substance abuse and employment, are likely to reduce criminal behavior and recidivism.

The Responsivity Principle

This principle requires that offender characteristics be considered before assigning offenders to treatment services (Andrews & Bonta, 2006). In other words, offender characteristics, such as personality, cognitive skills, and stage of change, should inform styles of treatment (Bogue et al., 2004), lending credence to the importance of assessments in treatment. Second, the principle of responsivity requires that offenders be provided with treatment that employs a cognitive behavioral approach effective in the offender population (Bogue et al., 2004; Smith et al., 2009). Cognitive behavioral

approaches have been shown to reduce criminal behaviors by identifying and

restructuring the beliefs, attitudes, and thinking patterns that lead to risky behaviors and

by providing offenders with new decision-making skills and strategies for impulse

control and behavior modification (Clark, 2011).

Criminogenic needs such as criminal attitudes contribute to criminal behavior. To

improve outcomes, treatment programs should utilize assessment tools designed to

address these criminal thinking patterns. Yochelson and Samenow (1976) identified

different thinking patterns used by criminals. However, prior to discussing patterns in

criminal thinking, it is necessary to understand the prevalence of criminal behavior to

appreciate the importance of targeting and identifying criminal thinking and its role in

treatment to reduce crime and recidivism.

Prevalence of Crime in the United States

There has been debate as to the prevalence of crime (Blumstein & Wallman,

2006; Grawert et al., 2018; Morgan & Oudekerk, 2019; Van Dijk et al., 2012). Although

there seems to be a general consensus that crime in the U.S. increased since the 1960s

and decreased in the 1990s (Blumstein & Wallman, 2006; Grawert et al., 2018; Morgan

& Oudekerk, 2019; van Dijk et al., 2012), some argue that this trend has been reversed in

recent years (Morgan & Oudekerk, 2019). Others argue that crime has remained at the

reduced rate (Grawert et al., 2018). Statistics are used to measure criminality and the

effectiveness of the laws that govern society. Consequently, the U.S. Department of Justice

relies on two statistical programs to measure the extent, nature, and repercussions of crime

in the United States: the Uniform Crime Report (UCR) and the National Crime

Victimization Survey (NCVS; U.S. Department of Justice, 2020). The UCR and the NCVS

utilize different methods of data collection, serve different purposes, and focus on different aspects of crime, but together produce a comprehensive perspective in crime in the United States (U.S. Department of Justice, 2020). The UCR measures only crimes reported to the police and incident records transmitted directly to the FBI, whereas the NCVS measures crime reported to and not to the police. The UCR includes data on murder, non-negligent manslaughter, and commercial crimes (including burglary of commercial establishments), whereas the NCVS does not include these crimes. The NCVS includes data on sexual assault, which the UCR excludes. Sexual assault in this context includes attacks or threatened attacks involving unwanted sexual contact between the perpetrator and the victim. Lastly, the NCVS does not collect data on crimes against children younger than 12, the homeless, or those living in institutions such as nursing homes, correctional facilities, or military bases (Morgan & Oudekerk, 2019). Therefore, results on crime trends may differ, depending on which statistics (NCVS or UCR) researchers choose to analyze. Research by Morgan and Oudekerk (2019) found that 57% of violent victimizations were not reported to the police in 2018; hence, crime rate reports derived mostly from the UCR may be inaccurate.

Morgan and Oudekerk (2019) published a comprehensive report on crime trends in the United States from 1993 to 2018, combining the reports from the UCR and NCVS for each respective year. Their findings indicated a 22% increase between 2015 and 2018 in violent crimes perpetuated against individuals who were 12 years and older. This was a result of the increase in the number of victims of rape or sexual assault, aggravated assault, robbery, and simple assault (violent crimes). Although an umbrella term in discussing violent incidents is *assault*, it should be noted that assault includes offenses

such as domestic violence, intimate partner violence, stranger violence, violent crime with an injury, and violent crime with a weapon. In addition to the increase in the total population, Morgan and Oudekerk (2019) found a significant increase in victimization among Caucasians (24%) and males (29%) between 2015 and 2018. Results also indicated a 15% increase in the number of violent incidents between 2017 and 2018. Specifically, the rate of rape or sexual assault (any sexual contact or behavior without the consent of the victim) increased from 1.4 victims per 1,000 persons age 12 or older in 2017 to 2.7 per 1,000 in 2018. Similarly, the rate of assault increased from 14.8 victims per 1,000 persons in 2015 to 18.4 victims per 1,000 in 2018. Property crime rates appear to have decreased between 2014 and 2018. Morgan and Oudekerk (2019) found a 15% decrease in burglary rates and 9% decrease in other kinds of theft. Lastly, results showed a total of 5,954,090 offenders (77% male, 18.3% female, 4.7% both male and female perpetrators) in 2018 and the same number of victims (46.6% male, 53.4% female). In other words, there was a 1:1 ratio between offender and victims in 2018.

Although researchers may continue to debate whether crime has increased or decreased, the percentages and rates of crime make it evident that crime is still a concern. The effects of crime are not limited to its victims, but include families, neighborhoods, and society in general (Harding, 2009). Research on the effects of crime has indicated that the negative impact of crime is experienced economically, socially, and psychologically (Shapland & Hall, 2007). The following section will address the economic, social, and psychological effects of crime.

Economic, Social, and Psychological Effects of Crime

Communities create efforts to prevent crime from occurring, resolve the effects of the crime that has occurred, and punish the offender. These efforts, otherwise known as proactive and reactive measures, are cost effective and impact the economic growth of the nation (National Academies of Sciences, Engineering, and Medicine, 2018). One of these measures includes the establishment of prison and correctional institutions, which Wagner and Rabuy (2017) from the Prison Policy Initiative reported cost $80 billion per year. This excludes the cost of policing, judicial and legal proceedings, public employees, health care, construction, civil assets forfeiture, and cost to families, all of which have been estimated to total $101.3 billion (Wagner & Rabuy, 2017). Together, the annual total of mass incarceration is $182 billion. These are only estimates because the cost of internet-perpetrated crimes, such as credit card thefts and cyber-attacks on business infrastructure, are often difficult to measure (Tcherni et al., 2016). Similarly, Miller et al. (1996) found that personal crimes (resulting in physical and mental harm to another person) cost an average of $105 billion annually in medical costs, lost earnings, and public programs for victim awareness. Tthe cost of crimes to victims averaged $450 billion annually, with violent crime (including driving while intoxicated and arson) accounting for $426 billion and property crimes accounting for $24 billion. Additionally, crime impacts property values, especially in neighborhoods riddled with crime, which impacts the quality of education received by children in those neighborhoods (Harding, 2009; Laurito et al., 2019).

Crime weakens the social fiber of the community. As is the case with conditioning, as crime increases, residents may begin to anticipate future crime, which

may lead to insecurity, fear, distrust, and anxiety (Laurito et al., 2019). A sense of community is lost because residents do not feel safe. Given the economic impact of crime, standards of living will decline, and the cost of living will increase because of the scarcity of resources. Consequently, Karl Marx's conflict theory suggests that residents may begin to compete for limited resources, which then perpetuates other negative effects, such as crime, discrimination between the majority and minority, and oppression of the poor and powerless by the wealthy (as cited in Dahrendorf & Collins, 2006).

The psychological impacts of crime include anger, grief, anxiety disorders, depression, self-blame, shame, social withdrawal, difficulty trusting self or others, inability to concentrate, preoccupation with the crime, concerns about personal safety, problems with important relationships, feeling helpless, concerns about being believed or blamed, negative changes in belief system, increased feelings of vulnerability, increased risk of alcohol and other drug abuse, posttraumatic stress disorder, suicidal ideation, and impaired brain development (Wasserman & Ellis, 2010). Additionally, studies have examined the impact of trauma on brain development and found that experiencing trauma before the age of 5 may alter the development of neural pathways related to fear and arousal (Wasserman, 2004). Therefore, a child exposed to crime, such as sexual abuse or domestic violence, may be prone to perceive certain situations as harmful or dangerous, even when they may be benign.

Given the significant effects of crime on both individuals and the community, it is essential to understand the legal definitions and types of crime, causes of crime, and theories on criminal behavior.

What Are Crime and Criminal Behavior?

According to the United States Code, crime is defined as "willfully disobeying any lawful writ, process, order, rule, decree, or command of any district court of the United States or any court of the District of Columbia" (18 U.S. Code § 402). Hence, criminal behavior is any intentional behavior that violates a criminal code (Bartol & Bartol, 2012). Four elements are needed for a crime to have occurred: an individual, mens rea, actus rea, and injury/hurt (Soumya, 2014). The individual must have voluntarily acted (actus rea) and intentionally (mens rea) committed the crime. The Federal Bureau of Investigation (FBI), using the National Incident-Based Reporting System (NIBRS), categorizes crime into four major types: crimes against persons, crimes against property, crimes against society, and other.

Crimes against persons include murder, aggravated assault (use of weapon during act), forcible sex offenses, non-forcible sex offenses (incest and statutory rape), kidnapping, simple assault (no weapon), and intimidation (FBI, 2020). Crimes against property include arson, bribery, burglary, forgery, criminal mischief (vandalism), embezzlement, extortion, fraud, larceny (e.g., shoplifting, pocket-picking, purse-snatching, and bicycle theft), theft from motor vehicle, motor vehicle theft, robbery, and stolen property (buying, receiving, selling or possessing, FBI, 2020). Crimes against society include drug violations, gambling, child pornography, prostitution, weapons law violations (FBI, 2020).

All other offenses include fraud involving accounts with nonsufficient funds, curfew violations, disorderly conduct/disturbing the peace, nonviolent family offenses (nonviolent acts by family members that threaten physical, mental, or economic well-

being of another family member), drunkenness, and other sex offenses (fondling,

indecent exposure, window peeping, child enticement, failure to register as a sex

offender; FBI, 2020).

Crime can be divided into nonviolent crimes and violent crimes. Nonviolent

crimes do not involve the use of force or injury to another person, whereas violent crimes

generally involve the use or threat of force and bodily injury (Bartol & Bartol, 2012.).

Crime can also be classified as felonies, misdemeanors, felony-misdemeanors, and

infractions (Saylor Academy, 2012). Felonies are the most serious crimes; they involve

dangerous intent and may result in the loss of life, life-threatening injuries, and

destruction of property. Misdemeanors are less serious than felonies because the intent

and resulting effect of the crime are less extreme. Felony-misdemeanors are crimes that

may be punished a felony or misdemeanor, depending on the circumstances. Lastly,

infractions are the least serious crime and involve minor offenses such traffic tickets.

Although the FBI has created a system to classify and categorize each type of

crime, frequent offenders do not specialize in any one particular kind crime, such as theft

or drug trafficking; instead, they tend to engage in a variety of offenses, ranging from

minor to violent offenses (Bartol & Bartol, 2012). Consequently, researchers interested in

examining personality and criminal behavior often encounter difficulty in linking

personality types to specific kinds of crime (Listwan et al., 2007). Similarly, researchers

assessing the relationship between race, crime, and ethnicity often find no significant

differences (Piquero & Brame, 2008). Some scholars have argued against personality and

proposed that criminals offend based on the intersection between time and space (Wilcox

& Cullen, 2018). In other words, given the right time and opportunity (situational

opportunity), a criminal will offend without regard for type of crime (Wilcox & Cullen, 2018). Given the difficulty in explicating specific criminal offenses based on demographics or personality, other researchers have chosen to examine criminal typologies.

Criminal Typologies

During the early 20th century, Ellis (1907) introduced the idea that criminals can be categorized into three major types: instinctive, occasional, and habitual. Ellis (1907) titled the instinctive criminal a "moral monster," with criminality being a major part of the individual's personality and identity. Although this type of criminal is uncommon, the instinctive criminal is a frequent offender, impulsive, reluctant to change, and very dangerous. This overlaps with scientific literature reporting that the most persistent 5% or 6% of offenders are responsible for at least 50 to 60% of known crimes (Lyman & Potter, 1997). According to Ellis (1907), the occasional offender is the individual who commits crime out of economic necessity, social pressure, or other situational factors. This type of criminal may become attracted to the criminal lifestyle and, with repeated acts of crime, will evolve into the third category, a habitual criminal. The habitual criminal is one who has come to accept criminality as a way of life. Although crimes committed by the habitual criminal may not be as dangerous as those of the instinctive criminal, habitual criminals engage in a variety of misdemeanors and may occasionally engage in felonious behaviors.

In the middle of the 20th century, Abrahamsen (1952) employed a more psychological approach and classified criminals into four categories, based on psychodynamic theories: monetary, neurotic, unconscious guilt, and character disorder.

Abrahamsen (1952) proposed that monetary offenders commit crimes to fulfill their materialistic needs, unlike neurotic offenders, who are compelled to commit because of "unconscious conflicts." Neurotic criminals tend engage in kleptomania, fire setting, or crimes involving sexual fetishes (Abrahamsen, 1952). Overlapping with neurotic offenders are those driven by unconscious guilt; they commit crimes to place themselves in situations where they may be caught and punished (Abrahamsen, 1952). Lastly, Abrahamsen (1952) categorized pathological liars, cheaters, swindlers, con men, alcoholics, drug addicts, nymphomaniacs, pedophiles, rapists, and murders as offenders with a character disorder.

Guttmacher (1972) proposed that criminals belong to a different set of four major groups: normal, accidental or occasional, organically or constitutionally predisposed, and psychopathic or sociopathic. Normal criminals are the most common type of criminals, raised in dysfunctional families and associating with criminally minded peers (1972). Normal criminals consistently engage in nonviolent criminal behaviors. Guttmacher (1972) defined the accidental or occasional criminal as the law-abiding citizen who is enticed into committing isolated acts of crime due to certain circumstances. Organically or constitutionally predisposed offenders are those with cognitive impairments, such as intellectual disabilities, dementia, and other organic brain syndromes, that render them susceptible to impulsive criminal behavior or to being manipulated by others to commit crimes (Guttmacher, 1972). Lastly, psychopathic and sociopathic criminals are the most dangerous kinds of criminals (Guttmacher, 1972). They are repeat offenders who commit violent crimes and continuously seek out opportunities to exploit and injure others, without any feelings of guilt (Guttmacher, 1972).

More recently, Moffitt used a developmental approach and categorized criminals into life course-persistent offenders (LCPs) and adolescent-limited offenders (ALs). Moffitt's theory has been well received in criminology and empirically supported in scientific literature on the psychology of crime and delinquency (Bartol & Bartol, 2012). According to Moffitt (2017), LCPs begin to exhibit neurological problems during childhood, such as difficult temperaments as infants, attention deficit disorders, hyperactivity in elementary school, and other learning problems as they progress through their schooling. Moffitt (1993) added that these neurological problems tend to be present before or soon after birth. Consequently, these children are susceptible to impairments in judgement and decision making, which become more apparent in their adulthood (Moffitt, 1993). Due to behavior problems, LCPs tend to be ignored by peers and frustrated parents (Moffitt, 1993). This causes them to miss opportunities to practice prosocial and interpersonal skills during their childhood development (Bartol & Bartol, 2012). LCPs exhibit antisocial behavior beginning in early childhood that is sustained at a high level across time and circumstances throughout the lifespan (Moffitt, 1993). Research indicates that LCPs are responsible for a large percentage of violent crimes, and although they constitute between 5% and 10% of the population, they are responsible for 50% of all crimes (DeLisi, 2001; Lyman & Potter, 1997).

In contrast, adolescent limited offenders (ALs) are those who begin offending during their adolescent years, due to peer pressure and societal factors, and stop offending around the age of 18 (Bartol & Bartol, 2012). Moffitt (1993) suggested that ALs desist from criminal behavior as they approach the demands of adulthood. Unlike LCPs, ALs do not exhibit antisocial behaviors and tendencies during childhood (Moffitt,

1993). Moffitt (1996) noted that in some cases, the offending frequency and violence level of LCPs and ALs may be similar during adolescence. ALs engage in criminal behaviors that symbolize autonomy from parental control, such as vandalism, drug and alcohol offenses, truancy, and other status offenses (Bartol, 2002). However, they begin to realize the long-term consequences of continuing criminal behavior and desist from crime (Bartol & Bartol, 2012).

Other researchers have argued that a dual developmental path does not encompass criminal typologies and have proposed the addition of three more types of offenders to Moffitt's theory (D'Unger et al., 1998; Nagin et al., 1995; Nagin & Land, 1993; White et al., 2001). These researchers identified five developmental paths to offending: adolescent-limited offenders, life course-persistent offenders, low level chronic offenders (LLCs – begin offending in early adolescence, plateau during mid-teens and remain at this offending level through adulthood), those with non-offending patterns, and those who begin their criminal careers from late adolescence into adulthood.

Overall, the common elements across these typologies are: (a) law-abiding citizens who are tempted into committing isolated crimes as a result of certain circumstances; (b) lifestyle criminals who habitually commit petty crime, punctuated by sporadic felony offenses; (c) rare but highly dangerous criminals who commit serious and violent offenses; and (d) individuals who commit crimes as a result of cognitive impairments, psychosis, fetishes, and organic brain syndromes. Although these typologies have been categorizing different types of offenders, the question that is the underpinning of criminology – what causes crime? – has yet to be answered. Researchers have reported that there is no single cause of crime, and studies on the causes of crime

have only shown correlations between factors and crime (Gaines & Miller, 2017). For example, multiple studies have found a positive relationship between neighborhood poverty and violent offenses (Lee, 2016; Steffensmeier & Haynie, 2000; Warner & Fowler, 2003); however, this should not be interpreted to mean that poverty causes crime because correlation does not mean causation. Due to the complexity of delineating the exact causes of crime, criminologists have uncovered information regarding why individuals commit criminal acts (Gaines & Miller, 2017). This information has been useful in the creation of criminological theories regarding the causes of crime.

Causes of Criminal Behavior: Theoretical Perspectives

This section will provide an overview of major criminological theories that seek to explain the causes of crime. It is important to note that each theory has its own strengths and weaknesses and may not be applicable to every type of crime. The theories that will be examined can be categorized as follows: choice theories, life course theories, biological theories, sociological theories, and psychological theories.

Choice Theories

Proponents of this theory argue that an individual commits crime because they choose to do so (Gaines & Miller, 2017). According to this theory, the criminal weighs the costs and rewards of a criminal act, and when the reward outweighs the cost, the criminal is most likely to offend (Gaines & Miller, 2017). Additionally, this theory holds that these rewards either be financially or emotionally based (Gaines & Miller, 2017). Individuals may be seduced by the glamour of crime and choose to engage in criminal activity for the excitement and thrill of crime.

Life Course Theories

The life course perspective holds that criminal behavior can be predicted by viewing life events in the context of life events, transitions, and trajectories (Pratt, 2016). Trajectories are pathways over the life course, involving long patterns of events such employment or family history (Pratt, 2016). Transitions include short-term events and turning points that involve life changes, such as marriage and parenthood (Pratt, 2016). Life course theory states that an individual's propensity to criminal behavior is based on a culmination of their life experiences. However, Gottfredson and Hirshi (1990) argued that low self-control, not just life events, increases the likelihood of criminal behavior.

Biological Theories

Recent literature has underscored the importance of considering biological factors (psychophysiology, brain, and genetics) in understanding criminal and antisocial behavior. For instance, research has found a relationship between blunted autonomic functioning and antisocial behavior, which can be explained by the fearlessness and sensation-seeking hypothesis (Choy et al., 2015; Portnoy & Farrington, 2015). The fearlessness hypothesis holds that because antisocial individuals have blunted autonomic functioning, they do not experience appropriate physiological responses to risky situations (Portnoy et al., 2015; Raine, 2002). The sensation-seeking hypothesis holds that having a blunted autonomic functioning is an uncomfortable state of being; therefore, in order to achieve homeostasis, criminals engage in antisocial behaviors to raise their levels of arousal (Portnoy et al., 2015; Raine, 2002). Additionally, Ling et al. (2018) noted that blunted autonomic functioning impairs emotional intelligence, thereby increasing the likelihood of psychopathic traits.

Similarly, research on the role of the brain in criminal behavior has suggested that criminals tend to have reduced brain volumes and impaired functioning and connectivity in areas related to executive functions, emotion regulation, decision making, and morality (Banks et al., 2007; Coutlee & Huettel, 2012; Meijers et al., 2017; Raine & Yang, 2006), but greater volumes and functional abnormalities in reward regions of the brain, such as the striatum (Korponay et al., 2017). Other researchers have found that lesions in the prefrontal cortex, which is responsible for higher-level cognitive process, are likely to cause disruptions in moral and social development (Taber-Thomas et al., 2014).

Meta-analyses have suggested that the level of heritability of antisocial behavior is between 40% and 60% (Portnoy et al., 2013). Other studies have suggested that certain interactions between genes and the environment increase the likelihood of antisocial behavior. For example, in a study of African American females, having the A1 allele of the DRD2 gene or a criminal father did not individually predict antisocial behavior, but having both the A1 allele and a criminal father increased the risk for criminal involvement (DeLisi et al., 2009). Similarly, Beach et al. (2013) found that females who had experienced childhood sexual abuse had alterations in the methylation of the 5HTT promoter region, which has been associated with an increase in antisocial behavior. Lastly, research has shown that the monoamine oxidase A (MAOA) gene has a moderating effect on the relationship between maltreatment and antisocial behaviors (Byrd & Manuck, 2014). Individuals with low MAOA and a history of maltreatment were more likely to engage in antisocial behaviors than individuals with high MAOA.

Sociological Theories

Sociological explanations of crime are based on the premise that a person's

environment can contribute to the onset of criminal activity and behavior (Miller, 2017).

Sociologists have developed various theories to explain the cause of criminal behavior.

According to Durkheim (1893), normlessness, which is a lack of shared standards of

expected social behavior and social values, can cause an individual to commit crime. In

other words, crime can be caused by a breakdown in societal norms that may hinder

perceptions of behaviors that would otherwise be considered criminal. In 1897, Durkheim

coined the term *labeling theory,* which posits that individuals respond to the labels they

are given. For example, if a child is labeled as delinquent, he or she is likely to internalize

that label and may begin to act in a manner that fits the label. In 1929, Sutherland

proposed the *differential association theory,* which holds that criminal behavior is learned

and no individual is born a criminal; criminals become involved in crime by learning

from their environment and criminally involved associates. First, the individual learns the

different techniques and methods of crime and then internalizes their identity as a

criminal, based on their own needs and the needs of their peers, because this identity

gives them a sense of meaning that was unattainable through societal norms (Miller,

2017). Merton (1938) developed *strain theory*. According to strain theory, society places

certain pressures on individuals to attain success. However, when certain individuals find

they cannot achieve success by conforming to societal rules, they consider other options,

such as criminal activities. In 1969, Hirschi developed the *social-control theory* of crime,

which suggests that four factors bond an individual to society: attachment (to family,

friends, and social groups), commitment (to activities or educational or career goals),

involvement (in the community), and belief (in wider social values). Lastly, similar to the differential association theory, Bandura (1973) established *social learning theory,* which holds that humans learn by observing others, as well as from feedback from their own behaviors. Consequently, by watching the rewards and punishments that result from their own behaviors and those of others, criminals are either more likely to engage in or desist from criminal behavior.

Psychological Theories

Psychological theories of crime consider individual factors that may contribute to the onset of criminal behavior. These individual factors include inadequate socialization, negative childhood experiences, mental illness, cognitive ability, poor interpersonal skills, and personality. Past research has strongly suggested that exposure to harsh parenting, deviant peers, racial discrimination, and other adverse conditions such as child maltreatment increases the chances that a person will engage in criminal activity (Reid et al., 2002; Simons & Burt, 2011; Warr, 2002). For example, Mendez et al. (2022) found that children who had been exposed to trauma such as neglect and physical and sexual abuse were more likely to engage in gang and criminal activity, regardless of race. Poor cognitive abilities, including poor emotional intelligence, late language development, poor self-regulation skills and poor executive functioning, have been linked to criminal behavior (Bartol & Bartol, 2012; Coutlee & Huettel, 2012). Researchers have found that individuals who engage in criminal activity are less likely to have insight into their own behaviors and little emotional sensitivity toward others (Bartol & Bartol, 2012). For example, overly aggressive children tend to have a hostile attribution bias, whereby they interpret harmless words and the intentions of others as hostile (Miller, 2017). Lastly,

individuals with low self-control who are prone to impulsivity, egocentricity, irritability, and irresponsibility have been found to have a greater likelihood of engaging in criminal behavior (Gottfredson & Hirschi, 1990; Miller, 2017).

In summary, all these theories suggest the causes of criminal behavior are multifaceted and no one theory can account for why an individual may choose to engage in criminal activities. As with understanding the causes of criminal behavior, there has been a trend in analyzing how criminals think and rationalize their behaviors to determine if their mental processes are different from the noncriminal population (Miller, 2017; Walters, 2002; Yochelson & Samenow, 1976).

Criminal Thinking

Systematic explorations of criminal cognition began with the research by Yochelson and Samenow (1976). The purpose of their study was to "develop a conceptual framework based on a dissection of thought process" (Yochelson & Samenow, 1976). They published *The Criminal Personality* based on a 16-year longitudinal study of patients at St. Elizabeth's Psychiatric Hospital found not guilty by reason of insanity. Participants also included patients being evaluated for determination of their mental state at the time of the crime, including nonhospital subjects, criminals on parole and probation, and people who were actively engaged in criminal behaviors but had not been arrested (Yochelson & Samenow, 1976). Participants were interviewed about their personal histories and criminal behaviors. Yochelson and Samenow (1976) concluded that the search for the cause of criminal behavior is futile because the criminal, sociologic, and psychologic factors serve as acceptable excuses. They insisted that criminals were rational actors, similar to noncriminals, with the only difference being that

the thinking processes of criminals consist of errors that perpetuate criminal behaviors (Bartholomew et al., 2017).

Yochelson and Samenow (1976) rejected sociological and psychoanalytic theories of crimes because they believed these theories took away responsibility from the criminal. However, Yochelson and Samenow (1976) suggested that the criminal personality emerges from a combination of different thinking patterns that result in criminal behavior. Consequently, they identified 52 thinking errors characteristic of criminals. They suggested that whereas noncriminals may utilize some criminal thinking errors, the difference is the extent and to which criminals use these thinking errors and their pervasiveness that constitutes the criminal personality (Yochelson & Samenow, 1976).

Yochelson and Samenow (1976) suggested that criminality exists on a continuum consisting of the responsible criminal, irresponsible nonarrestable criminal, irresponsible arrestable criminal, and the irresponsible extreme criminal. The responsible criminal has a lifestyle of hard work, fulfilment of obligations, and consideration of others (Yochelson & Samenow, 1976). Although the responsible criminal may have the urge to engage in criminal behavior, they are able to resist this urge without having to make a conscious choice, and even when they engage in criminal behavior, it does not become a way of life (Yochelson & Samenow, 1976). Irresponsible nonarrestable criminals are those who can be considered irresponsible, but do not violate the law, including defaulters, liars, unreliable people, those who come to work late and/or perform poorly at work, and those who fail to fulfill their promises at work and at home (Yochelson & Samenow, 1976). Irresponsible arrestable criminals have all the thinking patterns of the extreme criminals,

but their criminal activities are less heinous (Yochelson & Samenow, 1976). Lastly,

Yochelson and Samenow (1976) stated that extreme criminals constitute a small fraction

of the population and are responsible for the most heinous crimes. The 52 thinking errors

they identified (1976) are characteristic of extreme criminals and were divided into three

categories. The first category, called Criminal Thinking Patterns, includes:

- *Energy* - The criminal is extremely energetic and has a constant need for mental and physical stimulation).

- *Fear* – Fear in the criminal is intense, persistent and widespread. he is afraid of death, humiliation, and most importantly of being caught.
  Zero State – Because the criminal most fears being reduced to nothing, zero state occurs when the criminal's self-esteem is at its lowest. In zero state, the criminal believes he is worthless, everyone else sees him this way, and this feeling will last forever (permanence). The combination of the feeling of worthlessness and permanence could cause the criminal to feel suicidal.

- *Anger* – The criminal is chronically angry and utilizes anger to gain control of most situations.

- *Pride* – The criminal views himself as better than everyone else even when that is not the case.

- *Power Thrust* – When experiencing a zero state, the criminal uses power to gain dominance in his daily living, work, speech, sexual behaviors, and criminal behaviors.

- *Sentimentality* – Known as the "soft side" of the criminal. Criminals are often sentimental towards their mothers, children, or hobbies.

- *Religion* – The religious sentimentality sometimes characteristic of criminals. The criminal perceives a duality of life, i.e., good and evil, God and the devil. Although the criminal may be religious, he does not perceive religion as a way of life, but believes that a few concrete acts such as going to church and praying make him a religious person.

- *Concrete Thinking* – Otherwise known as black-and-white thinking or all-or-nothing thing. the criminal sees others as wrong and his behavior as right.

- *Fragmentation* – The criminal has a tendency to change his or her mind constantly, making promises and then breaking them.

- *Uniqueness* – The criminal feels the need to show that he is different and special. He believes that he deserves special treatment and that he would be the best at everything he attempts.

- *Perfectionism* – The criminal has extremely high standards that he does not apply to himself. High standards are a way for the criminal to gain power and control over others.

- *Suggestibility* – The criminal can be easily or readily influenced when the behavior will reward him with what he wants. however, he does not always want to listen to any suggestion that involves thinking and acting responsibly.

- *The Loner* – The criminal leads a private and secretive life. He believes that he is one against the world and is different from the people around him.

- *Sexuality* – The criminal engages in many sexual experiences, but does not always enjoy the pleasure of sex. Pleasing his partner makes him feel special and important. The criminal views his partner as an object than a person with individual needs. The

most exciting part of sexual activity is the adventure or conquest. Responsibility and commitment toward sexual partners are unappealing and constraining. and

- *Lying* – Lying becomes an instant behavior and is used to define the criminal's reality and not the truth, thus maintaining control over others. Lying makes the criminal feel smarter and in charge of relationships and situations (Yochelson & Samenow, 1976).

The second category is Automatic Errors of Thinking and includes:

- *Closed Channel* – The criminal keeps secrets and pretends they do not have a closed mind. the criminal believes he or she is always right and does not need any information from others. this keeps the criminal from considering other points of view and explaining why they believe their way is the best.

- *"I Can't"* – This is an example of the opposites seen in thinking errors of criminals. whereas the criminal believes he or she is special and invincible, the criminal uses "I can't" to avoid responsible actions. If an object of desire is not easily given to them, the criminal rejects accountability.

- *The Victim Stance* – When the criminal is forced to take responsibility for his actions, he or she displaces blame on society or any other factor possible.

- *Lack of Time Perspective* – When the criminal wants something, they want it immediately. They expect others to give them what they want and on their own terms.

- *Failure to Put Oneself in Another's Position* – The criminal is self-centered and cares only about things that concern them.

- *Failure to Consider Injury to Others* – The criminal is always willing to do anything to win, even at the cost of others.

- *Failure to Assume Obligation* – The criminal believes he is responsible. even though he or she engages in many irresponsible actions. However, if forced into responsibilities, the criminal will resist and become angry.

- *Failure to Assume Responsible Initiatives* – The criminal will refuse and decline responsible obligations that do not reward them personally.

- *Ownership* – The criminal believes that what is theirs is theirs, and what belongs to others also belongs to them.

- *Fear of Fear* – The criminal is afraid of fear and looks down on it. When he or she notices fear in others, they will point it out and harass the person who is afraid. Fear is perceived as a sign of weakness and powerlessness.

- *Lack of Trust* – Although the criminal does not trust others, they expect and demand to be trusted.

- *Refusal to Be Dependent* – Dependence is perceived as a sign of weakness to the criminal. They would rather manipulate others with helplessness than ask for help.

- *Lack of Interest in Responsible Performance* – If something does not offer an instant thrill or reward, the criminal becomes disinterested.

- *Pretentiousness* – The criminal is extremely pretentious in nature and often manipulative of others.

- *Failure to Make an Effort or Endure Adversity* – The criminal easily gives up in the face of adversity.

- *Poor Decision Making for Responsible Living* – In most of the criminal's decision making, there is no weighing of pros and cons, and no careful evaluation of a course of action (Yochelson & Samenow, 1976).

The third category is From Idea Through Execution and includes:

- *Extensiveness of Criminal Thinking* – The criminal mind is constantly ruminating about crime, ranging from petty crime to planning heinous offenses. They regard crime as their work.

- *Deterrents* – The criminal has internal and external deterrents that prevent them from engaging in every crime they have considered. External deterrents include the fear of being caught, whereas internal deterrents are conscience components of the criminal that oppose particular crime. An example is a criminal who is will to murder, but not to commit child abuse or rape.

- *Corrosion and Cutoff* – The criminal engages in a process of corrosion and cutoff to overcome sentimental thoughts or deterrents that hinder them from committing crime. Corrosion is the process of blocking out arguments against criminal behavior and of creating reasons for committing illegal behaviors. Cutoff is the mental process that prevents arguments against committing illegal or harmful acts from entering the criminal's mind. The gradual process of corrosion is completed by the final and automatic cutoff of fear and arguments against engaging in crime.

- *Building Up the Opinion of Oneself as Good* – The criminal's belief that he is a good person serves as an internal corrosion of deterrents.

- *Deferment* – The criminal believes that he will one day quit crime after "the big score – the ultimate crime." This keeps him in the criminal lifestyle, as he is always planning the "big score" that may never occur.

- *Superoptimism* – The closer the criminal gets to committing a crime, the surer he becomes that things will go according to his plan. Superoptimism becomes a necessary tool to avoid fear and other deterrents.

- *Emergence of Nonpsychotic Hallucinatory Deterrents* – Not to be confused with a manifestation of psychosis, Yochelson and Samenow (1976) found that most of the criminals heard a voice at a critical time before committing offenses, not after. These voices urge the criminal to refrain from crime and may take the form of a parent or authoritative figure urging them to do good.

- *Reemergence of Fear During the Execution of the Crime* – Immediately before committing crime, the criminal may experience a return of fear and consequently a slight decrease in superoptimism.

- *When the Criminal Remains Unapprehended* – After the crime, the criminal may become paranoid and experience a return of the fear of apprehension that may last for several minutes or days. The criminal becomes hyperalert and suspicious because they believe they may have left some clue at the crime scene or were seen by someone.

- *Celebration After the Crime* – After committing a risky criminal act, the criminal engages in a celebration through drugs, alcohol, sex, or engaging in other petty crimes to maintain the "high" from the successful criminal act.

- *The Criminal Apprehended* – The criminal perceives getting caught as an injustice. His mental state is as though the crime never happened, and he will engage in behaviors to exonerate him from the charges.

- *The Psychology of Accountability* – The antisocial criminal concocts self-serving explanations when held accountable for criminal behavior. For example, a sex offender may share that he was sexually abused as a child, even though he was never abused. The criminal uses excuses to mitigate his behavior and manipulate others to feel sympathetic towards him.

- *Premeditation vs. Impulse–Compulsion* – Yochelson and Samenow (1976) held that no criminal act is based on impulse; instead, the criminal "weighs the feasibility, practicality, and appeal of … ideas and rejects most of them in a selection process."

- *The Effectiveness of Deterrents* – Societal punishments do not serve as deterrents to the extreme criminal. In fact, certain criminals may perceive certain criminal acts to be more exciting because "it is serious enough to warrant a long sentence" (Yochelson & Samenow, 1976).

The research by Yochelson and Samenow (1976) received some criticism about the manner in which the study was conducted. Researchers including Walters (1990, 2002) believed that that their research lacked generalizability and applicability, failed to recognize environmental influences on thinking errors, and lacked sufficient operationalization (Mandracchia et al., 2007). Walters (1990, 2002) adapted and expanded on Yochelson and Samenow's (1976) conceptualization and established eight patterns that constitute criminal thinking. The thinking errors identified by Walters (2002) are:

- *Mollification* – a tendency to rationalize criminal behavior by blaming external forces

- *Cutoff* – the ability to quickly stop any thoughts that would deter a criminal act

- *Entitlement* – the feeling that one is special and has the right to commit crime or do whatever one wants

- *Power orientation* – the need to be in control at all times; viewing others as weaklings who should be exploited

- *Sentimentality* – counteracting wrongdoings by doing good things or invoking good thoughts of the good things the criminal has done

- *Superoptimism* – the tendency to overestimate their ability

- *Cognitive indolence* – the tendency to use cognitive shortcuts instead of trying to figure out complex problems

- *Discontinuity* – lack of stability, self-discipline, and reliability that is characteristic of the criminal (walters, 2002).

According to Walters (1990), personal variables, including intelligence, heredity, temperament, situational variables, socioeconomic status, exposure to violence, and parental involvement and discipline, are factors that contribute to the development of criminal behavior.

Mandracchia et al. (2007) examined the thinking patterns of 435 offenders and created a total of 77 thinking errors that can be categorized in three major categories:

- *Control* – the idea that most habitual criminals need power and to be in control at all times, even to the extent of manipulating others

- *Cognitive immaturity* – Although the criminal presents a tough façade, there is a tendency for them to react to situations in a childlike manner. They react impulsively, rely on generalizations, and neglect analysis and self-reflection.

- *Egocentrism* – the tendency for criminal to think only about themselves and what

  others can do for them.

These studies led to the creation of measures of criminal attitudes, thinking styles, and distortions, including the Psychological Inventory of Criminal Thinking Styles (PICTS; Walters, 2001), the Measure of Criminogenic Thinking Styles (MOCTS; Mandracchia & Morgan, 2011), the Criminal Attitudes to Violence Scale (CAVS; Polaschek et al., 2004), the Measure of Criminal Attitudes and Associates (MCAA; Mills et al., 2001), Criminogenic Cognitions Scale (CSS; Tangney et al, 2002), the Criminal Sentiments Scale-Modified (CSS-M; Simourd & Van De Ven, 1999), the Criminal Thinking Profile (CTP; Mitchel & Tafrate, 2011), the How I Think Questionnaire (HIT; Barriga et al., 2000), and the Texas Christian University Criminal Thinking Scales (TCU-CTS; Knight et al., 2006).

Measures of Criminal Thinking

As previously mentioned, there are varying approaches in the measures of criminal thinking. Some measures focus on criminogenic cognitive content (what the offender thinks or imagines prior to, during, and following a criminal act), whereas others address criminogenic cognitive processing (the processes that produce criminal thought and may result in criminal behavior; Collie et al., 2007). The CAVS, CSS-M, and MCAA generally focus on cognitive content, and the PICTS, MOCTS, HIT, CTP, CSS, and TCU-CTS focus on cognitive processing. The PICTS is the most commonly used measure for criminogenic processing and has been shown to have high validity and reliability (Walters, 1995). A major problem with the existing measures is a lack of substantial validity and reliability (Simourd & Olver, 2002); however, the TCU-CTS has

been empirically tested with promising results and used in forensic treatment programs (Knight et al., 2006).

The TCU-CTS is based on the original work of Walters (1995), who established eight criminal thinking patterns and went on to create the PICTS (Institute of Behavioral Research, 2005). The TCU-CTS was also adapted from the Bureau of Prisons Survey of Program Participants, with refinements made as part of studies conducted by Texas Christian University in collaboration with the Bureau of Prisons and the National Institute of Corrections (Institute of Behavioral Research, 2005). The CTS consists of six scales: Entitlement, Justification, Personal Irresponsibility, Power Orientation, Cold Heartedness, and Criminal Rationalization, which are important in treatment programs for correctional populations. Evidence of the reliability and validity of the CTS was established in a national collaborative study with a sample of over 3,266 clients from 26 programs (Institute of Behavioral Research, 2005). Confirmatory factor analysis was used to verify the CTS factor structure, and coefficient alpha reliabilities were computed as measures of internal reliability. A subsample of 322 clients was tested 1 week after the initial administration to assess test-retest reliability (Institute of Behavioral Research, 2005). The client level coefficient alpha and test-retest reliability for each scale were: Entitlement (.78; .69), Justification (.75; .70), Personal Irresponsibility (.68; .81), Power Orientation (.81; .75), Cold Heartedness (.68; .66), Criminal Rationalization (.71; .84).

Thus, there is a plethora of instruments designed to measure cognitive distortions. However, the current measures have limitations that can be addressed with a different instrument.

Several researchers have identified common problems with measures that have been designed to measure criminal thinking and attitudes. First, Gavel (2017) identified a lack of uniformity in the terms used to define criminogenic cognition (criminal thinking styles, criminal attitudes, criminogenic thinking, antisocial attitudes, and antisocial sentiments) and the measures used to assess them. Second, Barriga et al. (2001) noted a lack of theoretical underpinning to existing measures of criminal thinking. Third, there appears to be mixed evidence of the reliability and validity of certain measures (Knight et al., 2006). Fourth, empirical evidence for some measures fails to address changes in criminogenic risk because of therapeutic intervention (Gavel, 2017). Lastly, most of these measures fail to address the role of mental illness in criminal behavior. Although the lack of a uniform construct for criminal thinking has yet to be resolved, the Inventory of Cognitive Distortions (DiTomasso & Yurica, 2011) is a measure that addresses and compensates for some of the limitations noted.

Inventory of Cognitive Distortions

The Inventory of Cognitive Distortions is a 69-item measure describing 11 cognitive distortions, based on Beck's cognitive theory (Beck, 1967, 1976). These eleven cognitive distortions are

- *Externalization of self-worth* – developing self-worth based on external world views

- *Fortune-telling* – anticipating negative outcomes

- *Magnification* – exaggerating the importance of negative or positive events

- *Labeling* – attaching negative names to oneself

- *Perfectionism* – striving to meet some internal or external standard of perfection

- *Comparison to others* – comparing oneself to others in an inferior manner

- *Emotional reasoning* – assuming that negative emotions reflect how things really are

- *Arbitrary inference/jumping to conclusions* – assuming and drawing negative conclusions in the absence of evidence

- *Emotional reasoning and decision making* – relying on gut feelings and emotional states in making decisions

- *Minimization* – discounting the importance of events or things as insignificant

- *Mind reading* – assuming and concluding that one knows what others are thinking and making negative interpretations without evidence (DiTomasso & Yurica, 2011).

Beck's (1967, 1976) cognitive theory held that one's negative view of the self, the world, and the future contributes to psychological disorders and influences behaviors. Additionally, Beck's theory held that early life experiences shape and maintain fundamental beliefs about the self, the world, and the future (Beck, 1967, 1976). Consequently, negative schemas serve as the foundation for the development and maintenance of emotional disorders, such depression and anxiety (Beck, 1967, 1976). These schemas then create secondary beliefs that function as rules or assumptions for perceiving the self, the world, and the future, otherwise known as the cognitive triad (Beck, 1967, 1976). Secondary beliefs establish learned ways of thinking that support negative schemata, which then create distorted thinking (Beck, 1967, 1976). Hence, the goal of Beck's cognitive theory is to change negative cognitive distortions by altering maladaptive core beliefs and schema (Beck, 1967, 1976).

Although the ICD is not a diagnostic measure, it is a tool for assessing cognitive distortions that may be exacerbating clinical cognitions making an individual susceptible to psychological problems (Roberts, 2015). Additionally, DiTomasso and Yurica (2011)

noted that the ICD can be beneficial in identifying an individual's use of particular

cognitive distortions, congruent with the goal of this study. Second, DiTomasso and

Yurica (2011) stated that the ICD can be a useful tool for clinicians to improve clients'

meta-cognitive skills by educating them on the role of cognitive distortions in

psychological disorders. Lastly, DiTomasso and Yurica (2011) noted that the ICD can be

used to assess changes in cognitive distortions throughout treatment. The ICD can be

useful in the treatment of forensic populations because it addresses the shortcomings that

currently exist in instruments designed to measure criminal thinking.

In summary, criminogenic cognitive distortions play a significant role in criminal

behavior. Andrews and Bonta (2010) highlighted the importance of challenging

maladaptive criminal cognitions in treatment. Identifying criminogenic cognitions brings

us closer to resolving the problems with crime and criminal behavior. However,

identifying cognitive distortions associated with mental illnesses that may be

exacerbating criminal attitudes and behaviors brings us even closer to identifying specific

cognitive distortions, thereby making it easier to tailor forensic treatment and target and

challenge maladaptive cognitions. The purpose of this study was to (a) assess the

psychometric properties of the ICD in a forensic sample; (b) investigate differences

between criminals and noncriminals and cognitive distortions; and (c) examine the

relationship between mental health and cognitive distortions; and (d) explore the

relationship between the ICD and TCU-CTS. The recruitment method was snowball

sampling, using social media platforms.

Chapter 3: Method

A correlational design and between subjects design was employed to (a) assess the psychometric properties of the ICD by comparing total scores on this instrument with total scores on the Texas Christian University-Criminal Thinking Scale (TCU-CTS); (b) investigate differences between criminals and noncriminals and cognitive distortions; and (c) examine the relationship between mental health and cognitive distortions; and (d) to explore the relationship between the ICD and TCU-CTS.

Participants

In order to obtain a representative sample of research and control subjects, participants were recruited online through social media, such as Facebook and other platforms. Participants included both males and females between the ages of 18 and 60. Demographic variables were age, race, gender, education level, religion, socioeconomic status, and criminal history. Participants who endorsed having a criminal history constituted the experimental group, and participants without a criminal history were the control group.

Inclusion and Exclusion Criteria

Participants were required to (a) have a self-reported eighth grade level of English reading and comprehension, (b) report whether they had committed or been convicted of a criminal offense, (c) be between the ages of 18 and 70, and (d) have access to the internet. Those who entered the study and did not complete the questionnaires in their entirety were excluded.

Screening and Recruitment

Participants were contacted through the online social media platforms Facebook and Reddit, which directed them to the SurveyMonkey link for the study. Recruiting participants through social media platforms was intended to obtain a diverse population, as 72% of Americans report using some type of social media (Mitchell et al., 2019). Additionally, social media platforms are beneficial for recruitment because of their interconnectedness (Gelinas et al., 2017). Participants are able to recommend their friends or follower" to participate (Gelinas et al., 2017), thereby increasing the subject pool. Lastly, Khatri et al. (2015) stated that participant recruitment through social media offers the opportunity to reach participants who may not be able to participate in research through traditional methods. This study included participants with a criminal history, who may have been restricted from participating through traditional methods because of being under house arrest and other probation stipulations.

Measures

The measures used were the ICD (DiTomasso & Yurica, 2011), the TCU-CTS (Institute of Behavioral Research, 2007), and a demographics questionnaire.

Inventory of Cognitive Distortions (ICD)

DiTomasso and Yurica (2011) created a self-report measure drawn from previous research, the relevant literature, and clinical experience to encompass all types of cognitive distortions at the time (Yurica, 2002). To ensure content validity, three clinical experts in cognitive behavioral therapy were employed to independently and thoroughly examine 17 identified distortions and their definitions and to confirm that each item qualified as a cognitive distortion, based on their clinical experience. The clinical experts

were also tasked to examine the initial 120 statements in the inventory and to categorize

them into the 17 cognitive distortions. Only items that obtained 100% independent

agreement were included in the final inventory. Sixty-nine items were retained to

comprise the ICD used in the validation study (Yurica, 2002). The validation study

included 188 participants: 122 outpatients receiving treatment for psychological disorders

and 66 public school teachers who served as the control group. Results from the

validation study revealed that the items on the ICD represent 11 cognitive distortions

(externalization of self-worth, fortune-telling, magnification, labeling, perfectionism,

comparison to others, emotional reasoning, arbitrary inference/jumping to conclusions,

emotional reasoning and decision-making, minimization, and mind reading; Yurica,

2002).

      Consequently, the current version of the ICD (Yurica, 2002) is a 69-item self-

report questionnaire that measures different types of cognitive distortions. Items on the

ICD consist of short sentences that encompass 11 types of cognitive distortions and are

scored on a 5-point Likert type scale (1 = *never* to 5 = *always*). Scores on the ICD can

range from 69 to 345, with higher scores signifying higher levels of cognitive distortion

and subscale scores of distortions. The ICD was developed to be used in adults with

psychological disorders and has been validated in adults with emotional disorders

(DiTomasso & Yurica, 2011), personality disorders (Rosenfield, 2004), and a nonclinical

community sample (Roberts, 2015). The ICD has been shown to have content validity

and high internal consistency (DiTomasso & Yurica, 2011; Roberts, 2015; Rosenfield,

2004; & Yurica 2002). Factor analysis from the validation study revealed that items on

the ICD reflected 10 theory-driven cognitive distortion subscales and an additional

subscale, emotional reasoning and decision-making. Results from the validation study

indicated a high test-retest reliability coefficient for the ICD total scores (.998). Similarly,

total ICD scale had a high Cronbach's alpha of .98. The ICD had concurrent validity with

other scales designed to measure mental disorders, such as the Beck Depression

Inventory II ($r = .70$), the Beck Anxiety Inventory ($r = .59$), and the Dysfunctional

Attitudes Scale ($r = .70$; Yurica, 2002). Yurica (2002) found that participants who

endorsed higher levels of cognitive distortions had higher levels of dysfunctional thinking

and depression. The ICD had discriminant validity in that it was able to differentiate

depressed participants from non-depressed participants and distinguish participants with

an anxiety disorder from those without an anxiety disorder (Yurica, 2002). Lastly,

content validity was confirmed by three cognitive behavioral therapy experts, who

unanimously agreed on the validity of the 69 items on the ICD.

Roberts (2015) examined the psychometric properties of the ICD in a nonclinical

community sample. Results revealed positive psychometric properties of the ICD, similar

to the original study by Yurica (2002). Factor analysis revealed 12 factors: magnification,

fortune-telling, externalization of self-worth, perfectionism, emotional reasoning,

decision making, discounting the positive, personalization, absolutistic or dichotomous

thinking, should statements, and catastrophizing. Roberts (2015) also found the ICD

scores to be significantly correlated with those on the Dysfunctional Attitudes Scale ($p < .001$) and the Perceived Stress Scale ($p < .001$). Lastly, the ICD could identify

relationships between age, gender, and distorted thinking (Roberts, 2015). Females

endorsed higher levels of cognitive distortions than males, and participants between the

ages of 18 and 29 endorsed higher levels of cognitive distortions than those between 41 and 85.

In a clinical sample, Rosenfield (2004) used the ICD to examine the relationship between cognitive distortions and psychological distress among individuals who met the criteria for Axis I and Axis II disorders. The ICD could differentiate the level of psychological distress experienced by individuals diagnosed with Axis I and Axis II disorders (Rosenfield, 2004). Individuals meeting criteria for any Axis I and Axis II disorder endorsed higher levels of cognitive distortions than individuals without any psychological disorder. Additionally, Rosenfield (2004) found a positive relationship between the number and severity of Axis II disorders and cognitive distortions. Similarly, Uhl (2007) found the ICD to be reliable in identifying the relationship between distorted thinking and psychological and behavioral health risk. Participants who endorsed higher levels of cognitive distortions were more likely to engage in negative psychological and health risk behaviors, such as alcohol and drug use, smoking, unhealthy eating, and poor coping skills (Uhl, 2007).

Using the ICD, Latella-Zakhireh (2009) investigated the relationship between anger and various components of anger and cognitive distortions. Latella-Zakhireh (2009) found that the ICD was able to identify a relationship between cognitive distortions and proneness to anger. Participants who had higher levels of difficulty with anger resolution and emotional control had higher levels of cognitive distortions. Lastly, Haldaman (2012) examined the relationship between cognitive distortions, risk to sexually reoffend, length of time in treatment, and psychopathy. Haldaman (2012)

reported that the ICD was able to identify changes in levels of cognitive distortions and length of time in treatment.

Texas Christian University-Criminal Thinking Scale (TCU-CTS)

The TCU-CTS is a 37-item self-report instrument developed to measure cognitive functioning related to criminal behavior (Knight et al., 2006). The TCU-CTS is a supplement to the TCU Criminal Justice Client Evaluation of Self and Treatment adapted from the work of Walters (1995) and from the Bureau of Prison Survey of Program Participants (Knight et al., 2006). Items on the TCU-CTS can be divided into subscales to measure entitlement, justification, personal responsibility, power orientation, cold heartedness and criminal rationalization. Entitlement (EN) implies a sense of ownership and misidentifying wants as needs. Offenders who score high on this scale believe that the world owes them and that they deserve special treatment. Justification (JU), otherwise known as mollification, is a thinking pattern in which the offender minimizes the seriousness of their acts and justifies their behavior with external factors. Offenders with high scores on this scale believe that their acts are justified, based on perceived social injustice. Offenders with high scores on the personal irresponsibility (PI) scale have difficulty accepting responsibility for their actions and place blame on others. Offenders with high scores on the power orientation (PO) scale generally use aggression to gain control over their victims and achieve a sense of power by manipulating others. Cold heartedness (CH) is a measure of callousness; high scores on this scale indicate insensitivity, emotional detachment, and a cruel disregard for others. Offenders with high criminal rationalization (CN) scores believe that their criminal acts are the same as criminal acts committed by authority figures. Although the TCU-CTS is designed to

measure criminal thinking, the items on the scale refer to current thinking and behaviors, rather than historical thinking and behaviors. Hence, the TCU-CTS can be administered to measure changes in criminal thinking over time. Items on the TCU-CTS are rated using a Likert-type scale (1 = *disagree strongly* to 5 = *agree strongly*). Scores are obtained by averaging total scores, after reverse scoring selected items, and then multiplying the average by 10; the total scores range between 10 and 50. Knight et al. (2006) examined the psychometric properties of the TCU-CTS by administering it to a cross-sectional sample of 3,266 offenders participating (for at least 2 weeks) in drug treatment programs from 26 correctional institutions. Participants were randomly divided into a calibration sample ($n = 1,633$) and a validation sample ($n = 1,633$).

The TCU-CTS was found to be a reliable instrument for measuring criminal thinking. The minimum fit chi-square was statistically significant ($p < .01$) for all scales except Cold Heartedness. Factor analysis revealed that items on the TCU-CTS loaded into a four-factor solution (only factors with eigenvalues greater than 1.0 were retained). All six criminal thinking scales had good factor structures, acceptable reliability, and goodness-of-fit coefficients across the subsamples of participants (Knight et al., 2006). Results indicated satisfactory test-retest reliability (EN =.69, JU = .70, PO = .81, CH = .66, CN = .84, and PI = .75, total scores = .74). Cronbach's alpha was consistent for each of the subsamples and ranged from .68 to .81 on the six scales. The TCU-CTS was developed to be used in a forensic population, and its validity has been tested in incarcerated adolescents (Dembo et al., 2007), offenders in a substance abuse treatment program (Packer et al., 2009), and probationers (Taxman et al., 2011). Although the

initial report by Knight et al. (2006) indicated strong reliability, some studies have indicated mixed support for its validity.

Dembo et al. (2007) investigated criminal thinking between male and female incarcerated adolescents and adults using the TCU-CTS. Results indicated that incarcerated adolescents had higher levels of entitlement, justification, personal irresponsibility and power orientation than incarcerated adults. However, incarcerated adults had higher levels of criminal rationalization. Results also indicated convergent validity for the TCU-CTS: adolescent scores on the TCU-CTS were substantially correlated with prior history of criminal behavior, substance abuse, family dysfunction, and diagnoses of conduct disorder and oppositional defiant disorder.

Using the TCU-CTS, Packer et al. (2009) explored the relationship between self-control and criminal thinking among drug offenders attending a mandated treatment program. The investigators found a relationship between self-control, criminal thinking, drug use, and offending (Packer et al., 2009). Participants who endorsed higher levels of criminal thinking on the TCU-CTS had lower scores on the Self-Control Scale. Results also revealed a moderate relationship between younger age and higher levels of criminal thinking. Unlike the study by Dembo et al. (2007), TCU-CTS scores were unrelated to total time incarcerated, number of previous convictions, and recent offenses (Packer et al., 2009).

Lastly, Taxman et al. (2011) examined the psychometric properties of the TCU-CTS in a sample of drug-using probationers. Results suggested limited support for the validity and utility of the TCU-CTS. No significant differences were found between probationers and a noncriminal justice community sample. Taxman et al. (2011) reported

that the TCU-CTS had a limited ability to correlate with known predictors of recidivism or with 6-month follow-up data on criminal activity. However, Taxman et al. (2011) found the TCU-CTS to be significantly correlated with scores on self- and treatment-related attitudes, such as low treatment readiness, hostility, risk taking, low self-efficacy, and low social consciousness.

Demographics Questionnaire

A self-report demographics questionnaire was utilized to gather a variety of information. Items included age (in years), gender (male, female, other), race (American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, White), ethnicity (Hispanic or non-Hispanic), education level (first grade to completed graduate school), and a brief psychiatric history (major depression, anxiety, bipolar depression, personality disorder, schizophrenia, other). In addition, several questions asked participants about the degree to which they had been involved in criminal behavior (distribution, manufacturing, and/or production of controlled substances, rape, murder, manslaughter, sexual battery, aggravated assault, armed robbery, child abuse, sex offenses, arson, burglary, theft, other).

Procedure

Participants were sent a link to the questionnaires and were asked to share the link with interested friends and followers, i.e., a snowball sampling method.

Before accessing the questionnaires, participants were informed about the study's procedures and purpose. They were informed that they had the right to withdraw from the study at any time without explanation. Participation in this study was completely anonymous, making it impossible for the researcher to connect individual responses with

the individual participant's identity or IP address. After reading the invitation for the

study, participants indicated either that they understood the terms and conditions of

participation and agreed to participate or did not understand or accept the terms and

conditions and declined to participate. After agreeing, participants completed the

eligibility questionnaire (self-reported eighth grade reading and comprehension level, age

range between 18 and 60, and criminal involvement). Eligible participants were directed

to SurveyMonkey to proceed with completing the ICD, TCU-CTS, and the demographics

questionnaire. The order of presentation of the questionnaires was counterbalanced, but

the demographics questionnaire was always completed first. Anyone who did not meet

the inclusion criteria was directed to the end of the survey, informed that they did not

meet criteria to participate, and thanked for their time. After data collection was

complete, the data were transferred from SurveyMonkey to SPSS Version 26 for cleaning

and subsequent analysis.

Chapter 4: Results

Of the 661 respondents, nine did not meet the inclusion criteria, and 135 did not complete the surveys. The data for these 144 participants were omitted from the analyses, leaving 516 participants.

Demographic data for those who completed the ICD are listed in Table 1. Data were not included for those who withdrew after completing the ICD and did not complete any of the demographics questionnaire. Participants were asked to indicate their gender, age, race or ethnicity, and education level (Table 1).

Table 1

Demographic Characteristics

Gender	*n*	%
Male	233	50.54
Female	223	48.37
Other	5	1.08
Age Group	*n*	%
18–25	63	13.73
26–30	111	24.18
31–35	108	23.53
36–40	71	15.47
41–50	55	11.98
51 and above	51	11.11

Race/Ethnicity	n	%
Asian	158	34.50
Black/African American	58	12.66
Caucasian	192	41.92
Hispanic/Latinx	17	3.71
Native American	20	4.37
Pacific Islander	3	0.66
Other	10	2.18
Education Level	n	%
Less than high school	5	1.09
High school	49	10.68
Associate's degree or some college	73	15.90
Bachelor's degree	233	50.76
Master's degree	84	18.30
Doctorate	11	2.40
Professional	4	0.87

Among all participants, 454 indicated a history of a psychiatric disorder (Table 2),

and 177 (38.99%) of these had sought mental health treatment. Table 2 reflects the

diagnosis endorsed by participants. Some participants indicated a history of multiple

diagnoses.

Table 2

Psychiatric History

Mental Health Disorder	n	%
Depression	127	24.6
Anxiety	132	25.6
Posttraumatic stress disorder	39	7.6
Eating disorder	44	8.5
Substance use disorder	27	5.2
Autism spectrum disorder	17	3.3
Schizophrenia	19	3.7
Bipolar disorder	17	3.3
Obsessive-compulsive disorder	30	5.8
Personality disorder	30	5.8
Other (attention-deficit/hyperactivity disorder, auditory processing disorder, adjustment disorder, emotional dysregulation, undiagnosed personality disorder)	7	3.3

Regarding criminal behaviors, participants were asked to indicate if they had

engaged in any of 35 identified criminal behaviors (Table 3); 321 indicated a history of

engaging in any criminal behaviors (62.2%), 153 participants (29.7%) denied ever

engaging in any criminal behaviors, and 42 participants (8.14%) failed to indicate whether they had or had not engaged in any criminal behaviors.

Table 3

Engagement in Criminal Behavior

Criminal Behavior	*n*	%
Carried a hidden weapon?	52	10.1
Caused trouble in a public place so that people complained about it? This includes being loud and disorderly.	65	12.6
Purposely damaged or destroyed property that did not belong to you? Like breaking, cutting, or marking up something	59	11.4
Purposely set fire to a house, building, car or vacant lot?	21	4.1
Entered or broken into a building to steal something?	25	4.8
Stolen something from store?	101	19.6
Stolen anything that did not belong to you?	80	15.5
	48	9.3

Criminal Behavior	n	%
Knowingly bought or sold stolen goods?		
Stolen a car or motorcycle to sell or keep?	18	3.5
Used checks illegally to pay for something?	23	4.5
Used credit cards or bank cards without the owner's permission?	20	3.9
Sold any illegal substances (marijuana, cocaine, crack, meth, heroin, fentanyl, pills, psychedelics)?	30	5.8
Attacked someone with a weapon?	17	3.3
Used a weapon or force to get money or things from people?	8	1.6
Shot someone?	17	3.3
Been in a gang fight in which someone was hurt or threatened with harm?	11	2.1
Threatened to physically hurt someone?	57	11

Criminal Behavior	*n*	%
Have you had or tried to have sexual relations with someone against their will?	14	2.7
Been paid by someone for having sexual relations with them?	19	3.7
Used a false name or alias to try to get something you are not entitled to – like a job or bank loan?	14	2.7
Given false information (other than a false name) on an application for job, tax form, or an application for a loan	36	7
Been given a ticket for a driving offense?	120	23.3
Stalked someone?	15	2.9
Driven a vehicle under the influence of drugs or alcohol?	59	11.4
Engaged in child maltreatment (neglect/abuse)?	14	2.7
Had inappropriate sexual contact of any kind with a minor?	9	1.7

Criminal Behavior	*n*	%
Watched child victim sexual abuse content (child pornography)?	8	1.6
Distributed child victim sexual abuse content (child pornography)?	9	1.7
Killed someone?	8	1.6
Attempted to kill someone?	9	1.7
Exposed your genitals in public?	9	1.7
Had sex with someone using force and without consent?	9	1.7
Hit someone you live with, or a close relative, with the intention of hurting them (sibling, mother, father, and child)?	42	8.1
Hit someone you did not live with, with the idea of hurting them (friends, neighbor, stranger gang member, acquaintance)?	51	9.9

Ninety-three participants reported a history of criminal convictions for their crimes (Table 4). Results revealed differences between the number of participants who disclosed having engaged in certain criminal behaviors and the number of participants

who had convictions for those offenses. Twenty-one participants disclosed they had purposely set fire to a house, building, car, or vacant lot, whereas only 17 had a conviction for arson. Twenty-one participants indicated they had entered/broken into a building to steal something, but only 14 had a burglary conviction. Eighty-four participants indicated intentionally hurting a family member enough to require medical attention, but only 18 had a domestic violence conviction. Thirty participants indicated a history of selling illegal substances, but only five had drug trafficking convictions. Eight participants disclosed they had killed someone, but only four had a murder conviction. Nine participants disclosed they had had sex with someone using force and without consent, but only five had a conviction for rape. Nine participants disclosed having had inappropriate sexual conduct with a minor, but only three had a conviction for sexual misconduct.

Table 4

Convictions for Disclosed Criminal Behaviors

Criminal Offense	n	%
Aggravated assault	13	2.5
Simple assault/battery	20	3.9
Arson	17	3.3
Bribery	17	3.3
Burglary	14	2.7
Child abandonment	12	2.3
Child endangerment	15	2.9

Criminal Offense	n	%
Child abuse	12	2.3
Child neglect	15	2.9
Child buying or selling	9	1.7
Child pornography	11	2.1
Child molestation	6	1.2
Domestic violence	18	3.5
Driving under the influence/Driving while intoxicated	10	1.9
Drug manufacturing and cultivation	2	0.4
Drug possession	16	3.1
Drug trafficking/distribution	5	1
Embezzlement	5	1
Extortion	9	1.7
Forgery	7	1.4
Fraud	13	2.5
Incest	5	1
Indecent exposure	4	0.8
Kidnapping	8	1.6
Manslaughter	6	1.2
Money laundering	6	1.2
Aggravated murder	6	1.2
Murder (1st/2nd degree)	4	0.8

Criminal Offense	*n*	%
Patronizing a juvenile sexual victim worker	4	0.8
Probation violation	5	1
Prostitution	5	1
Promoting prostitution	3	0.6
Robbery (1st/2nd degree)	10	1.9
Rape (1st/2nd degree)	5	1
Rape of a child (1st/2nd/3rd degree)	7	1.4
Sexual assault	8	1.6
Stalking	13	2.5
Statutory rape	4	0.8
Selling/distributing erotic material to a minor	4	0.8
Sexual exploitation of a minor	4	0.8
Sexual misconduct with a minor	3	0.6
Theft	20	3.9
Traffic offenses	53	10.3
Vehicular homicide	8	1.6
Other offenses not listed	45	8.7

Of the 391 participants who indicated having engaged in any criminal behaviors, 61 (15.6%) had received mental health treatment related to their criminal behaviors.

The first hypothesis stated that the factor structure of the ICD in a forensic sample would be similar to the identified factor structure in a previously identified mental health

population. The factor structure analysis of the ICD was conducted on data for those who endorsed engaging in at least one criminal behavior (N = 363). A principal components/varimax rotated factor analysis was conducted to investigate the factor structure of the ICD. Retention of a factor loading was based on a loading of .40 or above. All 69 items of the ICD were analyzed, and seven factors with rotated eigenvalues greater than 1 were extracted. Only items that loaded uniquely on one factor were included, and items that loaded on two or more factors were omitted. One of the identified factors contained only one item and was subsequently not interpreted. After examining the factor loadings for uniqueness, five factors accounted for 63.66% of the total variance. The KMO statistic was found to be large (0.97), indicating inter-item correlations are compact and distinct, and reliable factors can be extracted. Bartlett's test of sphericity was also found to be significant ($p < .001$), suggesting that each item correlates significantly with other items on the ICD, and a factor structure can be detected. Results indicated the current factor structure reflected three of the 11 hypothesized subscale scores of cognitive distortions identified in the original study (Yurica, 2002). The three factors were externalization of self-worth, perfectionism, and emotional reasoning and decision making.

Two new subscales were identified: Negative Expectations and Jumping to Conclusions and Absolutistic/Dichotomous Thinking. The factor structure and item loadings are listed in Table 6. This factor loadings criterion accounted for 60.34% of the variance. A majority of the originally identified subscales loaded into Factor 1.

Factor 1, Negative Expectations, included 28 items and accounted for 48.17% of the variance. This factor included various cognitive distortions, such as labeling, mental

filter, jumping to conclusions, personalization, discounting the positive, catastrophizing, comparison to others, and fortune-telling. The items in this factor reflected an individual's propensity to anticipate negativity in all aspects relating to themselves, others, and the world. Individuals with high scores on this factor consistently expect bad things to happen to them; they believe others perceive them negatively and consequently have trouble trusting others. This finding about the criminals' negative views of self, circumstances, and others supports the self-verification theory (Swann, 2012), which is the individual's desire for others to perceive them as they see themselves. Even when negatively valenced, people with low self-esteem prefer roommates who have negative views of them and prefer and are more committed to dating partners who have negative views of them. In other words, the criminals with this cognitive distortion are likely to act and think in a manner that verifies their negative self-concept.

Factor 2, Externalization of Self-Worth, included eight items and accounted for 4.64% of the variance. Items in this factor reflect a need for external validation to maintain self-worth. Individuals scoring high on this factor base their self-worth on what others think. Although the criminal presents a confident demeanor, they have the ultimate fear of a put down. They look to others to validate their sense of self. In addition, they are likely to be self-conscious because they do not want to be labelled as criminals and are highly concerned about judgment from others.

Factor 3, Perfectionism, included six items and accounted for 2.96% of the variance. Perfectionism is the cognitive distortion that occurs when an individual sets standards for themselves that are unrealistically high. Yochelson and Samenow (1976) similarly identified the criminal's tendency to have extremely high standards of

perfection; however, these standards are applied inconsistently, as they are more likely to become frustrated and give up when they encounter difficulty.

Factor 4, Arbitrary Thinking/Jumping to Conclusions and Absolutistic/Dichotomous Thinking, included three items and accounted for 2.61% of the variance. This factor reflected the individual's tendency to draw conclusions without considering all the facts or the possibilities of other outcomes. Individuals with high scores on this factor are likely to have cognitive rigidity. Moreover, Yochelson and Samenow (1976) discussed the criminal's tendency towards pretentiousness, poor decision making, and closed channel thinking. The criminal believes he or she is always right and everyone else is wrong. Even in situations in which they are uncertain, they are more likely to make assumptions rather than ask questions that may reveal their lack of competence. Using closed channel thinking, the criminal expects others to abide by their rules, but refuses to abide by the rules of society.

Factor 5, Emotional Reasoning and Decision-Making, included four items and accounted for 1.96% of the variance. Emotional Reasoning and Decision Making refers to the process of relying on one's gut feeling or emotions in making decisions. A majority of the criminal cognitive distortions identified consisted of emotional components, such as pride, impulsivity, entitlement, power orientation, lack of trust, pretentiousness, sentimentality, and superoptimism (Walters, 2002, 2003; Yochelson & Samenow, 1976). The criminal is significantly driven by their emotions. Given the tendency toward rigid thinking, they have an increased likelihood of accepting their emotions as reality, which further impairs their judgment.

All items in Factor 6 loaded onto two factors and were consequently excluded from interpretation. Factor 7, Absolutistic or Dichotomous Thinking, included one item and was excluded from interpretation.

Table 5

Inventory of Cognitive Distortions (ICD) Factor Loadings for Criminal Population

ICD Item	Factor Loading
Factor 1: Negative Expectations	
3. I believe others think about me in a negative way	0.58
4. I tend to discount the good things about me	0.61
14. If a problem develops in my life, you can bet it has something to do with the way I am	0.49
17. I have a tendency to blame myself for bad things	0.54
18. Without even asking, I think other people see me in a negative light	0.67
20. I hold myself responsible for things that are beyond my control	0.43
21. I tend to disqualify the positive traits I have	0.65
23. I tend to pick out negative details in a situation and dwell on them	0.74
24. I have a tendency to exaggerate the importance of minor events	0.66
26. I have the habit of predicting that things will go wrong in any given situation	0.65
29. I call myself negative names	0.71
30. I have been known to make a mountain out of a mole hill	0.70

ICD Item	Factor Loading
31. Most people are better at things than I am	0.52
34. When faced with several possible outcomes, I tend to think the worst is going to happen	0.68
35. Compared to other people like me, I find myself lacking	0.68
36. I believe my negative forecasts about my future will come to pass	0.69
38. I typically imagine terrible consequences from my mistakes	0.70
44. People only say nice things to me because they want something or because they are trying to flatter me	0.46
49. I label myself with negative words	0.77
50. I find myself assuming blame for things	0.66
51. I tend to dwell on the dark lining of a silver cloud	0.77
55. My negative predictions usually come true	0.64
61. Even small events can bring on catastrophic consequences	0.55
62. When I compare myself to others, I come up short	0.65
63. I put myself down	0.75
65. I tend to dwell on things I do not like about myself	0.71
67. If people ignore me, I think they have negative thoughts about me	0.54
69. I blow things out of proportion	0.67
Factor 2: Externalization of Self-Worth	
1. I need others to approve of me in order to feel that I am worth something	0.66
7. I compare myself to others all the time	0.49

ICD Item	Factor Loading
10. What others think about me is more important than what I think about myself	0.63
15. To feel good, I need others to recognize me	0.71
33. When a new rule comes out at work, school, or home, I think it must have been made because of something I did	0.51
41. I need a lot of praise from others to feel good about myself	0.63
45. I find I have a tendency to minimize the consequences of my actions, especially if they result in negative outcomes	0.51
46. I find that I frequently need feedback from others to obtain a sense of comfort about myself	0.62
Factor 3: Perfectionism	
12. I make decisions on the basis of my feelings	0.40
16. I motivate myself according to how I should be	0.66
25. I attempt to achieve perfection in all areas of my life	0.69
39. When I think about it, I am quite perfectionistic	0.66
53. I must have things a given way in my life	0.45
57. It is important to strive for perfection in everything I do	0.71
Factor 4: Arbitrary Thinking/Jumping to Conclusions and Absolutistic/ Dichotomous Thinking	
13. I draw conclusions without carefully reviewing necessary details	0.49
42. In my mind, things are either black or white, there are no grey areas	0.58

ICD Item	Factor Loading
43. I typically make judgments without checking out all of the facts beforehand	0.50
Factor 5: Emotional Reasoning and Decision Making	
56. My feelings reflect the way things are	0.69
60. My feelings are an accurate reflection of the way things really are	0.57
64. There are a right way and a wrong way to do things	0.44
66. I go with my gut feeling when deciding something	0.49
Factor 7: Absolutistic or Dichotomous Thinking	
5. I either like a person or do not, there is no in-between for me	0.58

Table 6

Explanation of Variance by Factor

Factor	Total	% of Variance	Cumulative %
1	31.92	48.17	48.17
2	3.22	4.64	52.81
3	1.97	2.96	55.77
4	1.73	2.61	58.38
5	1.38	1.96	60.34
6	1.17	1.69	62.03
7	1.09	1.62	63.66

Factor Analysis With the Combined Sample (Criminal and Noncriminal)

Although not essential to the first hypothesis, a similar principal components analysis was conducted to investigate the factor structure of the ICD in all participants. All 69 items of the ICD were analyzed, and seven factors with rotated eigenvalues greater than 1 were extracted. After examining the item loadings for uniqueness, four factors were retained. This factor loadings criterion accounted for 56.28% of the variance. The KMO statistic was large (0.99), indicating inter-item correlations are compact and distinct and reliable factors can be extracted. Bartlett's test of sphericity was also found to be significant ($p < .001$), suggesting that each item correlates significantly with other items on the ICD, and a factor structure can be detected. Only items loading uniquely on one factor were included for this study, and those loading on two or more factors were omitted. Results indicated that items loading uniquely onto one factor reflected only 1 of the 11 hypothesized subscales of cognitive distortions identified in the original study designed to investigate the psychometric properties of the ICD (Yurica, 2002). This factor was Perfectionism. In two instances, factors only contained one item and were subsequently not interpreted.

Four new subscales were identified: Mental Filter, Cognitive Indolence and Externalization of Self-Worth, Dichotomous Thinking and Emotional Reasoning, and Should Statements. The factor structure and item loadings are listed in Table 7. A majority of the originally identified subscales loaded into Factor 1.

Factor 1, Mental Filter, included 31 items. This factor combined six previously identified cognitive distortions and three new distortions, filtering, discounting the

positive, and personalization. Items loading on this factor reflected labeling, discounting the positive, filtering, personalization, magnification, fortune telling, and minimizing and externalizing self-worth. These cognitive distortions were combined because items loaded into this factor varied, but described features of filtering out positive events and focusing solely on negative events and self-blame. These items reflect the extent to which the individual is highly self-critical, has negative beliefs of themselves, and discounts the positive about themselves and their abilities. This factor accounted for the largest variance of all (46.26%). Discounting the positive refers to unhelpful thought patterns in which a person invalidates only positive events and aspects of themselves. Individuals who discount the positive may be inclined to minimize their skills and abilities, misinterpret benign situations, and catastrophize neutral events, whether real or imagined. Lastly, individuals who score high on Factor 1 may be inclined to compare themselves to others, seek external validation, and blame themselves for events outside their control.

Factor 2, Cognitive Indolence and Externalization of Self Worth, consisted of nine items and accounted for 4.67% of the variance of all the factors in this scale. This factor was combined because the items that loaded on this factor reflected the extent to which a person utilizes mental shortcuts, instead of more developed and thoughtful mental strategies, in decision making and judgment. The items in this factor also reflected characteristics of those who derive their self-worth from external validation. Individuals who score high on Factor 2 are likely to have passivity, poor critical thinking skills, and cognitive helplessness that contribute to low self-esteem.

Factor 3, Dichotomous Thinking and Emotional Reasoning, included eight items and accounted for 2.85% of the variance of all factors in this scale. This factor reflected

interpreting situations based on feelings and difficulty interpreting events from a nuanced perspective. Dichotomous Thinking, otherwise known as black-and-white thinking, is the tendency to perceive events in extremes. Everything is good or bad, right or wrong, or all or nothing. People who engage in dichotomous thinking have difficulty recognizing the middle ground in opinions, events, or outcomes, which impedes their rational thinking ability. Emotional reasoning is a pattern of thinking in which individuals perceive their emotions as objective truth. Consequently, individuals with high scores on this factor are likely to have rigidity in their thinking, especially in emotionally charged situations.

Factor 4, Perfectionism, included four items and accounted for 2.50% of the variance of all factors in the scale. Perfectionism is the cognitive distortion that occurs when an individual places standards on themselves that are unrealistically high to achieve perfection.

Factor 5, included one item and was subsequently not interpreted in this study. Factor 6, loaded onto two factors and was consequently excluded from interpretation. Factor 7, Emotional Reasoning and Decision Making, consisted of one item and was not interpreted in this study.

Table 8 lists the variance data for the individual ICD factors, using the rotated sum of squared loadings, including the percentages of variance and the cumulative percentage variance.

Table 7

Inventory of Cognitive Distortions (ICD) Factor Loadings for Entire Sample

ICD Item	Factor Loading
Factor 1: Mental Filter	
3. I believe others think about me in a negative way	0.63
4. I tend to discount the good things about me	0.60
8. I amplify things well beyond their real importance in life	0.43
17. I have a tendency to blame myself for bad things	0.52
18. Without even asking, I think other people see me in a negative light	0.71
20. I hold myself responsible for things that are beyond my control	0.44
21. I tend to disqualify the positive traits I have	0.67
23. I tend to pick out negative details in a situation and dwell on them	0.75
24. I have a tendency to exaggerate the importance of minor events	0.61
26. I have the habit of predicting that things will go wrong in any given situation	0.60
28. I downplay my accomplishments	0.59
29. I call myself negative names	0.75
30. I have been known to make a mountain out of a mile hill	0.67
31. Most people are better at things than I am	0.50
32. I have a tendency to exaggerate the importance of even small events	0.57
34. When faced with several possible outcomes, I tend to think the worst is going to happen	0.65

ICD Item	Factor Loading
35. Compared to other people like me, I find myself lacking	0.65
36. I believe my negative forecasts about my future will come to pass	0.64
38. I typically imagine terrible consequences from my mistakes	0.65
47. I jump to conclusions without considering alternative points of view	0.43
49. I label myself with negative words	0.78
50. I find myself assuming blame for things	0.70
51. I tend to dwell on the dark lining of a silver cloud	0.75
55. My negative predictions usually come true	0.64
59. When something negative happens, it is just terrible	0.51
61. Even small events can bring on catastrophic consequences	0.51
62. When I compare myself to others, I come up short	0.58
63. I put myself down	0.74
65. I tend to dwell on things I do not like about myself	0.70
67. If people ignore me, I think they have negative thoughts about me	0.55
69. I blow things out of proportion	0.65
Factor 2: Cognitive Indolence and Externalization of Self-Worth	
1. I need others to approve of me in order to feel that I am worth something	0.60
6. I minimize the importance of even serious situations	0.59
10. What others think about me is more important than what I think about myself	0.67
13. I draw conclusions without carefully reviewing necessary details	0.52

ICD Item	Factor Loading
33. When a new rule comes out at work, school, or home, I think it must have been made because of something I did	0.57
41. I need a lot of praise from others to feel good about myself	0.60
43. I typically make judgments without checking out all of the facts beforehand	0.52
45. I find I have a tendency to minimize the consequences of my actions, especially if they result in negative outcomes	0.57
68. I underestimate the seriousness of situations	0.48
Factor 3: Dichotomous Thinking and Emotional Reasoning	
5. I either like a person or do not, there is no in-between for me	0.44
37. Things ought to be a certain way	0.41
53. I must have things a given way in my life	0.40
54. I believe I know how someone feels about me without him/her ever saying so	0.44
56. My feelings reflect the way things are	0.64
60. My feelings are an accurate reflection of the way things really are	0.62
64. There are a right way and a wrong way to do things	0.61
66. I go with my gut feeling when deciding something	0.51
Factor 4: Perfectionism	
16. I motivate myself according to how I should be	0.59
25. I attempt to achieve perfection in all areas of my life	0.70

ICD Item	Factor Loading
39. When I think about it, I am quite perfectionistic	0.67
57. It is important to strive for perfection in everything I do	0.64
Factor 5: Absolutistic or Dichotomous Thinking	
42. In my mind, things are either black or white, there are no grey areas	0.59
Factor 6: Should Statements	
11. Regrets in my life stem from things I should have done, but did not do	0.54
27. I have a lot of shoulds, oughts, and musts in my life	0.41
Factor 7: Emotional Reasoning and Decision Making	
12. I make decisions on the basis of my feelings	0.5

Table 8

Explanation of Variance by Factor

Factor	Total	% of Variance	Cumulative %
1	31.92	46.26	46.26
2	3.22	4.67	50.93
3	1.97	2.85	53.78
4	1.73	2.5	56.28
5	1.38	2	58.28
6	1.17	1.69	59.97
7	1.09	1.58	61.56

Reliability of Total ICD Scale and Subscales

The internal consistencies of the ICD total score and subscales were assessed using Cronbach's alpha (Table 9) for all participants (criminal and noncriminal). Consistent with the original findings (Yurica, 2002), internal consistency was excellent for the ICD total (α = .982); corrected item-total score correlations varied from 0.478 to 0.781. The mental filter subscale yielded a Cronbach's alpha of 0.975, and corrected item subscale correlation was 0.974 for all 31 items. Internal consistency for the Cognitive Indolence and Externalization of Self Worth subscale was also excellent (α = .912), and corrected item subscale total correlation for the nine items in this subscale varied between 0.907 and 0.898. Cronbach's alpha for the Dichotomous and Emotional Reasoning subscale was good (α = .847), and the inter-item correlation varied between 0.840 and 0.822 for the eight items in this subscale. Cronbach's alpha for the Perfectionism subscale was acceptable (α = .795), and corrected item subscale total correlations among all four items in this subscale varied between 0.815 and 0.704. Cronbach's alpha for the Should Statements subscale was questionable (α = .636), and corrected item subscale total score correlations between the two items on this subscale was 0.466. No significant change was observed if any item was deleted from the 69 items.

Table 9

Reliability of Individual Inventory of Cognitive Distortions Factors

Factor	Description	Coefficient α
1	Mental Filter	0.975
2	Cognitive Indolence and Externalization of Self-Worth	0.912
3	Dichotomous Thinking and Emotional Reasoning	0.847
4	Perfectionism	0.795
6	Should Statements	0.636

An analysis of variance was conducted to identify differences between participants who endorsed criminal behaviors and those who did not. The hypothesis that participants who endorsed a history of criminal behavior would have significantly higher ICD total scores was tested using Bonferroni adjusted alpha levels of .0036 per test (.05/14). Levene's test was found to be significant ($p < .05$); therefore, equal variances among groups cannot be assumed. Due to these unequal variances, a Brown-Forsythe test was conducted, and an overall significance was found, $F(1, 449.44) = 16.70$, $p < .001$. Overall, the findings indicated significant differences between participants who endorsed criminal behaviors and those who did not ($p < .001$). Criminally involved participants had higher total scores on the ICD ($M = 193.46$), meaning they had more cognitive distortions ($M = 173.41$).

A multiple analysis of variance (MANOVA) was then conducted to examine participant differences across all TCU-CTS subscales (Entitlement, Justification, Power Orientation, Cold Heartedness, Criminal Rationalization, and Personal Responsibility) between participants with and without a history of criminal behavior. An overall significant Wilk's Lambda was found (.95), $F(7, 483) = 3.36$, $p < .001$. To assess homogeneity of variance for each dependent variable, the Levene's statistic was computed. The Levene's test for Power Orientation ($p = .105$), Cold Heartedness ($p = .787$), and Criminal Rationalization ($p = .749$) was not found to be significant. This means that equal variance can be assumed across groups. However, Levene's test for Entitlement, Justification, and Personal Irresponsibility was found to be significant ($p < .05$). Due to these unequal variances, a Brown-Forsythe test was conducted, and an overall significance was found for Entitlement $F(1, 392.08) = 5.58$, $p < .05$, Justification $F(1, 414.49) = 14.75$, $p < .001$, and Personal Irresponsibility $F(1, 397.92) = 8.51$, $p < .005$. There were significant differences between participants who endorsed criminal behaviors and those who did not (Table 10). Results indicated that criminally involved participants were more likely to have high levels of entitlement ($M = 24.89$), use justification for their behaviors ($M = 25.55$), utilize power and control over others ($M = 28.23$), have more negative attitudes toward the law and authority figures (criminal rationalization; $M = 32.17$), and engage in personal irresponsibility by blaming others/external factors for their criminal behaviors ($M = 27.06$) than noncriminally involved participants ($M = 22.68, 22.01, 24.97, 29.60$, and 24.59, respectively). There were no differences between criminally involved and noncriminally involved participants on the Cold-Heartedness scale ($p = .313$).

Table 10

*Means and Standard Deviations for TCU-CTS Scores (*n *= 491)*

TCU-CTS Subscale	History of Criminal Behavior		No Criminal Behavior	
	M	*SD*	*M*	*SD*
Entitlement	24.89	10.86	22.68	9.33
Justification	25.55	11.10	22.01	8.88
Power Orientation	28.22	9.64	24.97	8.74
Cold Heartedness	24.31	8.14	25.10	8.43
Criminal Rationalization	32.17	8.81	29.60	8.83
Personal Irresponsibility	27.06	9.92	24.59	8.36
ICD Total	193.46	58.24	173.52	50.01

Of the 321 participants who identified as having engaged in criminal behaviors, 313 individuals (97.5%) endorsed a history of mental health disorder, and only eight individuals (2.5%) did not endorse a mental health history. Therefore, the hypothesis that criminally involved participants who endorsed a history of mental health disorders would obtain higher scores on the ICD could not be tested.

It was hypothesized that overall scores on the ICD would be positively correlated with overall scores on the TCU-CTS. A Pearson correlation was conducted to determine the relationship between total ICD scores and TCU-CTS subscales (Table 11). Total scores on the ICD were found to be significantly and positively correlated to five of the

six subscales on the TCU-CTS. For entitlement 49% of the variability in the TCU-CTS

was attributable to differences in distorted thinking, $r(491) =.71, p < .001$. For

Justification in the TCU-CTS, 58% of the variability in justification was explained by

differences in cognitive distortions, $r(491) =.76, p < .001$. Fifty-nine percent of the

variability in Power Orientation was attributable to differences in cognitive distortions,

$r(491) =.77, p < .001$. Thirty-eight percent of the variability in Criminal Rationalization

was attributable to differences in distorted thinking, $r(491) =.62, p < .001$, and 53% of the

variability in Personal Irresponsibility was attributable to differences in cognitive

distortions, $r(491) =.73, p < .001$.

The results indicated that the greater the frequency of distorted cognitions, the

greater the individual's feeling of privilege (Entitlement), minimization of seriousness of

antisocial behavior (Justification), need for power and control over others (Power

Orientation), negative attitude towards law and authority figures (Criminal

Rationalization), and propensity to blame others and external factors for criminal

behavior (Personal Irresponsibility). Although correlation was small, total ICD scores

were inversely correlated with Cold Heartedness, $r(491) = -.29, p < .001$, which indicated

that the greater the participant's endorsement of callousness (Cold Heartedness), the

lower the frequency of cognitive distortions.

Table 11

Pearson Correlation Between ICD Total Scores and TCU-CTS Subscales in All

Participants

		ICD Total	Entitlement	Justification	Power Orientation	Cold Heartedness	Criminal Rationalization	Personal Irresponsibility
ICD Total	r		.705	.756	.765	-0.285	.616	.726
	p</=		.01	.01	.01	.01	.01	.01
Entitlement	r		1	.895	.786	-.345	.539	.828
	p</=			.01	.01	.01	.01	.01
Justification	r			1	.831	-0.137	.552	.858
	p</=				.01	.01	.01	.01
Power Orientation	r				1	-0.217	.588	.767
	p</=					.01	.01	.01
Cold Heartedness	r					1	-0.358	-0.247
	p</=						.01	.01
Criminal Responsibility	r						1	.657
	p</=							.01
Personal Irresponsibility	r							1
	p</=							

ICD and TCU-CTS in Criminally Involved Participants

Total scores on the ICD were similarly found to be significantly and positively correlated to all subscales on the TCU-CTS (Table 12). For entitlement in the TCU-CTS, 50% of the variability was attributable to differences in distorted thinking, $r(321) = .71$, $p < .001$. For Justification in the TCU-CTS, 56% of the variability was explained by differences in cognitive distortions, $r(321) = .75$, $p < .001$. For Power Orientation, 58% of

the variability was attributable to differences in cognitive distortions, $r(321) = .76$, $p <$ .001. For Criminal Rationalization, 40% of the variability was attributable to differences in distorted thinking, $r(321) = .63$, $p < .001$, and for Personal Irresponsibility, 53% of the variability in was attributable to differences in cognitive distortions, $r(321) = .73$, $p <$ .001.

Cold heartedness among criminally involved participants was moderately and negatively correlated with total ICD scores $r(321) = -.35$, $p < .001$. Again, criminally involved individuals who had higher levels of callousness (Cold Heartedness) endorsed had lower numbers of cognitive distortions.

Table 12

Pearson Correlation Between ICD Total Scores and TCU-CTS Subscales in Criminally Involved Participants

	ICD Total	Entitlement	Justification	Power Orientation	Cold Heartedness	Criminal Rationalization	Personal Irresponsibility
ICD Total	r	.71	.745	.763	-0.351	.633	.73
	p</=	.01	.01	.01	.01	.01	.01
Entitlement	r	1	.904	.786	-.345	.567	.840
	p</=		.01	.01	.01	.01	.01
Justification	r		1	.831	-0.213	.570	.875
	p</=			.01	.01	.01	.01
Power Orientation	r			1	-0.301	.627	.788
	p</=				.01	.01	.01
Cold Heartedness	r				1	-0.397	-0.316
	p</=					.01	.01
Criminal	r					1	.669

Responsibility	p</=		.01
Personal	r		1
Irresponsibility	p</=		

Chapter 5: Discussion

Research has consistently shown a relationship between cognitive distortions and criminal behavior (Andrews & Bonta, 2010). Criminal cognitive distortions emerge from faulty schemas and beliefs (about the self, victims, and the world) through which criminals navigate their environment and rationalize their offending behaviors (Simons & Burt, 2011). Furthermore, evidence-based treatments, such as CBT, that target and guide the criminal to challenge their distorted thinking have been found to reduce criminal behavior and recidivism (Lipsey & Cullen, 2007). Following the precepts of evidence-based treatment, utilizing assessments that measure cognitive distortions is essential to assess the baseline levels of the criminal's cognitive distortions and changes resulting from CBT-oriented treatments. Although various existing assessments measure cognitive distortions, they tend to lack specificity and can be limited in scope and applicability (Yurica, 2002). Therefore, the ICD was created to address these problems and better conceptualize cognitive distortions among individuals with mental health problems. The ICD has been validated in clinical and nonclinical populations, but has not been used in a forensic sample. The current study sought to validate the psychometric properties of the ICD in a forensic population. Additionally, cognitive distortions designed for criminal populations tend to focus solely on criminal thinking, without accounting for other variables such as mental illness, which is overrepresented in the criminal justice system (Prins, 2014). The purpose of this study was to:

- assess the psychometric properties of the ICD using a forensic sample,

- investigate the relationship between general cognitive distortions and criminally focused cognitive distortions, and

- explore what kinds of cognitive distortions are associated with specific offenders and criminal behavior.

Factor analysis was conducted for participants who indicated a history of criminal behavior. Similar to the initial study (Yurica, 2002), results indicated a statistically significant internal structure of the ICD for the criminogenic and total sample. Compared to the initial study that indicated 11 factors, the current study identified seven factors from the total sample, using a loading criterion of .40. Fifty items from the 69 items on the ICD loaded uniquely onto the six factors and accounted for 63.66% of the total variance. This is a deviation from the initial study and others that have sought to validate the ICD. In Yurica (2002), 57 items loaded onto 11 factors and accounted for 66.24% of the total variance. Research validating the ICD in a community sample identified 12 factors that accounted for 65.77% of the total cumulative variance (Roberts, 2015). This difference is likely due to the use of a forensic sample in the present study, suggesting that although criminals may utilize cognitive distortions, how they are accessed is slightly different from the community and mental health samples. Three factors from the original study (Externalization of Self-Worth, Perfectionism, Emotional Reasoning and Decision Making) were retained; two new subscales were identified: Negative Expectations and Jumping to Conclusions and Absolutistic/Dichotomous Thinking.

Consistent with Yurica's (2002) original findings, the internal reliability consistency for the total scale was strong. These results are consistent with previous research that has validated the ICD in a community sample and in individuals with

mental health disorders (DiTomasso & Yurica, 2011; Roberts, 2015). Additionally, Rosenfield (2004) found that the ICD correlated with many known psychological disorders, including more severe problems, including personality disorders.

The findings of this study confirmed the second hypothesis regarding differences in cognitive distortion between criminals and noncriminals. Participants who endorsed a history of criminal behaviors endorsed more cognitive distortions than participants without a criminal history. In other words, criminals are more likely to access distorted thinking patterns than noncriminals. Results of a MANOVA revealed that criminally involved participants were more likely to use entitlement, justification, power and control, personal irresponsibility, and have more negative attitudes toward the law and authority figures than noncriminals. However, there were no differences between criminal and noncriminal regarding cold heartedness. In other words, when asked questions to assess cold heartedness, all participants responded similarly. This does not imply that non-criminally involved participants are similarly likely to show or have an insensitive and cruel disregard for others in situations with higher consequences (e.g., child abuse, robbery).

Yochelson and Samenow (1967) identified 36 thinking errors among criminals. Four of the 36 thinking errors (fear, perfectionism, failure to consider injury to others, and lack of trust) interact with some of the identified factors on the ICD. First, Yochelson and Samenow (1967) explained that the criminal has a widespread, persistent, and intense fear of being caught, fear of death or injury, and fear of being put down or rejected. Second, Yochelson and Samenow (1967) stated that criminals hold themselves to extreme standards of perfectionism, but do not apply them consistently. However,

perfectionism for the offender could be a means to avoid complex tasks because they may not succeed perfectly. Lastly, because the criminal is unable to trust others, they are more likely to employ cognitive distortions such as jumping to conclusions when judging the behaviors and intentions of others.

The third hypothesis, criminally involved participants who endorsed a history of mental health disorders would have higher scores on the ICD, could not be tested. The sample size difference between participants who endorsed mental health history ($n = 313$; 97.5%) and those without a mental health history ($n = 8$; 2.5%) was insufficient.

Results partially supported the fourth hypothesis. Individuals who endorsed more cognitive distortions endorsed higher levels of entitlement, justification, power orientation, criminal rationalization, and personal irresponsibility. However, more cognitive distortions were inversely correlated with cold heartedness. Given the level of emotional reasoning associated with cognitive distortions, it is possible that cold-hearted individuals do not access the level of emotional reasoning that lends itself to cognitive distortions. It is also likely that cold heartedness may better be described as a characterological trait, rather than a thinking style.

Lastly, correlational findings suggested that the ICD has good convergent validity with the TCU-CTS subscales Entitlement, Justification, Power Orientation, Criminal Rationalization, and Personal Irresponsibility. This suggests that the ICD and TCU-CTS measure similar constructs; the greater the endorsement of cognitive distortions on the ICD, the greater the number of cognitive distortions endorsed on the TCU-CTS. This finding is similar to results obtained by Roberts (2015) and Yurica (2002), which have indicated the convergent validity of the ICD.

Interpretation and Implications

The ICD is useful in identifying specific cognitive distortions that contribute to criminal behaviors. Additionally, the ICD enables clinicians to identify specific cognitive distortions that have been associated with mental illnesses that exacerbate criminal behavior. Previous assessments of cognitive distortions among criminals focused primarily on criminal thinking and failed to address other cognitive distortions among the community and clinical populations (Knight et al., 2006). Consequently, the ICD can serve as a supplemental tool in assessing overall cognitive distortions among criminals and cognitive distortions that may not be revealed by criminal thinking scales.

Furthermore, non-criminogenic cognitive distortions may be beneficial in better conceptualizing criminals in treatment. For example, the current study revealed two new factors: Negative Expectations and Externalization of Self-Worth. Negative Expectations, the criminal's tendency to anticipate poor outcomes, could be a driving force in the behavior. Researchers examining the role of locus of control in criminal behavior and recidivism have found that criminals who endorsed a greater external locus of control were more likely to recidivate and engage in more criminal behaviors than those who had a greater internal locus of control. Criminals who do not believe that anything they do will have the potential to change the outcomes of their lives are less likely to see the incentives to change their behavior. This knowledge can be used in developing treatment programs to build intrinsic motivation, which has been effective in curbing recidivism (Barnet & Fitzalan, 2018). Utilizing the ICD with criminals would help identify those with this pattern of cognition.

Externalization of Self-Worth, the criminal's tendency to perceive themselves based on what others think of them, is a thinking pattern associated with low self-esteem (Abdel-Khalek, 2016). Although research on crime and self-esteem has been inclusive and varied, Donnellan et al. (2005) found a relationship between low self-esteem and antisocial behavior. Similarly, Traci and Robins (2003) also suggested that individuals were likely to protect themselves from feelings of inferiority by externalizing blame for their ineptitude, fostering feelings of hostility and anger towards others and society. Using the ICD in criminal populations would be helpful in identifying this thought pattern. Clinicians could then develop treatment plans to challenge this maladaptive thinking style. Given its test-retest reliability, the ICD would also be beneficial in assessing changes in the criminal's thought pattern throughout treatment.

As indicated above, the new factors identified are qualities that predict the likelihood of recidivism. Hence, the ICD may also be applicable as a predictive measure of criminal behavior.

Limitations

Some limitations should be considered when interpreting the findings of this study. First, because participants were recruited using a snowball sampling method, participants may not be a diverse population. Randomly selected participants were asked to share the link with others; therefore, participants may have belonged to the same social circles. Similarly, only participants who had access to the internet could participate in this study, thereby limiting the diversity and overall representation of criminals and noncriminals.

Second, although there was a diverse sample, the sample acquired was predominantly Caucasian (30.6%) and Asian (37.2%). Therefore, there may be limited generalizability to participants from other racial and ethnic minority groups. Additionally, participants self-selected to participate in this study, and volunteers may not be fully representative of criminals in general. Furthermore, most criminally involved participants indicated that they had received mental health treatment. Hence, the criminally involved participants may not fully represent all criminals.

Third, because the TCU-CTS was designed to measure current criminal thinking that supports criminal behavior, participants who may not have been involved in any recent criminal activity may not have endorsed certain items on the TCU-CTS. Additionally, the current study did not account for offenders who may have specifically received cognitive behavioral therapy in comparison to other modalities of psychotherapy. Type of therapy (CBT, psychoanalysis, humanistic, etc.) may have influenced the level and types of distortions endorsed.

Given that the TCU-CTS measures only six central and current criminal cognitive distortions, not all criminal cognitive distortions or historical cognitions were addressed in this study.

Fourth, participants in this study were asked to self-report their involvement in criminal behaviors. Thus, some participants may have exaggerated, underreported, or denied the extent of their criminality.

Fifth, because participants were asked to indicate past criminal behaviors, it was difficult to determine the number of criminal behaviors endorsed by each participant.

This would have been helpful in determining if a relationship exists between the frequency of criminal behaviors and cognitive distortions.

Lastly, as mentioned in the Results section, the results of this study may be a reflection of post-hoc rationalizations because real-time criminality and accompanying emotions and cognitions could not be captured.

Future Directions

Future researchers may wish to address the limitations of this study to further understand the components of criminal cognitive distortions. Given that this is the first study to assess criminal thinking using the ICD, it would be useful to replicate the current study and limit the participants to those who endorse a current history of criminal behavior. This could include recruiting convicted or incarcerated offenders or offenders recently placed on probation, house arrest, and other alternatives to incarceration.

This study did not explore the relationship between criminal behaviors and demographic variables. Future studies may benefit from exploring this relationship. Future researchers should also consider examining the relationship between types of criminal behavior and cognitive distortions.

In addition, this study could be replicated with other validated measures of criminogenic thinking. This may include measures of historical criminogenic attitudes and cognitions that support criminal behavior. Future researchers may also wish to assess the convergent validity of the ICD with other measures of criminogenic cognitions.

Future research should control for participants having received evidence-based treatments, such as cognitive behavioral therapy, that improve overall cognitive distortions and attitudes that exacerbate criminal behavior. The ICD has been shown to

have high test-retest reliability and the ability to track changes in cognition; therefore,

future studies should seek to assess the capability of the ICD to assess changes in

cognitive distortions over time.

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