

Psychological Theories of Crime and Delinquency

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Several psychological theories have been used to understand crime and delinquency. This literature review categorizes these perspectives into five areas, provides a brief overview of each, and analyzes and synthesizes the relevant, elements within each area. The major perspectives reviewed are learning theories, intelligence theories, personality theories, theories of psychopathy, and cognitive and social development theories. These are included in the review because they met the following criteria: (1) major tenets of the theory had been used to explain crime, (2) the theory was considered significant by scholars in several disciplines, including psychology, and (3) the assumptions in the theory included a focus on the individual or internal processes or both.

KEYWORDS *Crime of delinquency, psychology, theory*

INTRODUCTION

Criminology is defined by Webster's dictionary as "the scientific study of crime as a social phenomenon, of criminals, and of penal treatment" (<http://www.merriamwebster.com/dictionary/criminology>). In one criminology textbook, Sheley (2000) defined the term more narrowly as the "scientific study of crime as a social phenomenon" and reflected the dominant role sociology has played in the study of crime and delinquency (p. 1). However, psychological theories have also been influential in shaping the way society thinks about crime and delinquency and in shaping policies that relate to these issues (Sampson & Laub, 2003). Though there is overlap between

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sociological and psychological theories, this literature review identifies and synthesizes five major theories in the field of psychology related to crime and delinquency.

The review is divided into the following categories: learning theories, intelligence theories, personality theories, theories of psychopathy, and cognitive and social development theories. These categories represent a synthesis of psychological concepts that help to explain crime and delinquency (Shoemaker, 2005; Siegel, Welsh, & Senna, 2006). In addition to describing the elements of each theory, the review concludes with a figure that highlights the concepts and illustrates how they relate to one another.

METHODOLOGY

Two methods were used to identify the literature reviewed for this article. First, a computer search was completed using the University of California-Berkeley online library databases and Google Scholar. Second, an expert in the area was consulted to provide additional resources. The UC library databases searched include PsycINFO and PsycARTICLES; these core psychological databases provide search information for all CSA Illumina Social Sciences databases. In addition, the University of California Melvyl book and article database was searched because it includes all of the UC holdings (e.g. books, articles, magazines, and governmental publications). Initial searches included the following keywords: *psychological theory and crime*, *psychological theory and delinquency*, *crime and delinquency*, *theory and delinquency*, *theory and crime*, *IQ and delinquency*, and truncated terms *psych* and theor* and delinqu**, *psych* and delinqu**, and *psych* and theor* and crim**. After consultation with a scholar in the field, additional searches were completed to locate publications by the following key theorists: Travis Hirschi, John Laub and Robert Sampson, Terrie Moffitt, Jerome Kagan, and Jerry Patterson. Once several key articles were identified, frequently cited articles were also searched and identified.

There are several limitations in the search methods listed here, especially with regard to the overlap between the psychological and sociological theories of crime and delinquency. As the search focused primarily on psychological theories, those theories with extensive sociological overlap were not reviewed. A second limitation relates to the brevity of the literature review; therefore it does not represent a comprehensive review of all psychological theories in this area.

Psychological Theories of Crime and Delinquency

Theories of crime and delinquency tend to use either macro- or micro-levels of analysis. Typically, the field of sociology has addressed crime and delin-

quency at the macro-level, primarily looking for societal and environmental influences that lead to criminal behavior. Psychological theories tend to address crime and delinquency at the individual level, primarily identifying individual differences that lead to criminal behavior. Although debates about the merits of micro- and macro-levels of analysis still exist, many modern studies of crime and delinquency aim to identify multiple contributing factors and often attempt to explain both micro- and macro-influences on criminal behavior.

Some psychological theorists attempt to provide a framework for identifying the correlational relationships between psychological variables (pathology) within a person and that person's delinquent behavior while others attempt to understand contingencies responsible for maintaining non-conforming behavior labeled deviant. Deviance from this perspective is understood as "ways, which the person has learned, of coping with environmental and self-imposed demands" (Bandura, 1969, p. 2). This review begins with an overview of learning theories.

LEARNING THEORIES

Learning theories represent the "study of circumstances under which a response and a cue stimulus become connected (Miller & Dollard, 1941, p. 1); they have been discussed in the literature since the 19th century. The first empirical studies of learning have been attributed to Edward Thorndike (Pavlov, 2010/1927). Thorndike conducted animal studies demonstrating a cat could learn to associate the behavior of getting out of box with obtaining food that was placed outside the box and hasten the task over time (Thorndike, 1898). This work established an important principle that would influence future research on learning (Kazdin, 1989). He established the "Law of Effect, which states that consequences that follow behavior help learning (Kazdin, 1989, p. 10). Around the same time, but without knowledge of Thorndike's work, Ivan Pavlov was conducting studies on a different type of learning (see Pavlov, 2010/1927). He was measuring and conditioning salivation and other physiological reflexes in dogs to respond to neutral stimuli (see Pavlov, 2010/1927), later called classical conditioning. Focusing on the consequences of behavior rather than the eliciting stimuli, Skinner (1938) postulated that behavior has an influence on the environment. The frequency of behavior is determined by environmental consequences and can be altered by modifying the environmental conditions (Skinner, 1963). He explicated operant conditioning.

Others were more interested in internal determinants of behavior. Rotter (1954) proposed a social learning theory of personality that emphasized the role of learned behavior and experience in the interaction of person and environment determinants of behavior. Citing the influential work of Kantor (1924) who proposed that behavior resulted from the interaction of the person and stimulus in environment and Lewin (1935) who suggested

that behavior is determined by the person and their environment in time and space, the thrust of this theory focused on how behavior is shaped by experience. Bandura (1969) discussed the principles of modifying behavior using social learning theory. Later labeled social cognitive theory (Bandura, 1986), social learning theory posits the interaction of (1) observation, symbolic representations and self-generated stimuli and self-imposed consequences, (2) environmental conditions and (3) behaviors in determining behavior. The theory “favors a model of causation involving triadic reciprocal determinism...behavior, cognition and other personal factors, and environmental influences all operate as interacting determinants that influence each other bidirectionally (Bandura, 1989, p. 2). Social learning theorists posit that the conditions by which behavior is shaped include internal and external forces, and that behavior itself is a determinant of future behavior (Bandura, 1969). Deviant, criminal or delinquent behavior, like all behavior, results from this model of causation.

Learning theories have been influential in understanding criminal behavior. A theory of differential association was posited; criminal behavior occurs in a context of cultural conflict where association with criminals increases criminal behavior (Sutherland, 1939). Differential association theory was expanded and refined by Burgess and Akers (1966) to incorporate the behavioral and social learning theories. They defined differential association-reinforcement theory. These theorists posited that in addition to differential association with deviant peers, differential reinforcement of deviant behaviors is also required to explain criminal behavior. Building on the writings of B.F. Skinner, this theory focuses on the use of operant conditioning in learning criminal behavior (Burgess & Akers). Operant conditioning is the process by which an environmental stimulus elicits a voluntary response, and the response is either positively or negatively reinforced, which affects its continuation or discontinuation (Skinner, 1963). If a behavior is rewarded, it will be continued, and if the behavior is not rewarded, it will be discontinued or extinguished (Skinner). Over time, a pattern of behavior develops, and the learned behavioral reactions are internalized (Siegel et al., 2006). “The strength of criminal behavior is a direct function of the amount, frequency, and probability of its reinforcement” (Burgess & Akers, p. 146). In addition, definitions or internalized, learned norms and imitation account for development of deviant behavior (Akers et al., 1979). In testing this theory, a “vicarious-reinforcement” hypothesis was supported; as a delinquent attracted attention, peers increased their delinquency to gain the same attention (Rebellon, 2006, p. 403). There is extensive empirical support for the successful application of learning theory principles to modify behavior (see for instance the works of Albert Bandura, B. F. Skinner, and Israel Goldiamond, among others). Because these principles can be applied to behaviors of all kinds, the learning perspective provides valuable tools for understanding crime and delinquency.

INTELLIGENCE THEORIES

Ideas about a connection between intelligence and delinquency are long-standing and much debated by scholars. When IQ became the measure of intelligence, Goddard sparked an intense debate with his published report about “feebleminded inmates,” which erroneously led him to conclude that criminal behavior was caused by low intelligence (Goddard, 1914, as cited in Shoemaker, 2005). Several subsequent studies were unable to replicate Goddard’s work, so studying intelligence among criminals fell out of favor (Shoemaker). For many years, sociological research did not pursue individually focused explanations for criminal behavior, and that resulted in the omission of explicit links between intelligence and delinquency, despite the fact that many researchers implicitly assumed the relationship (Hirschi & Hindelang, 1977).

In addition, many researchers continue to be concerned about the misinterpretation of IQ-delinquency data because a narrow focus on IQ as a cause of delinquency can direct researchers to misleading conclusions about heredity, race, and class (McGloin, Pratt, & Maahs, 2004). Studies attempting to find a causal link between intelligence and deviance have also been criticized for methodological reasons, including “wide variation in IQ scores among both criminals and noncriminals; evidence that good schooling . . . is related to high IQ test scoring . . . low motivation is associated with low scoring; and . . . the gap between prisoner scores and . . . the general population is greatly reduced when comparisons are made with people of similar economic, linguistic, and educational backgrounds” (Pfohl, 1994, p. 113).

Currently, research focuses on the effect of IQ on delinquency among other important risk factors and various explanations of delinquent and criminal behavior, namely, whether the relationship is direct and causal or indirect and mediated by other factors such as school performance (McGloin et al., 2004; Moffitt, 1990, as cited in Moffitt, 1993).

Some studies have reported that delinquents have lower IQ scores than nondelinquents (Hirschi & Hindelang, 1977), and a connection between low IQ and delinquency has been posited (Lynam et al., 1993). In their influential review, Hirschi and Hindelang concluded that intelligence had an effect on delinquency, and this effect had an inverse correlation that was independent of class and race. They focus their interpretations of these conclusions on the mediating factor of school performance, indicating that students with lower IQ scores did poorly in school, gained less acceptance, had fewer opportunities to excel at school and then, as a result, looked for acceptance and opportunities elsewhere. The power of the school as a device of social control was diminished for these students. As suggested in an earlier publication, this lack of social control (the school) led to increased delinquent acts (Hirschi, 1969). This analysis has been

extended to include deviant peer pressure and self-control as other mediating factors in the indirect link between IQ and delinquency (McGloin et al., 2004).

Other scholars have tested the connection between IQ and delinquency and reported a causal link between the two (Lynam et al., 1993; Moffitt, Gabrielli, Mednick, & Schulsinger, 1981), and a causal link between low IQ and antisocial behavior (Koenen, Caspi, Moffitt, Rijdsdijk, & Taylor, 2006). Each of the studies also indicated that school performance was a mediating factor for the effect of IQ on delinquency. For example, one study found that the effect of IQ on delinquency was mediated by school performance only for African-American youths (Lynam et al.). Another study found that IQ was one part of a three-stage pathway to delinquency; low IQ in combination with high anxiety and depression contributes to delinquent behaviors (Leech, Day, Richardson, & Goldschmidt, 2003). The children involved in this pathway also had more problems in school (Leech et al.).

Therefore, any relationship between IQ and delinquency is most likely indirect. Specifically, IQ impacts mediating factors such as performance in school, self-control, the influence of deviant peer pressure, and psychological well-being. These factors influence delinquent behavior. Therefore, it is the impact that IQ has on these factors that indirectly links it to delinquency. Studies of the intelligence and deviance link should be viewed with caution due to methodological challenges discussed above, and interpretations of this work must be made carefully.

PERSONALITY TRAIT THEORIES

Theories that explain crime and delinquency as a result of personality traits focus on delinquency as an externalizing behavior representing internal pathology. Representing a large literature, two prominent theories are the psychodynamic-psychoanalytical theory and the personality trait theory. The goal here is to summarize the main points.

The psychodynamic-psychoanalytic theory, developed from the writings of Sigmund Freud, posits that personality is developed early in life and is composed of three distinct parts: the id, the ego, and the superego (Siegel et al., 2006). The id represents the instinctual drives, the ego represents understood social norms that harness the id, and the superego is learned moral reasoning (Siegel et al.). Delinquent behavior occurs as a result of imbalance between these three parts of our personality and is thought to be a symbolic way of meeting our unconscious needs (Siegel et al.). The internal conflicts that lead to delinquency, usually resulting from a conflict between the id and societal norms understood by the ego, are very painful to the individual, so the individual pushes them into the unconscious (Shoemaker, 2005). Then, the individual develops coping strategies called *defense mechanisms* to cope with the conflicts, and these defense mechanisms can

lead to problematic personality traits and problematic behaviors, such as delinquency (Shoemaker). In essence, delinquent behavior is seen as the external manifestation of an internal disease (Shoemaker).

Erikson expanded on this theory, explaining delinquency as an “identity crisis” created by inner turmoil (Siegel et al., 2006). As has been noted by many critics of psychoanalytic theory, this identity crisis created by inner turmoil is difficult to test empirically. The utility of psychoanalytic theory to explain complex, delinquent behavior is limited by the lack of evidence to support it (Shoemaker, 2005; Siegel et al.) and by the “circular nature” of psychoanalytic thought (Pfohl, 1994, p. 121). That is the unconscious manifestations of pathology are “inferred from behavior” and that behavior is interpreted as a symptom of the pathology (Pfohl, 1994).

In the 1950s, Sheldon and Eleanor Glueck conducted studies on 500 boys and highlighted the personality and delinquency link in some of their findings (Glueck & Glueck, 1950, 1952). Their interpretation of the findings indicated that when compared with nondelinquents, delinquent boys were “less cooperative,” more “suspicious,” “more destructive,” more “defensive,” and had “conscious or unconscious hostile impulses,” (Glueck & Glueck, 1952, p. 152). In addition, they reported more severe “mental pathology” in the delinquent boys (Glueck & Glueck, 1952, p. 162). Their work, although criticized for its inexact methods, inspired other researchers to examine personality and psychiatric disorder in connection with delinquency (Shoemaker, 2005). Others have attempted to link antisocial and aggressive behavior and low self-esteem to delinquency (Donnellan, Trzesniewski, Robins, Moffitt, & Caspi, 2005).

The psychodynamic-psychoanalytic theory and the various personality trait theories attempt to identify common characteristics of delinquents and provide frameworks to guide interventions that may dissuade an individual from demonstrating destructive behaviors. The challenge to these theorists rests in the difficulty of testing such hypotheses and in taking into account the vast variability in human behavior.

Theories of Psychopathy

Typically, theories of psychopathy are used to describe more serious and violent delinquent acts. Theorists view serious and persistent crime and delinquency as an outward manifestation of mental illness. The main difference between these theories and the personality theories described earlier lies in the distinction that psychopathy theorists make between individual traits, which are the focus of personality theories, and a state of being that includes several distinct traits and comprises a disorder, which is the focus of psychopathy theories. Antisocial personality disorder, also called *psychopathy*, is the prominent disorder used to explain criminal behavior from this viewpoint. In addition, reinforcement sensitivity theory explains

delinquent behavior using a biological lens. It is briefly described in this section due to its framing of delinquency as a state created by a chemical disorder or imbalance.

Antisocial personality disorder (APD), a psychiatric disorder, as listed in the *American Psychiatric Association's Diagnostic and Statistical Manual-IV TR* (DSM-IV), has been closely studied in connection with crime and delinquency (Shoemaker, 2005; Siegel et al., 2006). The criteria for the disorder include a pattern of violation of the rights of others, including law-breaking activities that began in childhood or early adolescence (DSM-IV, 2000). There is debate about the utility of APD to be used synonymously with psychopathy as the diagnostic criteria for APD does not include some of the core traits believed to be a part of psychopathy (Blackburn, 1998).

Psychopathy was described as a "socially devastating personality disorder defined by a constellation of affective, interpersonal, and behavioral characteristics, including ... a propensity to violate social and legal expectations and norms" (Hare, 1998, p. 105). Based on the DSM-IV criteria, the United States prevalence in the general population is estimated to be about the same as that of schizophrenia (about 1%; Hare, 1993). In prison populations, rates of psychopathy are much higher at about 20%, and it is estimated that psychopaths commit 50% of serious crimes (Hare, 1993). The key symptoms are broken into two categories: emotional/interpersonal (e.g., glib, superficial, egocentric, grandiose, lacking empathy) and social deviance (e.g., impulsive, lack of responsibility, poor control of behavior, need for excitement, antisocial behavior; Hare, 1993). Criminal and delinquent behavior is a hallmark of the disorder. These symptoms are included on a widely used clinical tool, the *Psychopathy Checklist*, in the hopes of identifying psychopathic individuals (Hare, 1993). If psychopaths can be reliably identified, there may be interventions that can be enlisted to prevent or desist the behaviors that these individuals often exhibit.

Taking a look at delinquency through a more biological lens, Eysenck (1964) reported that delinquents had lower cortical arousal levels and less ability to be conditioned by social norms than nondelinquents, and those traits can lead to increased extraversion and neuroticism in the criminal. Gray's (1970) reinforcement sensitivity theory, a revision and extension of Eysenck's theory, helped to identify introverts as more sensitive to punishment and non-reward but found that they were not more easily conditioned. This sensitivity to punishment and non-reward lead to decreased delinquent behavior. In addition, reinforcement sensitivity theorists stated that there was a physiological basis for introversion, which consists of the ascending reticular activating system and the inhibitory system of the orbital frontal cortex, medial septal, and hippocampus (Gray, 1970). This research has been criticized for a lack of focus on social factors that impact physiology and the differential opportunities people have for extroversion and introversion (Pfohl, 1994).

By clustering personality characteristics and linking them to behavior (e.g., antisocial personality disorder, psychopathy, and delinquent behavior), these theorists attempt to identify and intervene with individuals at risk of delinquent behavior. Conversely, linking personality clusters to certain behaviors leads to the use of negative labels. These labels, in and of themselves, can be harmful.

Cognitive and Social Development Theories

Cognitive theorists focus on mental processes that assist us in ordering and understanding our world and in engaging in problem solving (Siegel et al., 2006). Piaget identified and labeled the step-wise approach to the development of reasoning and morals in children (Siegel et al.). The age-related stages include the egocentric stage, the concrete operational stage, and the formal, cognitive operational stage whereby an individual can use abstract thinking, logic, and rules to navigate a situation (Feldman, 1977). Kohlberg expanded the idea of developmental stages of reasoning and connected them to crime and delinquency; he outlined six stages of development (obedience-punishment orientation, self-interest orientation, interpersonal accord and conformity, social-order maintaining orientation, social contract orientation, and universal ethical principles; Siegel et al.). These stages culminate in the autonomy of individuals to use personal and universal principles (that may go beyond the rule of law) to maintain the rights of others (Feldman).

Others have continued in the developmental tradition while studying delinquency. One such influential theory is Catalano and Hawkins' (1996) social development model that accounts for the development of pro-social and antisocial behaviors through similar processes in four distinct periods of time: pre-school, elementary school, middle school, and high school. The development of antisocial behavior can be cumulative and increasing in direction. This is because the connection with antisocial peers, family, and activities in one period of time can increase chances of continuing those behaviors in a later period of development (Catalano & Hawkins). These antisocial behaviors and interactions also decrease the likelihood of engaging in positive peer relationships and activities (Catalano & Hawkins). One study testing the predictive potential of involvement in after-school activity and delinquency found a modest protective influence of involvement in structured activity for delinquents and a more robust positive correlation between involvement in unstructured activity and delinquency in high school (Fleming, Catalano, Mazza, Brown, Haggerty, & Harachi, 2008). Though promising, more research is needed to test and validate the social development theory of delinquency.

Drawing upon Hirschi and Gottfredson's (1983) research related to the high rate of delinquency in adolescence, Moffitt (1993) created the developmental taxonomy of two patterns of antisocial, delinquent behavior:

“adolescent-limited and life-course-persistent.” Moffitt (1993) reported that the increased rate of delinquency in adolescence indicated that delinquent behavior was a normative part of development, which peaked in the teen years and then desisted (Moffitt, 1993). However, there was a small number of delinquents that continued to offend into adulthood and developed a “pathological personality,” and it is of importance for interventionists to distinguish between these two groups (Moffitt, 1993, p. 647). Several risk factors for the life course persistent type were identified and included neurological damage and difficult temperament in infancy, difficult parental temperament, environments that promote criminal values, problematic child and parent interactions, and inability to overcome obstacles that lead to decreased options for non-criminal success (Moffitt, 1993). In short, the life course persistent type of offenders reflected the interaction of risky behaviors, genetic traits, and poor environment (Moffitt, 1993). It is hypothesized that this type of behavior is pathological (Moffitt, 1993). Several studies provide support for the hypothesis that antisocial behavior in childhood is linked to adolescent delinquency (Broidy et al., 2003) and that psychopathology in early adolescence can be stable and predictive of adult psychopathology (Lynam et al., 2007; Lynam & Gudonis, 2005).

The challenge to the life course taxonomy perspective is found in the research on adult criminal offenders who began offending in adulthood (not as juveniles; Eggleston & Laub, 2002). This research challenges the trajectory of life course persistence (e.g., problematic infancy leads to problematic childhood leads to problematic adolescence leads to adulthood criminal behavior). In addition, evidence from a pioneering, comprehensive longitudinal study that followed up 500 delinquents from ages 7 to 70 indicated that criminal behavior declines for all offenders over time and that childhood risk factors were not good predictors of adult offending (Sampson & Laub, 2003).

More research is needed to address the discrepancy in the literature about life course trajectories.

SYNTHESIS AND CONCLUSIONS

Figure 1 provides an overview of five major theory areas and how each has been used to explain crime and delinquency. Learning theorists posit that delinquent behavior is learned. Intelligence theorists point to how low IQ results in poor school performance, which leaves individuals vulnerable to delinquency. Personality trait theorists look at specified traits and patterns of coping (defense mechanisms) that lead to delinquency. Theories of psychopathy focus on an individual's underlying psychiatric disorder that is characterized by criminal and delinquent behavior. Last, developmental theories look at patterns and trajectories in social and cognitive development

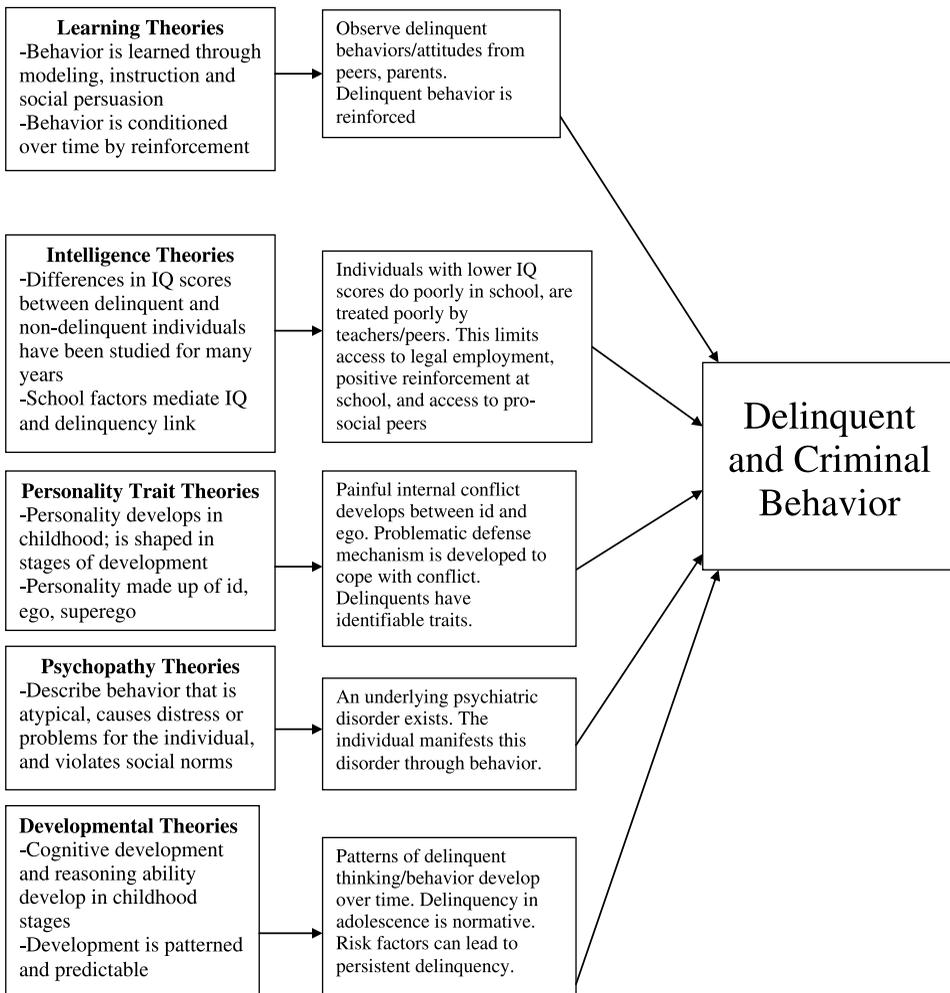


FIGURE 1 Psychological theories to explain crime and delinquency.

that lead to delinquency. Figure 1 illustrates the similar assumptions and resulting behaviors embedded within the theories.

A brief overview of the analyses presented in this review assists in synthesizing the information provided. Learning theories used to explain crime and delinquency have the most robust empirical support. The link between intelligence and delinquency is indirect and mediated most notably by school performance. However, methodological and conceptual critiques challenge this research. Studies of personality traits of delinquents versus nondelinquents are inconclusive. The normative nature of delinquent behavior in adolescence appears to refute psychopathology as a general description of the behavior. The impact of negative labels, such as psychopath, should be considered when thinking about this body of work. Though

developmental theories have increasing amounts of empirical support, the possible negative policy and intervention implications based on trajectories toward delinquency need to be carefully assessed and considered in future research.

In conclusion, individually focused theories of crime and delinquency often lead to individually focused interventions that may not adequately take into account the societal influences of race and class. To fully understand and make changes that address crime and delinquency, researchers and policy makers need to take both individual and societal factors into account.

REFERENCES

- Akers, R. L., Krohn, M. D., Lanza-Kaduce, L., & Radosevich, M. (1979). Social learning and deviant behavior: a specific test of a general theory. *American Sociological Review*, *44*(4), 636–655.
- American Psychiatric Association. (2000). *Diagnostic and Statistical Manual-IV TR*. Arlington, VA: Author.
- Bandura, A. (1969). *Principles of behavior modification*. Holt, Rinehart and Winston.
- Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. Englewood Cliffs, NJ: Prentice-Hall.
- Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist*, *44*(9), 1175–1184.
- Blackburn, R. (1998). Psychopathy and personality disorder. In D. J. Cooke, A. E. Forth, & R. D. Hare. (Eds.), *Psychopathy: Theory, research and implications for society*. Dordrecht, Netherlands: Kluwer Academic Publishers.
- Broidy, L. M., Nagin, D. S., Tremblay, R. E., Bates, J. E., Brame, B., Dodge, K. A., et al.. (2003). Developmental trajectories of childhood disruptive behaviors and adolescent delinquency: A six-site, cross-national study. *Developmental Psychology. Special Issue: Violent Children*, *39*(2), 222–245.
- Burgess, R. L., & Akers, R. L. (1966). A differential association-reinforcement theory of criminal behavior. *Social Problems*, *14*(2), 128–147.
- Catalano, R. F., and Hawkins, J. D. (1996). The social development model: A theory of antisocial behavior. In J. D. Hawkins (Ed.), *Delinquency and crime: Current theories*. Cambridge, UK: Cambridge University Press.
- Donnellan, M. B., Trzesniewski, K. H., Robins, R. W., Moffitt, T. E., & Caspi, A. (2005). Low self-esteem is related to aggression, antisocial behavior, and delinquency. *Psychological Science*, *16*(4), 328–335.
- Eggleston, E. P., & Laub, J. H. (2002). The onset of adult offending—a neglected dimension of the criminal career. *Journal of Criminal Justice*, *30*(6), 603.
- Eysenck, H. J. (1964). *Crime and personality*. Boston, MA: Houghton Mifflin.
- Feldman, M.P. (1977). *Criminal behaviour: A psychological analysis*. London, UK: Wiley.
- Fleming, C. B., Catalano, R. F., Mazza, J. J., Brown, E. C., Haggerty, K. P., & Harachi, T. W. (2008). After-school activities, misbehavior in school, and delinquency from the end of elementary school through the beginning of high school: A test

- of social development model hypotheses. *The Journal of Early Adolescence*, 28(2), 277–303.
- Glueck, S., & Glueck, E. (1950). *Unraveling juvenile delinquency*. Cambridge, MA: Harvard University Press.
- Glueck, S., & Glueck, E. (1952). *Delinquents in the making*. New York, NY: Harper & Brothers.
- Goddard, H.H. (1914). Feeble-mindedness. In D. J. Shoemaker (Ed.), *Theories of delinquency: An examination of explanations of delinquent behavior*. New York, NY: Oxford University Press.
- Gray, J. A. (1970). The psychophysiological basis of introversion-extraversion. *Behaviour Research and Therapy*, 8(3), 249–249.
- Hare, R. D. (1993). *Without conscience: The disturbing world of the psychopaths among us*. New York, NY: The Guilford Press.
- Hare, R. D. (1998). Psychopathy, affect and behavior. In D. J. Cooke, A. E. Forth, & R. D. Hare, (Eds.), *Psychopathy: Theory, research and implications for society*. Dordrecht, Netherlands: Kluwer Academic Publishers.
- Hirschi, T. (1969). *Causes of delinquency*. Berkeley, CA: University of California Press.
- Hirschi, T., & Hindelang, M. J. (1977). Intelligence and delinquency: A revisionist review. *American Sociological Review*, 42(4), 571–587.
- Hirschi, T., & Gottfredson, M. (1983). Age and the explanation of crime. *The American Journal of Sociology*, 89(3), 552–584.
- Kantor, J. R. (1924). *Principles of Psychology*. New York, NY: Knopf.
- Kazdin, A. (1989). *Behavior modification in applied settings*. Pacific Grove, CA: Brooks/Cole Publishing.
- Koenen, K. C., Caspi, A., Moffitt, T. E., Rijdsdijk, F., & Taylor, A. (2006). Genetic influences on the overlap between low IQ and antisocial behavior in young children. *Journal of Abnormal Psychology*, 115(4), 787–797.
- Leech, S. L., Day, N. L., Richardson, G. A., & Goldschmidt, L. (2003). Predictors of self-reported delinquent behavior in a sample of young adolescents. *Journal of Early Adolescence*, 23(1), 78–106.
- Lewin, K. (1935). *A dynamic theory of personality; Selected papers* (1st ed.). New York, NY: McGraw-Hill Book Company.
- Lynam D., Moffitt, T., & Stouthamer-Loeber, M. (1993). Explaining the relation between IQ and delinquency: Class, race, test motivation, school failure, or self-control? *Journal of Abnormal Psychology*, 102(2), 187–196.
- Lynam, D. R., Caspi, A., Moffitt, T. E., Loeber, R., & Stouthamer-Loeber, M. (2007). Longitudinal evidence that psychopathy scores in early adolescence predict adult psychopathy. *Journal of Abnormal Psychology*, 116(1), 155–165.
- Lynam, D. R., & Gudonis, L. (2005). The development of psychopathy. *Annual Review of Clinical Psychology*, 1(1), 381–407.
- McGloin, J. M., Pratt, T. C., & Maahs, J. (2004). Rethinking the IQ-delinquency relationship: A longitudinal analysis of multiple theoretical models. *Justice Quarterly*, 21(3), 603–635.
- Miller, N. E., & Dollard, J. (1941). *Social learning and imitation*. New Haven, CT: Yale University Press.
- Moffitt, T.E., Gabrielli, W.F., Mednick, S.A., & Schulsinger, F. (1981). Socioeconomic status, IQ, and delinquency. *Journal of Abnormal Psychology*, 90(2), 152–156.

- Moffitt, T.E. (1990). Juvenile delinquency and attention deficit disorder: Boys' developmental trajectories from age 3 to 15. *Child Development*, 61, 893–910.
- Moffitt, T. E. (1993). Adolescence-limited and life-course-persistent antisocial behavior: A developmental taxonomy. *Psychological Review*, 100(4), 674–701.
- Pavlov, I. P. (2010). Conditioned reflexes: An investigation of the physiological activity of the cerebral cortex. *Annals of Neurosciences*, 17(3), 136. (Reprinted from Pavlov, I. P. (1927). Conditioned reflexes: An investigation of the physiological activity of the cerebral cortex).
- Pfohl, S. (1994). *Imaged of deviance and social control: A sociological history*. New York, NY: McGraw Hill.
- Rebellon, C. J. (2006). Do adolescents engage in delinquency to attract the social attention of peers? An extension and longitudinal test of the social reinforcement hypothesis. *Journal of Research in Crime and Delinquency*, 43(4), 387–411.
- Rotter, J. B. (1954). *Social learning and clinical psychology*. Englewood Cliffs, NJ: Prentice Hall.
- Sampson, R. J., & Laub, J. H. (2003). Life-course desisters? Trajectories of crime among delinquent boys followed to age 70. *Criminology*, 41(3), 555–592.
- Sheley, J. F. (2000). *Criminology*. Belmont, CA: Wadsworth/Thomas Learning.
- Shoemaker, D. J. (2005). *Theories of delinquency: An examination of explanations of delinquent behavior*. New York, NY: Oxford University Press.
- Siegel, L. J., Welsh, B. C., & Senna, J. J. (2006). *Juvenile delinquency: Theory, practice and law*. Belmont, CA: Thomson/Wadsworth.
- Skinner, B. F. (1938). *The behavior of organisms*. New York, NY: Appleton-Century.
- Skinner, B. F. (1963). Operant behavior. *American Psychologist*, 18(8), 503–515.
- Sutherland, E. H. (1939). *Principles of criminology* (3rd ed.). Chicago, IL: J. B. Lippincott Company.
- Thorndike, E. L. (1898). *Animal intelligence: An experimental study of the associative processes in animals*. New York, NY: The Macmillan Company.
- Webster, M. (2008). Definition of criminology. Merriam-Webster Web site. Retrieved from <http://www.merriamwebster.com/dictionary/criminology>

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