

1-1-2003

# Analysis of Impulsive Behaviors Among Prison Inmates Convicted of Violent Crimes, Inmates Convicted of Non-Violent Crimes and Undergraduate College Students

Lonnie Kishpaugh Sr.

Follow this and additional works at: <http://mds.marshall.edu/etd>



Part of the [Applied Behavior Analysis Commons](#)

---

## Recommended Citation

Kishpaugh, Lonnie Sr., "Analysis of Impulsive Behaviors Among Prison Inmates Convicted of Violent Crimes, Inmates Convicted of Non-Violent Crimes and Undergraduate College Students" (2003). *Theses, Dissertations and Capstones*. Paper 692.

ANALYSIS OF IMPULSIVE BEHAVIORS AMONG PRISON INMATES  
CONVICTED OF VIOLENT CRIMES, INMATES CONVICTED OF  
NON-VIOLENT CRIMES AND UNDERGRADUATE COLLEGE STUDENTS

By:

Lonnie Kishpaugh, Sr.

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE  
REQUIREMENTS FOR THE DEGREE OF  
MASTER OF ARTS  
IN  
PSYCHOLOGY

MARSHALL UNIVERSITY

2003

## Abstract

Sudden explosive episodes of rage and human aggression by individuals occur daily in our society. While impulsive aggressive behavior is included in several established psychological disorders, the etiology of such behavior has been widely debated.

This study tested the hypotheses that prison inmates who have committed violent crimes were no more likely to exhibit impulsive behavior, than like numbers of prison inmates who had committed non-violent crimes, or college students who have no criminal record. Groups of 20 each of the respective populations were randomly administered the Kipnis Impulsiveness Scale in accordance with instructions from the manual.

With an alpha level of .05, an analysis of variance (ANOVA) indicated that prison inmates who had committed violent crimes and inmates who had committed non-violent crimes achieved a statistically significant difference in impulsiveness scale scores, as did inmates who had committed non-violent crimes and college students. A post hoc evaluation using the Tukey's HSD, and an item-by-item analysis, indicated that this difference was the result of lower test scores by the inmates who had committed non-violent crimes. The hypothesis that prison inmates who committed violent crimes were more likely to exhibit impulsive behavior than inmates who committed non-violent crimes was accepted. The inmates who committed violent crimes and the college students did not differ significantly in their scores.

## Acknowledgments

I would like to express my sincerest thanks and appreciation to my advisor, Dr. Roger Mooney, for his asking relevant questions about the thesis proposal and proposing suggestions for revisions. His editorial insight was invaluable and his assistance, guidance and support was extremely beneficial throughout my studies at Marshall University Graduate College.

I would like to thank my Major Professor, Dr. Stephen O'Keefe, for his patience and general understanding with my schedule and encouragement of my continuing efforts to achieve my graduate degree.

I especially want to thank Dr. Del Lawhon for answering numerous questions during my graduate studies, and for his continuing support and encouragement.

I would also like to express my appreciation to Dr. Tony Goudy who, although experiencing great personal concerns over his wife and the imminent delivery of their child, still found time to assist me with the statistical portion of my thesis.

I would like to extend my appreciation to Dr. Robert Rubenstein for lending needed assistance by serving as a member of my thesis committee I am indebted to Peggy McCall for typing the final draft of my thesis.

In conclusion, I thank Becky Sloan, MUGC Psychology Department Secretary, for her suggestions as to scheduling and her encouragement at critical times.

## Table of Contents

<b>ABSTRACT .....</b>	<b>ii</b>
<b>ACKNOWLEDGMENTS.....</b>	<b>iii</b>
<b>LIST OF TABLES.....</b>	<b>vi</b>
<b>LIST OF FIGURES.....</b>	<b>vii</b>
<b>LITERATURE REVIEW .....</b>	<b>1</b>
IMPULSE CONTROL DISORDERS MODEL .....	1
SUBSTANCE ABUSE MODEL.....	7
FAMILY SYSTEMS MODEL .....	9
DYNAMIC RISK PREDICTOR MODEL .....	10
RATIONALE FOR THE STUDY .....	12
PURPOSE.....	14
<b>METHOD.....</b>	<b>16</b>
PARTICIPANTS .....	16
PROCEDURE.....	17
<b>RESULTS.....</b>	<b>19</b>
<b>DISCUSSION.....</b>	<b>21</b>
LIMITATIONS OF THE STUDY.....	23
RECOMMENDATIONS FOR FUTURE RESEARCH.....	23
<b>APPENDIX A.....</b>	<b>25</b>
<b>APPENDIX B.....</b>	<b>32</b>

**APPENDIX C.....34**

**REFERENCES .....35**

## List Of Tables

Table 1	Anova
Table 2	Tukey's HSD
Table 3	Item-by-Item Analysis of the independent variables

## List Of Figures

Figure 1      Graph of Tukey's HSD of the independent variables

## Literature Review

Although explosive violent behavior is included in many established psychological disorders, the causes of the behavior are widely debated. The literature review examines four prominent theoretical models that attempt to identify the causal factors associated with potential explosive or impulsive violent behavior. Each model presents convincing evidence in linking its particular factors to explosive or impulsive violent behavior, with the final understanding that no one model can effect a 100 percent causal relationship.

### Impulse Control Disorders Model

The first model, impulse-control disorders, includes Intermittent Explosive Disorder as a separate disorder with its own symptoms. The impulse-control model focuses on brain chemistry imbalances, but also presents the psychological causes for impulsivity and antisocial personality. The second, the substance abuse model, proposes that the use of alcohol and specific drugs increase the incidents of explosive or impulsive violent behaviors among persons with conditions inherent in the other models. The third, a family systems model, explores the particular family factors that contribute to impulsivity and violence. The fourth, the dynamic risk predictors model, presents a view of criminogenic needs, which are attitudes and belief systems within a person that reinforce the explosive or impulsive violent acts. This model is actuarial, or based on diagnostic measures that determine how likely a person is to have violent outbursts. Impulsivity appears to be the key factor in explosive or impulsive violent behaviors (Bjork et al, 1992; Davison, 1997; Emery, 1999; Linnoila, 1994; Lion, 1992). Simply stated, impulsivity is acting before thinking. Everyone has a bit of normal

impulsiveness, which is different from impulsivity, and it is not typically dangerous to others. The more complex impulsivity disorders, however, have violent actions that cannot be controlled in most cases. Even in its non-violent forms, pathological gambling for instance, the behavior cannot be stopped no matter how negative the consequences.

Impulsive behavior has a cycle of tension preceding the violent act and a feeling of pleasure or gratification following the act (Emery, 1999). The goal of impulsive behavior, though most likely not known consciously to the violent offender, is to seek excitement and experience pleasure from it. Even if remorse is felt by the offenders after the violent act, it is not enough to stop them from having another explosive or impulsive violent act in the future (McElroy, 1999).

Impulsivity is present in all impulse-control disorders as well as Antisocial Personality Disorder. These disorders include a lack of responsibility or care for actions and consequences, and episodes of violence that appear to be greatly out of proportion to the event that caused it (APA DSM-IV, 1994). Even though both disorders produce similar actions, they are differentiated by one major factor people with Antisocial Personality Disorder are aware of their lies and misdeeds but have no regard for the truth (Davison, 1997). Antisocial Personality Disorder is very close to psychopathology with one main difference; psychopaths do not exhibit explosive or impulsive violent behavior. In the most extreme cases, they are the calm, deliberate serial killers, Ted Bundy or the Hillside Strangler, who methodically commit their crimes with premeditation and intricate planning. They are devoid of emotions, positive or negative (Davison, 1997). People with impulse-control disorders burst onto the scene, as it were, and wonder what happened afterwards.

Explosive or impulsive violent behavior is included as a separate entity in the Diagnostic and Statistical Manual of Mental Disorders (APA DSM-IV, 1994) as Intermittent Explosive Disorder. It was first conceptualized as a psychiatric disorder in the 1980 edition of the DSM-III. The DSM-IV contains diagnostic criteria under the category of Axis I, Impulse-Control Disorders Not Elsewhere Classified (DSM-IV, APA 1994). Briefly defined, Intermittent Explosive Disorder is characterized by discrete episodes of failure to resist aggressive impulses resulting in serious assaults or destruction of property (DSM-IV, APA 1994; McElroy, 1999).

In the diagnostic group of impulse-control disorders, conditions such as kleptomania, pyromania, pathological gambling and trichotillomania-compulsive hair pulling, the person experiences a growing sense of tension or arousal before committing the explosive act. Afterwards, a period of pleasure, gratification or relief is experienced. In some cases, the person may also feel regret, remorse or embarrassment. These episodes feel foreign and distasteful and some people weep after the episode is over. However, in one study all the subjects agreed that such sorrow had not been helpful in averting aggression (McElroy, 1999).

A strong correlation has also been established between violent outbursts, criminal behaviors and abnormalities of serotonin levels in the brain (Linnoila et al, 1994). In addition, serotonin appears to play a role in determining the ability of a person to arrange or tolerate delay before acting (Stein et al, 1993). Recently, more sophisticated technology is allowing neuroscientists to delve into brain chemistry as never before. As a result, they are finding strong evidence in the role that brain chemistry plays in violent people, particularly explosive violent people.

One type of violence associated with brain chemistry abnormalities, known as episodic dyscontrol, is characterized by chronic impulsiveness and physical aggression with intent to do harm (Myslinski, 1997). The most petty and unimportant events can trigger an explosive episode in such people. Episodic dyscontrol has been equated with unpremeditated homicide, suicide, child and spousal abuse, and property destruction (Myslinski, 1997).

As with Intermittent Explosive Disorder, serotonin plays a key role in episodic dyscontrol. Serotonin regulates sleep, pain, perception, sex, and now it appears, violent tendencies. If people lose too much serotonin, they lose control. It is low levels of serotonin that are correlated to violent outbursts (Linnoila et al, 1994; Myslinski, 1997). Clinical and laboratory studies on violent prisoners and abused children have revealed low levels of serotonin in their brains (Myslinski, 1997). These findings were an important factor for McElroy's study (1998), which showed a strong relationship between serotonin abnormalities in subjects who were explosively violent. Her findings suggest that Intermittent Explosive Disorder is associated with Bipolar Disorder (McElroy, 1998).

McElroy's study (1998) of 27 subjects, recruited from medical centers, halfway houses for difficult-to-place felons and volunteers, was careful to eliminate subjects if their violent episodes were accounted for by another mental disorder, such as Antisocial Personality Disorder, Borderline Personality Disorder, a manic episode or Conduct Disorder, by direct affects of a substance, alcohol or specific drugs, or because of head trauma or Alzheimer's.

The results of this study revealed that all of the subjects experienced aggressive impulses prior to their explosive acts. The impulses were consistently described as the need to attack or strike out, with statements such as "an adrenaline rush," "seeing red," "letting the beast out," and the "urge to kill somebody" (McElroy, 1998). Eighteen of the 27 subjects

described relief with the explosive episode, and 11 recounted pleasurable feelings associated with the explosive episodes. All of the episodes were brief, with a mean length of 22 minutes (McElroy, 1998). All of the subjects reported mood and energy changes before and after the episodes, with symptoms such as irritability, rage, anxiety, racing thoughts, heart palpitations, chest tightness, head ringing, euphoria, depression, decreased energy and calm.

All of the subjects reported that the level of aggressiveness was way out of proportion to any psychological stressors, and that, in fact, most episodes were set off by minor conflicts. Twenty of the subjects acknowledged committing property destruction and assaultive acts during an outburst, including 11 who attempted homicide, ten who committed assault with weapons, and a self-referred subject who committed murder (McElroy, 1998).

Included in the study was a treatment program in which subjects were given antidepressants, serotonin reuptake inhibitors (SRIs) and mood stabilizers such as lithium, depending on which symptoms were exhibited; agitation, depression or manic behavior (McElroy, 1998). A favorable response was indicated as 50 percent or greater improvement or reduction in aggressive impulses or explosive acts. A total of 12, sixty percent, of the 20 subjects who received antidepressants (SRIs) or mood-stabilizers described a moderate response, 50 percent to the SRIs, and a startling 75 percent response to the mood stabilizers (McElroy, 1998). The author notes at the end of the study, however, that the named medications are not yet approved by the FDA for the specific treatment of Impulse Control Disorders. Further studies will have to be conducted before FDA approval is established.

McElroy's study establishes a link between serotonin abnormalities in the brain to intermittent explosive violent behaviors, but the study was conducted on a very small group of people. Although replication with a larger group of subjects must be completed, these initial

findings are important for establishing a significant relationship and suggesting that specific medications may prove helpful for controlling explosive behaviors (McElroy, 1998).

Brain chemistry does not act alone, however. Brain research has demonstrated that brain chemicals can be altered by happiness, exercise, depression, poverty and inadequate nutrition, neglect, alcohol and drugs, menstrual hormonal imbalances, 60 percent of violent crimes committed by women occur during the premenstrual week, and violence itself.

Many clinicians and psychology professionals disagree with the classification of Intermittent Explosive Disorder as a separate entity. They consider the lack of control of aggressive impulses to be a nonspecific symptom that occurs in a wide range of psychiatric and medical disorders, thereby having no one specific cause (McElroy, 1999, Lion, 1992). As stated earlier in this review, explosive or impulsive violent behaviors are also found in Antisocial Personality Disorder. These people typically carry a Conduct Disorder from childhood into adulthood, have constant irritability and aggressiveness that lead to physical fights or assaults, and they feel no responsibility or remorse for their violent actions (Emery, 1999).

Another personality disorder that includes impulsivity and explosive violent behaviors is the Borderline Personality Disorder (APA DSM-IV, 1994). This disorder begins in adolescence, has a prevalence of one to two percent, and is more common in women than in men (Davison, 1997). Common symptoms include being chronically depressed, addictive, and violent (Davison, 1997). At the same time, many borderline personalities, as the designation suggests, are able to function adequately in society.

Otto Kernberg (1967, 1975) describes borderline personality not as a specific syndrome but as a set of personality features of deficiencies in individuals with various disorders (Emery,

1999). People with borderline personality are usually involved in intense and chaotic relationships, typically viewing themselves and others as either all good or all bad, a condition known as splitting (Emery, 1999). Borderline Personality Disorder can encompass many types of abnormal behavior, including paranoid, schizophrenic, personality disorders, Conduct Disorder and Impulse Control Disorders (Emery, 1999). Manipulative suicide attempts are common, and in some cases, murder. A popular example of this personality disorder is the female character played by Glenn Close in the popular film “Fatal Attraction.” The character displayed erratic emotions, explosive violent outbursts, suicide attempts, and eventually tried to murder her lover and his family.

### Substance Abuse Model

It has long been acknowledged that prolonged substance abuse has a devastating impact on a person’s life, affecting family, employment and mental health. Research and clinical evidence show conclusively the relationship between substance abuse and violent behavior (Davison, 1997; Hoffman, 1983; Marlatt, 1988). Briefly stated, many forms of violent behavior are committed when a person has been drinking or ingesting certain drugs, especially cocaine, amphetamines, and psychedelics, such as LSD and PCP.

The effects of long-term use of amphetamines and cocaine can and often do cause a psychotic reaction that increases with continued use (Davison, 1997). Auditory and visual hallucinations, delusions of persecution and grandeur, and eventually paranoid schizophrenia emerge in the substance abuser.

Substance abuse-induced psychosis causes explosive violent behavior in many users, typically out of fear and paranoia (Emery, 1999). Auditory hallucinations, particularly hearing

voices, can convince paranoid schizophrenic people that the bus driver, for example, is going to kill them at the next stop. Their fear becomes so intense that in their minds, they must lash out and kill the bus driver before they themselves are killed.

The hallucinogens- substances such as LSD, PCP and mescaline - are also linked to manic behaviors, sudden mood changes, panic attacks and explosive violence (Emery, 1999).

Alcohol and explosive violence have the strongest association in the substance abuse model (Emery, 1999). Research has demonstrated a consistent relationship between alcohol use and violent behavior (Higley, 2001). Offenders and their victims of violent crimes are likely to have consumed alcohol prior to certain aggressive acts, such as rape, assault, domestic violence and murder (Collins and Messerschmidt 1993; Arseneault et al., 2000). Not all alcoholics are violent, but alcoholics are more likely to have a history of violent behavior. Predicting who will become violent under the affects of alcohol is difficult at best. Unique to each individual is a complicated brain chemistry, not to mention family history, poverty conditions and personality type, that reacts in its own way to alcohol. Because not all alcoholics become violent, recent research has formulated two types of alcoholics; Type I alcoholics drink to primarily reduce anxiety and stress, while Type II alcoholics drink because they have impulsivity disorders, antisocial traits and violent behaviors (Cloninger, 1988). The conclusion is that Type II alcoholism is probably determined by a genetic predisposition to both alcoholism and violence (Higley, 2001).

As stated earlier in this review, serotonin is a key factor in people who are prone to violence and who, when drinking, become explosively violent. Research shows that alcoholics with reduced levels of serotonin are prone to violence. Another study concluded that excessive alcohol intake and violence in Type II alcoholics may originate from dysfunctional impulse

control, which in turn results from impaired serotonin functioning (Linnoila and colleagues, 1994).

### Family Systems Model

Research on external factors, such as family, environment, schools and other institutions, has demonstrated that delinquency is strongly associated with the impact of family conditions (Loeber and Stouthamer-Loeber, 1986). Taken a step further, family predictors exist for violent behavior, which include the style and level of parental supervision, rejection of the child early in life, parental criminality, and the lack of parent-child emotional involvement (Klein, 1997).

When family stressors, divorce, marital conflict, parental depression, parental criminality, are combined with parent-child relationship problems, the statistical significance for predicting violent behavior is strong (Klein, 1997). Young adults who come from families with the combination of poor communication/problem-solving skills and one of the family stressors, depressive moods, divorce, or criminality, have the highest incidence of explosive or impulsive violence (Downey & Coyne, 1990). There is thus evidence of a link between family traits of criminality and impulsivity. The literature suggests that parents who display poor supervision or reject their children early in life fail to instill in them the necessary impulse controls for controlling violent episodes (Loeber & Stouthamer-Loeber, 1986).

In addition, when a parent does not respond to their children's competency by expressing approval, the child does not feel validated and therefore does not develop a healthy self-image (Kohut, 1971, cited in Davison, 1997). This downward spiral often leads to Conduct Disorder, which the DSM-IV describes as a wide variety of uncontrolled behavior

(APA DSM-IV, 1994). Unless moderated by a supportive and cohesive family environment, a person with Conduct Disorder can become explosively violent, destroying property, committing physically aggressive acts, and even murder (Davison, 1997).

The most common characteristics in people with Conduct Disorder are a failure to learn right from wrong and a failure to see conflict with other people as their own fault– they justify their behavior by claiming that unreasonable demands are being placed upon them (Davison, 1997). Some of the more extreme conduct-disordered people view antisocial acts as exciting or rewarding, and they internalize these feelings into their very self-concept (Ryall, 1974).

Within a dysfunctional family environment, the necessary tools for learning social and ethical principles, developing emotional attachments, and learning from past experiences are not available for a child. Lack of Impulse Control or Conduct Behavior Disorder develops because the psychological and social mechanisms that mediate impulsivity cannot be learned by the child.

### Dynamic Risk Predictor Model

The dynamic risk predictor model links explosive or impulsive violent behaviors to the results of actuarial measures of peoples' thoughts, feelings and belief systems. It is an assessment and prediction model based on correlations between behaviors and identified risk factors.

Five of the diagnostic measures are listed here. The first measure is the Level of Service Inventory (LSI-R) (Andrews & Bonta, 1995). This measure is the most detailed measure for the widest range of criminogenic needs, covering attitudes toward authority, families, peers, property damage, verbal and physical abuse. The Neutralization scale (Shields

& Whitehall, 1994) measures how offenders rationalize their criminal behavior (Gendreau, 1996). The Psychological Inventory of Criminal Thinking (PICTS) (Walters, 1995) measures essential elements of criminogenic needs, such as negative attitudes toward work and social relationships.

The Psychopathy Check List (PCL-R) (Hare, 1991) assesses if a person has Antisocial Personality Disorder traits that are known to be linked with violent outbursts. The Aggression Questionnaire (Buss & Perry, 1992) measures verbal and physical aggression, anger and hostility (Gendreau, 1996).

Two types of risk predictors for violence have emerged in the recent literature; static and dynamic. Typically, the static predictors of age, gender, past criminal history and early family factors are excellent predictors of assessing explosive or impulsive violent behavior. However, these predictors cannot be changed in the offender's current life. Dynamic predictors, criminal associates, substance abuse, impulsivity, societal attitudes, are also excellent predictors and have the added benefit of being able to be changed in the offender's current life. In particular, criminogenic needs (Simourd, 1996) appear to be solid dynamic risk predictors for repeated violent behaviors.

Simourd (1996) defines criminogenic needs as "those set of attitudes, values, beliefs, and behaviors held by an offender that support a) negative attitudes toward all forms of official authority and conventional pursuits (e.g. , education, work, stable prosocial relationships, b) deviant values that justify aggression, hostility, and substance abuse, and c) rationalizations for antisocial behavior that free one from any moral constraints." (Gendreau, P., 1996).

The literature reviewed herein presents evidence from four prominent models of proposed causal factors that a causal relationship exists between impulsivity and explosive

violent behaviors. The actual causes of impulsivity, however, are still being vigorously debated among social scientists, criminologists, clinicians, psychologists and neuroscientists.

The clinical and family systems model dominated the research for most of the 20<sup>th</sup> century, and the model presents strong arguments for psychological causes of impulsivity (Klein, 1997). The latest research reference on brain chemistry, however, is proving to be possibly more important for two reasons; It has determined that specific chemical imbalances are highly correlated with explosive violence, and identification of the imbalances is necessary for control and prevention of explosive or impulsive violent behaviors (McElroy, 1998).

### Rationale for the Study

This research was conducted in order to assess the essential features of intermittent explosive and/or impulsive violent behavior as reflected in comparing violent and non-violent male prison inmates, and male college students without criminal records. An impulse is defined as a disposition to act in order to decrease the heightened tension caused by the buildup of instinctual drives or by diminished ego defenses against drives (Kipnis 1971). Impulsive disorders attempt to bypass the experience of disabling symptoms or painful effects by attempting to act on the environment (Popkin 1989).

McElroy (1992) defined impulse control problems as “an irresistible impulse to perform harmful acts.” According to the author, Impulse Control Disorders have three essential features; 1) failure to resist an impulse to perform some act that is harmful to the person or others; 2) an increasing sense of tension before committing the act, and 3) an experience of pleasure or release at the time the act is committed. Faber and O’Guinn (1991) found that these behaviors often become a primary means of escaping stress or unpleasant

situations. Typically, these people experience repeated failure in attempts to stop or limit the behavior. Although the behaviors provide initial gratification, this is usually short-lived.

Ultimately, these behaviors begin to interfere with day-to-day life functioning.

Research on addiction and excessive behaviors, such as Impulse Control Disorder, views the behaviors as related problems having common characteristics and causes (Jacobs, 1989; Levinson, Gerstein and Malott, 1983). Donovan (1988) associated with his view the notion that each of the problem behaviors is the result of multiple factors rather than any single cause. The factors include biological, psychological, and sociological elements. Jacobs (1989) suggested that behaviors might become problematic if they meet one of three criteria; 1) provide recognition or acceptance to people with low self-esteem; 2) allow them to act out their anger or aggression; 3) or provide an escape through fantasy.

Intermittent Explosive Disorder (IED) is a behavioral disorder characterized by discrete periods of failure to resist aggressive impulses resulting in serious assaults or destruction of property (Popkin 1989). The degree of aggressiveness expressed during an episode of IED is grossly out of proportion to any provocation or precipitating psychological stressors. The aggressive episodes are not due to the direct psychological effects of a substance or a general medical condition (Diagnostic and Statistical Manual of Mental Disorders, 4<sup>th</sup> ED. 1994). The individual may describe the aggressive episodes as “spells” or “attacks” in which the explosive behavior is preceded by a sense of tension or arousal and is followed immediately by a sense of relief. Later the individual may feel upset, remorseful, regretful, or embarrassed about the aggressive behavior (Popkin 1989).

Intermittent episodes or outbursts may be directed at the self or others. The episodes are known by a variety of names that refer to the disorder’s episodic nature and its tendency to

recur. It has been proposed that the characterological aspects of the explosive disorder are emphasized or permeate the entire personality in a consistent fashion in such a way that immaturity and intolerance of tension or anxiety, low frustration tolerance, and explosive reactivity are chronic and pervasive (Kaplan and Sadock 1991). MeLoy (1992) proposed three plausible explanations for IED; 1) it may be symptomatic of Borderline Personality Disorder or other personality disorder that is overlooked by focusing on the patient's antisocial or impulsive history; 2) subtle brain dysfunction findings would strengthen the neurological validity of the disorder; and 3) the disorder may be socially learned behavior in response to stress.

Signs of generalized impulsivity or aggressiveness may be present between explosive episodes. Individuals with narcissistic, obsessive, paranoid, or schizoid traits may be especially prone to having explosive outbursts of anger when under stress (DSM-IV 1994). Popkin reported that explosive outbursts may occur in association with substance intoxication or substance withdrawal. Maxman and Ward (1992) reported that the IED primarily affects men and usually arises during their twenties and thirties. The authors further stated that the prototypic patient grew up in a broken home where he was physically abused by an alcoholic parent; he had either Attention Deficit Hyperactivity Disorder, or suffered encephalitis or perinatal head trauma; as an adult he is muscular, has alcohol problems, is concerned with his masculine identity, and is usually in prison.

### Purpose

Research indicates that the prototypic male who exhibits Intermittent Explosive Disorder and other impulsive violent behavior is in prison. The purpose of this thesis was to

provide information which would assist prison officials and clinicians in identifying such individuals and indicate that information and therapeutic treatment should be provided to those inmates. The hypotheses are:

- (H1) Prison inmates who have committed violent crimes such as murder, rape, aggravated assault, unlawful wounding, mayhem, and repeated instances of expensive destruction of property are more likely to exhibit impulsive behavior, than prison inmates who have committed non-violent crimes such as forgery, fraud, grand larceny, shoplifting, and auto theft; or college students.
- (H2) College students would exhibit less impulsive behavior than prisoners.

## Method

### Participants

Forty-seven of 200 male inmates housed at Denmar Correctional Center, a medium security institution located in rural Pocahontas County in eastern West Virginia, agreed to participate in the study and forty were randomly chosen to be in the study. The participant inmates were all Caucasian males 24 to 59 years old. Educational range, pre-offense, commenced at fourth grade and extended to two years of college. Thirty-six were natives of West Virginia, with the remaining four being from adjoining states, two from Ohio, one from Kentucky, and one from Virginia. All were from what is considered the Appalachian Mountain area and sentenced for crimes committed in West Virginia. Of the forty inmates who participated in the testing survey, 20 (Group 1) had been convicted of one or more crimes of violence, as previously indicated. The remaining 20 (Group 2) inmates had been convicted of non-violent crimes, as previously described, with no convictions for crimes characterized as violent offenses.

The prisoners were tested in a group format according to standardized instructions in the manual. The prisoners identified their age and race and were aware that they were completing an impulse scale instrument as part of this graduate student's research. All agreed to participate in completing the survey.

Twenty-two male college students agreed to participate in the study; however, two dropped out of school prior to the time the study was conducted.. The twenty college students involved as the control group (Group 3) were all students of Bluefield State College,

Greenbrier Community College Campus. All were Caucasians, ranging in age from 19 to 28 years old. Sixteen were from West Virginia, two were from Virginia, one was from Connecticut, and one was from Ohio. All had been in college for at least one year. The students were advised of the nature of the research being conducted and all voluntarily agreed to participate. The students were tested in a group format according to standardized instructions in the manual.

### Procedure

This researcher administered the Kipnis Impulsiveness Scale according to instructions of the publisher, to twenty male inmates convicted of violent crimes, twenty male inmates convicted of non-violent crimes, and twenty college students with no criminal records. For the purpose of this study, those persons with the top-third scores on the Kipnis Impulsiveness Scale, ie., twenty-one, or more, were designated as impulsive, and those with the bottom-third, ie., fourteen or less, were designated as non-impulsive. The researcher analyzed the data using Analysis of Variance (ANOVA), a Tukey HSD, and an item by item analysis.

### Instrument

The instrument used for data collection is the Kipnis Impulsiveness Scale developed by David Kipnis (1971). The instrument consists of fifty-six questions to which the testee responds “Yes” or “No.” The statements are related to one’s impulsiveness and are used to measure high, moderate, and low impulse reactions. One point is given for each scored alternative, measuring Median = 17-18; Bottom third = 14 or less; Top third = 21 or more. The administration time is 40 to 60 minutes.

The development of this scale originated in a U.S. Navy project to determine measures that would predict enlisted men's school and job performance. Despite the empirical nature of the item selection, the items clearly reveal a developmental basis for the current behavior of respondents, in terms of poor relations with school authority and early interest in thrill seeking and in such activities as sex and drinking. The scale is homogenous in makeup, as indicated by a split-half reliability of .84 computed among 222 university students. Evidence of the construct validity of the scale is presented as correlations between the Impulsiveness Scale and other test measures of character structure as follows: .41 with the Extroversion Scale of the Maudsley Personality Scale, .41 with the Achiever Personality Scale of Fricke's Opinion, Attitude and Interest Survey, .18 with the TAT measure of need achievement, .45 with the Socialization Scale of the California Psychological Inventory, .25 with the Ma Scale of the MMPI, and .09 with the Neuroticism Scale of the Maudsley Personality Inventory. In two separate studies the Impulsiveness Scale correlated .29 and .53 with the Pd Scale of the MMPI. Stewart and Resnick (1972) found that 90% of a group of institutionalized delinquents had high-third scores, suggesting that the scale is a measure of the tendency to commit antisocial forms of behavior. The scale also correlated .66 with psychiatrists' diagnoses of psychopathic personality among a sample of incoming psychiatric patients at the Bethesda Naval Hospital (Kipnis 1965a). This correlation was found only among patients with average or higher intelligence scores, suggesting that the scale's validity is moderated by intelligence (Kipnis 1971).

For the purposes of this study, those with the top-third scores on the Impulsiveness Scale were designated as impulsive, and those with the bottom-third scores were designated as non-impulsive.

## Results

The study tested the null hypotheses that prison inmates who have committed violent crimes are more likely to exhibit impulsive behavior, than inmates who had committed non-violent crimes, or college students who have no criminal record.

The study used a quasi-experimental research design. An ANOVA, Tukey HSD, and item-by-item analysis were used to analyze the data. Three populations were tested utilizing three levels of the independent variable; 1) violent prison inmates, 2) non-violent inmates, and 3) college students with no criminal record, and one level of the dependent variable, impulsivity.

This researcher administered the Kipnis Impulsiveness Scale according to instructions of the publisher, to twenty male inmates who had committed violent crimes, twenty male inmates who had committed non-violent crimes, and twenty college students. The researcher analyzed the test scores using an analysis of variance (ANOVA), Tukey's HSD, and an item by item analysis.

The analysis of variance (ANOVA), with alpha at the .05 level, indicated that Group A, violent prison inmates, and Group B, non-violent inmates, reached a statistically significant difference on impulsiveness scale scores, as did the test scores of Group B, non-violent inmates, and Group C, college students, ( $F(2,57)=3.53, p<.05$ ). The degrees of freedom, sums of squares, mean squares, and the F-ratio for the inmate groups and the control group are shown in Table 1. Violent inmates and college students did not differ significantly in their scores (Figure 1).

A post hoc evaluation using Tukey's HSD (3.72), (Table 2) showed a significant difference between Mean a and Mean b (4.25), inmates who had committed violent crimes and inmates who had committed non-violent crimes, and Mean b and Mean c (4.45), inmates who had committed non-violent crimes and college students, at the .05 alpha level, which combined with an item-by-item analysis, indicated that this difference was the result of lower test scores by the inmates who committed non-violent crimes. Hypothesis (HI) was accepted.

## Discussion

Results did support the hypothesis that inmates who had committed violent crimes were more likely to exhibit impulsive violent behavior than inmates who had committed non-violent crimes. Inmates who had committed violent crimes and college students did not differ significantly in their scores (Figure 1).

From the data gathered it appears that the college students gave test answers reflecting more impulsivity than did the inmates who had committed non-violent crimes, with no significant difference in their response set and that of the inmates who had committed violent crimes, in responding to test items. This may be ascribed to several factors, as follows:

One, most of the college students were away from home and out on their own for the first time. They are under tremendous peer pressure. As a result, their responses may have indicated more impulsivity in responding to social situations such as going to drinking parties, arguing about their rights, especially with parents, going out with friends seeking excitement, and very often feeling that other people dislike them or something about them. As they are evolving into manhood and exercising the rites of passage to that position they may associate impulsivity with masculinity. Also, they likely feel that their parents will extricate them from any trouble that they get into; therefore, they have less concern about engaging in impulsive behaviors.

Secondly, while class was not a consideration when the participants were chosen, most of the college students likely came from a higher socioeconomic realm than most of the inmates. As a result they could likely afford to participate more in such sports as skiing,

canoeing, and auto racing than either group of inmates, and also go out with friends more frequently seeking excitement, with affirmative answers to these questions being indicative of greater impulsivity on the survey.

Third, non-violent inmates were all being considered for parole within one year. While this researcher assured all the inmates prior to testing that their test responses would remain completely confidential in respect to anyone else in the Department of Corrections, should they have felt that the results of the test instrument might somehow be conveyed to the Parole Board they may have “faked good” in answering some of the questions on the survey in an attempt to reflect lesser deviance and impulsivity.

Fourth, the fact that the violent inmates were incarcerated during the year prior to the test survey likely resulted in lower scoring on such items as swimming, diving, engaging in drinking parties, and playing pool during the prior year, which would have reflected less impulsivity on their part.

Fifth, a review of the prison records revealed that more of the violent inmates had grown up in dysfunctional families, ie., parents were divorced or one or both had criminal records, and had been subjected to abuse more than the non-violent inmates by a total of 12 to 5. Thus, they were more likely to have been socialized into a culture of violence and impulsive violent behaviors. Therefore, their responses to relevant questions on the test instrument would likely be indicative of greater impulsivity than the responses of the non-violent inmates.

Sixth, in addition to the conditions cited regarding test participants, this researcher feels that the test should have discriminated between the inmates who had committed violent crimes and college students as to impulsivity. Questions on the test instrument that were cited earlier, ie., as to whether the inmates who had committed violent crimes had engaged in activities such

as swimming, canoeing, and diving during the prior year, while the inmates were incarcerated, encouraged test answers which served to reflect less impulsivity on the part of the inmates who had committed violent crimes than was likely the case.

### Limitations of the Study

The sample size limited the findings in terms of being able to make any substantive generalizations or to be able to extrapolate the research to general prison populations. Also, since all of the study participants were of the Caucasian race, the populations surveyed were too racially unrepresentative to generate meaningful statistics when compared to heterogenous prison populations.

The study participants were overwhelmingly from rural areas as opposed to the usual prison populations in larger institutions, especially in other states, being mainly from urban areas. This could have had cultural significance in respect to the customary beliefs, social norms, socialization processes, shared attitudes, and goals and values of the surveyed population vis-a-vis those from a strictly urban background.

As previously cited, questions on the test instrument as to whether the inmates had engaged in activities such as swimming, canoeing, and diving during the previous year, while the inmates were incarcerated, encouraged answers which reflected less impulsivity on the part of the inmates who had committed violent crimes than was actually the case, and to the extent that they did so, served to weaken the internal validity of the test.

### Recommendations For Future Research

This researcher recommends that future research be done involving this highly important association of impulsivity and prison inmates, especially those who have been

incarcerated for violent crimes. Future research should involve much larger and more ethnically, socioeconomically, and culturally diverse prison populations. If such a test can be replicated over time with such demographic populations, it would appear sufficiently encouraging to propose the value of using test scores as assessment instruments to aid in the diagnosis of impulsivity, Intermittent Explosive Disorder or impulsive violent behaviors that suggest subsequent treatment.

## APPENDIX A

Table 1	ANOVA Summary and Report
Table 2	Tukey's HSD
Table 3	Item-by-Item Analysis

Table 1 ANOVA Summary and Report

Summary	Groups	Count	Sum	Mean	Variance
	Violent Offenders	20	377	18.85	23.18684211
	Non-Violent Offenders	20	282	14.6	36.88421053
	College Students	20	381	19.05	47.41842105
Alpha 0.05					
<b>ANOVA</b>					
Table 1					
	Source of Variation	SS	df	MS	F
	Between Groups	252.7	2	126.35	3.526391813
	Within Groups	2042.3	57	35.82962456	
	Total	2295	59		F-Critical 3.15

Table 2

Alpha	0.05
Degree of Freedom Within	57
Groups	3
$\alpha_{.25}$	3.4
Mean Square Within	35.82982456
Number of Scores per Group	20
Group A Mean	18.85
Group B Mean	14.6
Group C Mean	19.05
HSD	3.715689897
Total Mean	17.5

	$M_a$	$M_b$	$M_c$
$M_a$	---	4.25*	0.2
$M_b$	4.25*	---	4.45*
$M_c$	0.2	4.45*	---

Table 3

ITEM BY ITEM ANALYSIS OF THE THREE GROUPS

V = Violent Inmates

N = Non-Violent Inmates

C = College Students

1. Not a scored item.
2. Nothing stands out with either group.
3. C's were 8 times as likely to be involved in skiing as V's, and 4 times as likely as N's.
4. Not a scored item.
5. Not a scored item.
6. Nothing stands out with either group.
7. Nothing stands out with either group.
8. Not a scored item.
9. Nothing stands out with either group.
10. Nothing stands out with either group.
11. All groups scored identically.
12. C's were 40% more likely to argue about their rights than V's, and 20% more likely than N's.
13. N's were slightly more likely to read a great deal than C's, and 40% more likely than V's.
14. V's were 25% more likely to smoke than N's, and over 4 times more likely than C's.
15. Not a scored item.

16. Nothing stands out with either group.
17. Not a scored item.
18. V's were twice as likely to play hooky from school as N's, and 3.5 times as likely as C's.
19. Not a scored item.
20. V's were 10% more likely to show a bad temper than N's.
21. C's were three times as likely to have engaged in swimming in the past year as V's or N's. (This could likely be explained by the fact that most of the V's and N's were incarcerated).
22. C's were 4 times as likely to have engaged in diving in the past year as V's or N's. This could be explained due to the incarceration of the V's and N's).
23. Nothing stands out with either group.
24. Not a scored item.
25. C's were 5 times as likely to have engaged in auto racing as V's and 2.5 times as likely as N's. (This could be explained by incarceration of V's and N's in the past year).
26. Not a scored item.
27. C's were 4 times as likely to have engaged in game of Blackjack than V's and 20% more likely than N's, in the past year.
28. Not a scored item.
29. C's were 4 times as likely to have engaged in drinking parties in the past year as V's, and 8 times as likely as N's. (This could be explained due to incarceration of V's and N's).
30. C's were 7 times as likely to have engaged in playing pool as V's and 5 times as likely as N's, within the past year. (This could be explained due to incarceration of V's and N's).
31. Not a scored item.
32. V's were twice as likely to have hiked over 10 miles before they were 18 than C's and 30% more likely than N's.

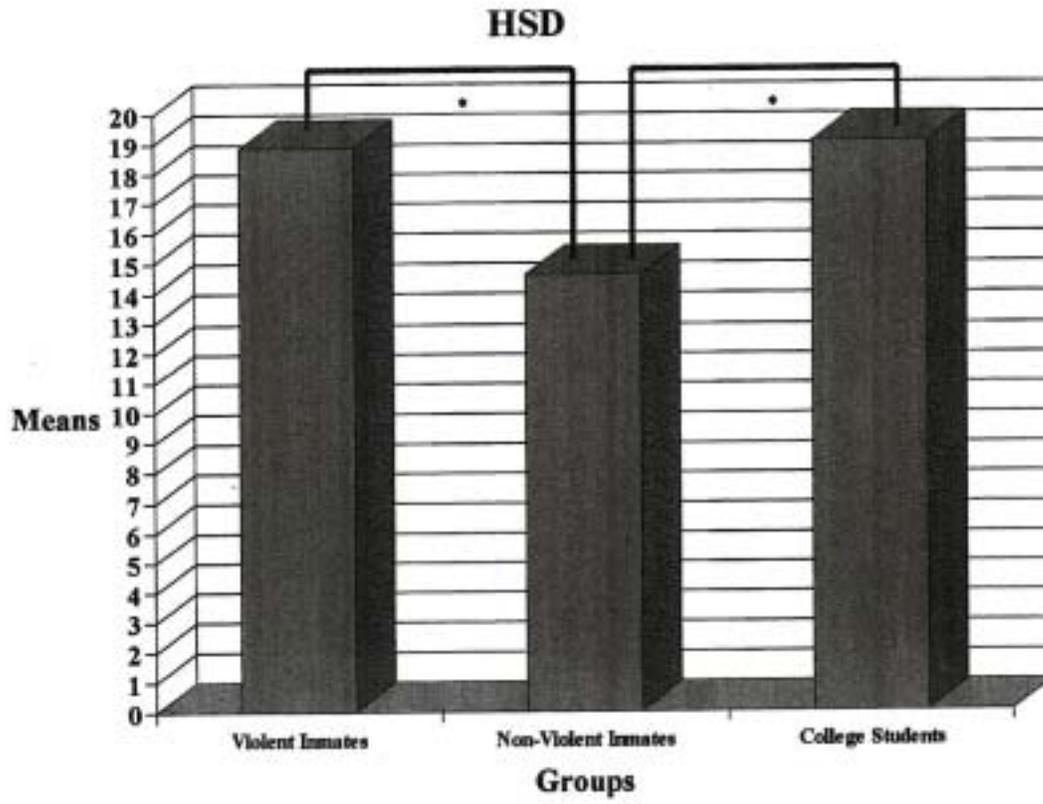
33. Nothing stands out with either group.
34. C's were three times as likely to have learned how to handle a canoe by the time they were 18 as N's, and 20% more likely than V's.
35. V's were twice as likely to have learned to climb mountains by 18 than N's, and 20% more likely than C's.
36. V's were 5 times as likely to have learned to walk with snow shoes by 18 as N's, and 2.5 times as likely as C's.
37. V's were 4 times as likely to meet girls by picking them up at age 14 or younger as C's, and 3 times as likely as N's; whereas C's were 40% more likely to meet girls by picking them up from age 17 to 20 than V's, and 30% more likely than N's.
38. V's were twice as likely to have taken an overnight trip away from home without their family as C's.
39. C's were 20% more likely to have engaged in dancing from 15 to 16 years of age than V's or N's.
40. V's were twice as likely to have drunk beer at age 14 or younger than N's, and 20% more likely than C's.
41. V's were 4 times as likely to have drunk whiskey at age 14 or younger than either N's or C's
42. V's were 9 times more likely to have engaged in hitchhiking than N's or C's.
43. Not a scored item.
44. C's and N's enjoy sports such as football, boxing, wrestling, and hockey 25% more than V's do. (This could be due to intolerance for abiding by rules and the structure of the games/sports on the part of the V's.
45. C's were twice as likely to be sent to the principal's office once or twice a year for fooling around in class as V's or N's.  
V's were 4 times as likely to be sent to the principal's office three or four times a year as C's, and N's were 3 times as likely.  
V's were 3 times as likely to be sent to the principal's office fairly often as N's, but 10% more likely than C's.

46. As a boy, C's were 3 times as likely to usually take a dare as V's, and 6 times as likely as N's.
47. In grammar school, C's were 5 times as likely to be punished for bad conduct almost every week as N's, and V's were 4 times as likely to be punished as N's.
48. C's have thought that other people dislike them or something about them very often twice as often as V's or N's.  
C's have thought that other people dislike them or something about them 3 times as often as V's.
49. In high school V's were 3 times as likely to have refused help to other students with their studies as N's, and twice as likely as C's.
50. C's are twice as likely to make a suggestion and try to get others to accept it when out with a group of friends for the evening and trying to decide what to do for the evening as N's, and 20% more likely than V's.
51. Regardless of their income, N's are 6 times as likely to have sometimes spent more than they earned, as are V's or C's.
52. When having a little extra money, V's are 4 times as likely to try their luck at poker or dice as are N's or C's.  
V's are twice as likely to get a good meal.  
N's are 4 times as likely as V's to take their wife or a date out, and 60% more likely to do so than C's.
53. Not a scored item.
54. Not a scored item.
55. When having a free evening, C's are twice as likely to go out with friends to stir up excitement as are V's, and 9 times more likely than N's.
56. Not a scored item.

## APPENDIX B

Figure 1      Graph of Tukey's HSD of the independent variables

Figure 1



## APPENDIX C

### References

## References

- American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV). Washington, DC: American Psychiatric Association. 1994.
- Andrews, D. A., & Bonta, J. LSI-R: The Level of Service Inventory-Revised. Toronto, ONT: Multi-Health Systems, Inc. 1995.
- Arseneault, L.; Moffitt, T. E.; Caspi, A.; Taylor, P. J.; and Silva, P. A. Mental disorders and violence in a total birth cohort: Results from the Dunedin Study. Archives of General Psychiatry, 2000 (Volume 57), pages 979-986.
- Bjork, James M.; Dougherty, Donald M.; Huang, David; Scurlock, Corey. Self-reported impulsivity is correlated with laboratory-measured escape behavior. The Journal of General Psychology, 04-01-1998 (Volume 125, number 10), page 165.
- Bonta, J.; Harman, W. G.; Hann, R. G., & Cormier, R. B. The prediction of recidivism among federally sentenced offenders: a revalidation of the SIR scale. Canadian Journal of Criminology, 1996 (Volume 38), pages 61-79.
- Bonta, J.; Law, M., & Hanson, K. The prediction of criminal and violent recidivism among mentally disordered offenders: a meta-analysis (Ministry Secretariat). Ottawa, ONT: Solicitor General of Canada. 1996.
- Collins, J. J., and Messerschmidt, M. A. Epidemiology of alcohol-related violence. Alcohol Health & Research World, 1993 (Volume 17), pages 93-100. Cunradi, C. B.;
- Caetano, R.; Clark, C. L.; and Schafer, J. Alcohol-related problems and intimate partner violence among white, black, and Hispanic couples in the U.S. Alcoholism: Clinical and Experimental Research, 1999 (Volume 23) pages 1492-1501.
- Davison, Gerald C.; Neale, John M.; Abnormal Psychology: Seventh Edition, John Wiley & Sons, Inc., New York, 1997.
- Diagnostic and Statistical Manual of Mental Disorders. 4<sup>th</sup> edition. Washington, D. C.: American Psychiatric Association.
- Diagnostic and Statistical Manual of Mental Disorders.(DSMIV TR) Washington, D. C.: American Psychiatric Association.
- Donovan, D. M. (1988), Assessment of addictive behaviors: Implications of an emerging biopsychosocial model. In D. M. Donovan & G. A. Marlatt (Eds.), Assessment of

Addiction Behaviors pages 3 - 48. New York: Guilford.

Downey, G., & Coyne, J. C. Children of depressed parents: An integrative review. Psychological Bulletin, 1990 (Volume 108). pages 50-76.

Emery, Robert E.; Oltmanns, Thomas F., Essentials of Abnormal Psychology, Prentice Hall, New Jersey, 1999.

Eysenck, S. B. G.; Pearson, P. R.; Easting, G. & Allsopp, J. G. Age norms for impulsiveness, venturesomeness and empathy in adults. Personality and Individual Differences, 1985 (Volume 6), pages 614-619.

Faber, R. J. & O'Guinn, T. C. (1991). A biopsychosocial model of the causation of compulsive buying. Paper presented at the annual meeting of the Association for Consumer Research, Chicago.

Frosh, J. The relation between acting out and disorder of impulse control. Psychiatry 40:295, 1977.

Gendreau, P., & Goggin, C. A meta-analysis of the predictors of adult offender recidivism: What works! Criminology, 1996 (Volume 34), pages 401-433.

Hare, R. D. Psychopathy: A clinical construct whose time has come. Criminal Justice and Behavior, 1996 (Volume 23), pages 25-54.

Higley, J. Dee, Ph.D. Individual differences in alcohol-induced aggression: A nonhuman-primate model. Alcohol Health & Research World, 01-01-2001, page 12.

Hoffman, P. B. Screening for risk: A revised Salient Factor Score (SFS 81). Journal of Criminal Justice, 1983 (Volume 11), pages 539-547.

Jacobs, D. F. (1989). A general theory of addictions: Rationale for and evidence supporting a new approach for understanding and treating addictive behaviors. In H. J. Shaffer, S. A. Stein, B. Cambino & T. N. Comming (Eds), Compulsive gambling: Theory, research and practice pages 35 - 64. Lexington, MA: D. C. Health.

Kaplan, Harold I., M.D. and Benjamin Sadock, M.D. (eds). Comprehensive Textbook of Psychiatry / IV. Baltimore: Williams and Wilkins. 1991.

Kernberg, Otto. Borderline personality organization. Journal of the American Psychoanalytic Association, 1967 (Volume 15), pages 641-685.

Kernberg, Otto. Borderline conditions and pathological narcissism. New York, Aronson. 1975.

Kipnis, D. and Glickman, A.S. (1962) The prediction of job performance. Journal of Applied Psychology, 46, 50-56.

Kipnis, David (1965a) Intelligence as a modifier of the behavior of character disorders. Journal of Applied Psychology, 49, 237-242

Kipnis, David (1971). Personality and Psychopathology. New York: Academic Press Inc., 1971, pages 14-15.

Klein, Karla; forehand, Rex; Armistead, Lisa; Long, Patricia, Delinquency during the transition to early adulthood: family and parenting predictors from early adolescence. Adolescence, 03-22-1997 (Volume 32), pages 61-81.

Kohut, H. The analysis of the self. New York: International Universities Press. 1971.

Levison, P. K., Gerstein, D. r. & Maloit, D. R. (1983) Commonalities in substance abuse and habitual behavior. Lexington, MA: Lexington Books.

Linnoila, J.; Virkkunen, M.; George, T.; et al. Serotonin, violent behavior and alcohol. Experiential Supplement, 1994 (Volume 71), pages 155-163.

Lion, J. R. The intermittent explosive disorder. Psychiatric Annals, 1992 (Volume22), pages 64-66.

Loeber, R., & Stouthamer-Loeber, M. Family factors as correlates and predictors of juvenile conduct problems and delinquency. Crime and Justice, 1986 (Volume 7), pages 29-147.

Marlatt, G. A., & Baer, J. S. Addictive behaviors: Etiology and treatment. Annual Review of Psychology, 1988 (Volume 39), pages 223-252.

Maxman, Jerrold S. and Ward G. Nicholas. Essential Psychology and Its Treatment, Second Edition. New York: W. W. Norton and Company.

McElroy, Susan L., M.D.; Soutullo, C. A.; Beckman, D. A., et al. DSM-IV intermittent explosive disorder: a report of 27 cases. Journal of Clinical Psychiatry, 1998 (Volume 59), pages 203-210.

McElroy, Susan L., Hudson, J. I., Pope, H. G. Jr., Keck, P. E. Jr., & Aizley, H. G. (1992). The DSM III-R Impulse Control Disorders not elsewhere classified: Clinical characteristics and relationship to other psychiatric disorders. American Journal of Psychiatry, 149, pages 318-327.

McElroy, Susan L., M.D. Recognition and Treatment of DSM-IV Intermittent Explosive Disorder. Journal of Clinical Psychiatry, 1999 (Volume 60) supplement 15, pages 12-16.

MeLoy, J. Reid (1992). Violent Attachments. Jason Aaronson, Inc., 230 Livingston Street, Northvale, New Jersey.

Myslinski, Norbert. Violence and the Brain. The World & I, 05-01-1997 (Volume12), page 146.

Patterson, G. Performance models for antisocial boys. American Psychologist, 1986 (Volume 41), pages 432-444.

Popkin, M. K. Impulse Control disorders not elsewhere classified. Comprehensive Textbook of Psychiatry ed. 5. Baltimore: Williams and Wilkins, 1989.

Raspberry, William / Washington Post. Tyson's rage should teach us lessons. The Dallas Morning News, 03-01-1999, page 13A.

Ryall, R. Delinquency: The problem for treatment. Social Work Today, 1974 (Volume 15), pages 98-104.

Serin, R. C., & amos, N. L. The role of psychopathy in the assessment of dangerousness. International Journal of Law and Psychiatry, 1995 (Volume 18), pages 231-238.

Simourd, D. J. Criminal attitudes: The silent partner in crime. Paper presented at the Sixth Symposium on Violence and Aggression, Saskatoon, SK, Canada. June, 1996.

Stein, D. J.; Hollander, E.; Liebowitz, M. R. Neurobiology of impulsivity and impulse control disorders. Journal of Neuropsychiatry, 1993 (Volume 5), pages 9-17.

Stewart, D.J. and Resnick, J.H. Verbal conditioning and dependency behavior in delinquents. Journal of Abnormal Psychology, 1971, (Volume 75), pages 90-92.

Torrence, E. P. and Ziller, R. C. Risk and Life Experience: Development for measuring risk-taking tendencies, (Tech. Rep. No. 57-23), United States Air Force, Washington Air Defense Center, 1957.

Wierson, M., & Forehand, R. Family stressors and adolescent functioning: A consideration of models for early and middle adolescents. Behavior Therapy, 1992 (Volume 23), pages 671-688.

Zuckerman, M. Sensation Seeking, Beyond the Optimal Level of Arousal. New Jersey: Erlbaum, 1975.