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Theories of Criminal Behavior

It's, I don't know, maybe a messed up gene somewhere.
—Alex Baranyi, quadruple murderer (Johnson, 1998)

At midnight on January 3, 1997, 20-year-old Kimberly Wilson was strangled and kicked to death in a Bellevue, Washington, park. Her body was found a day later lying in a heap with a cord wrapped around her neck. When the police went to her nearby home to inform her family of her murder, they found blood spatter on the walls and ceilings. Kimberly's parents, Rose and Bill Wilson, and 17-year-old sister, Julia Wilson, were dead in their beds. Rose Wilson's head had been crushed by blows of a blunt object and there were through-and-through stab wounds in her throat. Bill Wilson's skull had been crushed and he had stab wounds to the neck, face, and head. Julia Wilson had defensive injuries including slash wounds on her hands and a broken arm with blunt force injuries and stab wounds in her head, face, and throat.

Investigators discovered that Kimberly Wilson had been involved with a group of friends who were into the "Gothic" lifestyle. They called themselves "Goths," dressed in dark clothing, wore dark makeup, played role-playing games pretending to be witches and vampires, and possessed a worldview of gloom and death. The group hung out at a Denny's restaurant and were part of the "Saturday Night Denny's Club." Most of the group considered the Gothic lifestyle fun and did not take it too seriously. However, investigators discovered that two of the group's members, David Anderson, a friend of Kimberly's since elementary school, and Alex Baranyi were known to take the lifestyle to extremes and had often talked about committing murder.

Less than a week after the murders, police arrested 17-year-old Alex Baranyi, who confessed to the murders. He told detectives that he had strangled Kimberly in the park and, on realizing she may have told her parents she was meeting him, he went to her home to kill them with a baseball bat and combat knife. Baranyi acknowledged that he had an accomplice who beat Kimberly as he strangled her and helped kill her family. Later police arrested David Anderson, also 17, after compiling evidence including bloodstained items found at Baranyi's and Anderson's homes that DNA tests matched to the blood of the victims. Baranyi and Anderson were convicted on four counts of aggravated murder in 1998 and 2000, respectively, and received sentences of life without parole.

Why did two teenagers in an upper-middle-class Seattle suburb commit this horrific quadruple murder? What factors converged to produce their criminal behavior? As we go about our daily lives—on the Web, watching TV, listening to the radio in our cars, reading news headlines while waiting in line at Starbucks for the morning coffee—we read and hear about all sorts of horrendous stories of crime. What happened to the Wilson family becomes part of the ongoing chatter of incomprehensible criminal events in the background of our lives. Headlines and images of crime bombard us:

- "Mother and 2 daughters killed in Connecticut home invasion" (Lueck, Stowe, & Hussey, 2007)
- "Prison gang linked to 16 Dallas murders" (Lopez, 2007)
- "Girl fatally stabbed before decapitated" (Associated Press, 2007)
- "Gunman kills girls 'execution style' at Amish school" (Reid & Baldwin, 2006)
- "Woman rips off husbands testicles with bare hands" (6 ABC Action News, May 17, 2006)
- "Woman charged with scalping Mohawk-wearing teen" (Associated Press, 2005)
- "Gary Ridgway said: 'I killed so many women I have a hard time keeping them straight'" (Ho, Johnson, & Castro, 2003)
Schmalleger, 2004), promising integrative models that have emerged (Barak, 1998; Hickey, 2002; Robinson, 2004) offer insight into the developmental pathways and manifestations of criminal behavior. Criminologists are challenged to develop a comprehensive and coherent explanation of criminal behavior that takes into account the diverse and sometimes conflicting theories, frameworks, and perspectives across the range of disciplines from which criminal behavior has been historically approached.

The lack of complex integrated theory construction (largely rooted in historical competition between macro-level sociological theories and micro-level psychological theories) and inability to come up with a general theory to explain all types of criminal behavior call into question how much criminologists really know about crime. Criminologists' analyses are rarely heard in mass media, which are dominated by the perspectives of criminal justice professionals and news journalists (Tunell, 1998). However, "the mass media pundits, the public cultural critics, and the professional politicians who are all engaged in the business of talking about crime know far less than criminologists do" (Barak, 1998, p. 5). This "talking about crime" that inundates us on a daily basis through news media, pop culture, the Internet, and politics makes it especially important to be able to sort fact from fiction, theory from anecdote, and scientific methodology from everyday observation and the many fallacies that exist about crime (Felson, 2002).

**Interdisciplinary Criminology**

Criminology is an interdisciplinary field of study focusing on crime, criminal behavior, and its social response. Criminologists are researchers, academics, and policy analysts with advanced degrees (usually in criminology, criminal justice, or sociology) who study crime, crime trends, and social reactions to crime (Schmalleger, 2004). Contemporary criminology is historically rooted in two schools of thought—positivist criminology and classical criminology. Positivist criminology locates the root of criminal behavior in identifiable factors such as biological, psychological, and environmental forces. Classical criminology identifies free will as the root of criminal behavior, based on the notion that all human beings make choices about the behaviors they engage in, and offenders engage in a cost-benefit analysis before choosing to commit a crime.

Contemporary criminologists recognize that criminal behavior involves both free will and deterministic forces. A clear line cannot be drawn between classical and positivist thought (Barak, 1998), and an individual's decision to engage in criminal behavior cannot be viewed as an either-or phenomenon. According to Katz (1988):

The statistical and correlational findings of positivist criminology provide the following irritations to inquiry: (1) whatever the validity of the hereditary, psychological, and sociological conditions of crime, many of those in the supposedly causal categories do not commit the crime at issue; (2) many who do commit the crime do not fit the causal categories; and (3) what is most provocative, many who do fit the background categories and later commit the predicted crime go for long stretches without committing the crimes to which the theory directs them. (pp. 3-4)
On the other hand, explanations of crime that hinge solely on the classical free will argument do not take into account genetic and biological influences (Fisher, 2001), unconscious dynamics (Gacono & Meloy, 1988), conditioning mechanisms (Laws & Marshall, 1990), facilitators (Hickey, 2002), temptations versus controls (Felson, 2002), background factors and “foreground dynamics” (Colvin, 2000), the interaction between the offender, victim, and context (Miethe & Meier, 1994), and influence of cultural values, style, aesthetics (Black, 1991; Ferrell & Sanders, 1995; Presdee, 2000) that shape conscious choice and create the push and pull compelling an individual to commit a particular criminal act.

Crime scholars have called for integration of the many theories and perspectives on the continuum from classical to positivist criminology. According to Barak (1998), criminology has spun out of control with too many perspectives, disciplines, frameworks, and criminologies—each operating as if no others existed. Many criminologists now argue for an interdisciplinary approach to the study of crime that integrates the natural sciences, social sciences, and humanities with the view that no single discipline can explain crime alone (Barak, 1998; Colvin, 2000; Ferrell & Sanders, 1995; Robinson, 2004; Walsh & Ellis, 2007). Criminologists have adopted three general positions: (1) sociological traditionalists; (2) multidisciplinary specialists; and (3) interdisciplinary generalists (Barak, 1998, p. 8). Sociological traditionalists approach crime from the sociological perspective, with the view that criminology is a subfield of sociology and other fields play a subordinate role in the study of crime. Multidisciplinary specialists are criminologists from social and behavioral science disciplines outside of sociology (e.g., psychology, biology, political science, economics) who do not see criminology as a subfield of sociology. Multidisciplinary generalists acknowledge the necessity of studying crime from multiple disciplines, but elevate their own particular discipline’s importance in the study of crime while minimizing or neglecting the importance of others. Interdisciplinary generalists include an emerging group of criminologists who believe that the study of crime and its response must involve equal integration of knowledge from many fields including, but not limited to, psychology, sociology, biology, cultural studies, law, philosophy, political science, history, and economics.

Interdisciplinary criminology rejects the notion that scientific evolution is achieved through the falsification of theories, with the view that criminal behavior is so complex that most theories have something to offer, explain part of the picture, for at least some types of crimes. As a result, criminal behavior scholars have moved toward focus on risk and protective factors that increase or decrease the likelihood of crime rather than on theory falsification. The important question is “What variables are related to crime, and in what ways?” with the focus on “variables and relationships among variables, rather than on theories themselves” (Vold, Bernard, & Snipes, 2002, pp. 313–314). This approach to the study of crime is known as a risk factor approach. The risk factor approach integrates multiple theories (many of which have been historically viewed as contradictory) with the view that many factors contribute to crime—some playing more of a role than others—and that some theories may explain more or less of the variation in crime than others.

The interdisciplinary risk factor approach challenges the either-or view that criminal behavior is the product of free will (classical criminology) or determinism (positivist criminology). Viewing criminal behavior in terms of free will or determinism is problematic because human beings are not born with equal abilities nor can they be neatly divided into criminal and noncriminal groups. Furthermore, it is impossible to empirically verify or falsify free will/rational choice or to demonstrate deterministic causality. The interdisciplinary approach addresses these problems by explaining criminal behavior in terms of probability rather than choice or causality. The interaction between risk (e.g., genetic predisposition for antisocial behavior) and protective factors (e.g., family support) increases or decreases the likelihood of criminal behavior (Robinson, 2004). In other words, a person is able to “freely choose” within deterministic constraints that involve a continuous push and pull of risk versus protective factors that increase the probability that some of us will engage in criminal behavior more than others. We can all choose to be law abiding, but self-control and inclinations toward such behavior depend on a multitude of factors and forces that dictate our choices.

Felson (2002) uses the potato chip principle to explain this complex interaction between free will and determinism:

We could all make a decision that nearly enslaves us for some time afterward. Then a flash of freedom arises, a crucial junction for the next decision. Moving through life, a person never has complete freedom or complete constraint, but the degree of constraint shifts by time, place, and setting. (Felson, 2002, p. 42)

A bag of potato chips has the potential to constrain choice for certain people some of the time. Eating the entire bag of chips is not unlike a burglary committed by a group of youths whose night out drinking escalates into an exhilarated frenzy with some choosing to go home and others deciding to burglarize someone else’s (Felson, 2002). Explanation of the factors and forces that explain who will eat the chips and who will stop after just one requires integration of the research findings and perspectives of a range of disciplines.

Interdisciplinary criminology is the most comprehensive, theoretically rich, and practically applicable approach to make sense of the reality of crime. This text approaches the study of criminal behavior from the “interdisciplinary generalist” position, with focus on risk factors that increase the probability of criminal behavior and the view that theories and knowledge bases from different disciplines can be used as integrative tools to explain, predict, and respond to criminal behavior. Although detailed summary of the many approaches and theories of different disciplines is beyond the scope of this text, the following section provides a brief overview of important research findings from multiple knowledge bases with attention to the ways in which each contributes to the study of crime and to the analysis of criminal behavior.

Integrating Theories of Criminal Behavior

Crime is an illegal behavior committed by an individual or group of individuals that occurs at a particular moment within a specific social context. Like any human
behavior, crime is the end-product of a complex interplay between individual and environmental forces. Most crimes are adaptive, normal, and easy to understand, and (in legalistic terms) all crime can be explained by the existence of a criminal law prohibiting such behavior (Robinson, 2004). Some crimes are much more difficult to understand and explain. It is not hard to comprehend why someone would steal because they’re hungry or to support a drug addiction. But understanding and explaining why a woman would shoot a pregnant acquaintance in the head and then cut out her fetus or why a young man would abduct, rape, torture, and murder a child is much more difficult and requires attention to research and theory from multiple disciplines.

Multiple theories can be used to explain criminal behavior, with recognition that no single discipline is capable of offering “the answer.” The study of criminal behavior has historically been approached from a range of disciplines and perspectives with minimal theoretical integration. Many theories of crime, antisocial behavior, and deviance overlap and cannot be neatly separated by discipline. For purpose of clarity, disciplinary perspectives and criminology knowledge bases are broken down into six general areas and related research questions:

1. Biological: What are the biological roots of criminal behavior?
2. Psychological: What psychological factors contributed to this behavior?
3. Sociological: What sociological forces contributed to this behavior?
4. Routine Activity/Opportunity/Ecological: What situational, contextual, environmental factors provided the setting and opportunity for this crime to occur?
5. Cultural: What cultural forces provided the context in which this crime could occur?
6. Phenomenological: What personal meaning does the crime hold for the offender?

Although there is much disciplinary and theoretical overlap, the six bodies of knowledge represent unique ways of looking at crime and offer specific tools with which to analyze criminal behavior. Each area represents particular factors that contribute to criminal behavior and is briefly summarized to provide a general overview of the knowledge bases from which interdisciplinary criminology draws.

**Biological Theories—What Are the Biological Roots of Criminal Behavior?**

Biological theories explain crime in terms of the interaction between biological predisposition and environmental conditions on behavioral outcomes (Fishbein, 2001). Studies show that behaviors, characteristics, and traits associated with crime such as aggression, impulsivity, antisocial personality, and psychopathy are influenced by a range of biological factors including evolution and genetics, brain biochemistry and function, brain injury, hormonal influences, physiology, physical anomalies and body build, diet and blood sugar levels, and cognitive deficits (Raine, 1993). Proponents of the biological perspective argue that biological theories of criminal behavior offer more sophisticated theories, models, concepts, instruments, and methodology that can serve traditional criminology as quality control devices (Walsh, 2002).

Much of the research on biology and crime is based on the assumption of a relationship between aggression, antisocial behavior, impulsivity, psychopathy, and criminal behavior. Different studies use different concepts and variables, which makes determining the biology-crime relationship problematic. Because criminality is a socially constructed concept, findings on the biological factors associated with crime are based on research on the biological roots of behaviors and traits empirically linked to criminality such as aggression, impulsivity, violence, and other crime-related variables. Given the vast amount of research on biology and crime, selective coverage is provided here, with attention to some of the more interesting theories, findings, and hypotheses that are being actively explored in criminological research.3

**Evolution and Genetics**

In April 2003, The International Human Genome Sequencing Consortium, led in the United States by the National Human Genome Research Institute (NHGRI) and the Department of Energy (DOE), announced the successful completion of the Human Genome Project, which finished the reference sequence of the human genome. The finished sequence covers 99% of the human genome's gene-containing regions, and it has been sequenced to an accuracy of 99.99% (National Human Genome Research Institute, 2003). This means that 99% of the human blueprint has now been discovered, with widespread implications for the discovery, treatment, and prevention of human diseases and conditions, including criminal behavior. Many contend that mapping the human genome may bring new cures for human afflictions and diseases including drug addiction, mental illness (Recher, 2001), aggression, violence, and crime (Montgomery, 1995).

Human behavior is the product of an evolutionary process involving chance, natural selection, and cultural influences (Ehrlich & Feldman, 2003). Genes do not cause human (or criminal) behavior. They predispose individuals to particular conditions. Whether or not a person will develop a disease or condition depends on chance and environment, referred to as genotype-phenotype interaction. A genotype is the genetic constitution of an individual encoded in the DNA contained within chromosomes and other structures inside cells. A phenotype is the observable product of the interaction between the genotype and the environment, such as physiological response and behavior. At the most basic level, genes determine what we are (e.g., type of animal, human) but do not solely determine who we are (Robinson, 2004). Phenotypic expression—intelligence, personality, physical behaviors, mental disorders, medical and behavioral conditions—is determined through interaction between genetics and environment. Criminal behavior is a phenotypic expression produced through genetic-environment interaction.

Evolutionary theories of crime contend that criminal behavior evolves through natural selection. Evolutionary psychology is a branch of psychology that uses a Darwinian framework to explain human behavior in terms of processes of natural selection and adaptation. Evolutionary criminology applies theory from evolutionary psychology to criminal behavior. Evolutionary criminologists explain criminal behavior in terms of evolutionary history, arguing that behaviors seen as criminal today were adaptive in ancastral...
environments. Evolutionary theories of crime are based on the notion that natural selection is the inevitable result of three fundamental features of life:

1. **Heredity**—physical and behavioral traits are genetically passed from parent to offspring.
2. **Variation**—individuals differ in their physical traits and behaviors.
3. **Differential reproduction**—the inherited traits of some individuals will result in the reproduction of more offspring.

Heritable traits are reproductively **adaptive** (advantageous), **maladaptive** (disadvantageous), or **neutral** (Jones, 1999). The accumulated effects of natural selection impact the brain’s neural structure and information processing predisposing certain behaviors that facilitate reproductive success (Jones, 1999). Rooted in neo-Darwinian theories of evolution, these theories state that genes dictate that reproduction is the most vital function of an organism, and that DNA codes for priority reproduction must take in order for a species to survive (Fishbein, 2001). Reproduction is a genetically driven evolutionary process that codes for anatomical and physiological traits. Criminal behavior, like all behaviors, revolves around reproductive drives. Proposed evolutionary theories relevant to antisocial and criminal behavior include the r/K theory, the cheater theory, the adaptation hypothesis, and evolutionary theories of rape. All attempt to explain criminal behavior in terms of its long-term reproductive consequences.

Heritability studies (involving twin and adoption studies) suggest that personality factors and traits linked to aggressive and violent behavior may be heritable. Findings suggest that childhood aggression, disruptive behavior, and aggressive behavior across the life course may be mediated by genetic factors (Mik et al., 2007). Some research suggests that aggressiveness is transmitted across generations within families (Huesmann, Enron, & Lerkowitz, 1984) and that alcoholism, susceptibility to aggressive and impulsive behaviors, and personality disorders including conduct disorder, borderline personality disorder, attention deficit disorder, and antisocial personality disorder are genetically influenced (Fishbein, 2001). Studies have found that children who have mothers with histrionic personality disorder (HPD) and fathers with antisocial personality disorder (APD) are more likely to have the disorders themselves (histrionic personality disorder if female and antisocial personality disorder if male) and that HPD and APD are sex-typed manifestations of psychopathy (Spalt, 1980; Warner, 1978). However, heredity studies do not identify the genetically influenced biological mechanisms that may contribute to these traits (Fishbein, 2001), which may be identified in the future through the discovery of the human genome sequence.

One of the more interesting of the biological theories is the **cheater theory**. This theory holds that, in some species, alternative reproductive strategies have evolved in some males. In these species, at least two types of males have evolved—"dads" and "cads." Because males do not need to grow offspring to reproduce as females do, they have greater latitude in their reproductive behavior. Dads reproduce by accommodating female preferences for males who are prone to provide parental care for their offspring. Cads reproduce by using force or deception to mate without providing adequate care for their offspring. According to this theory, chronic offenders are "human cads," and cheater males are more likely to evolve in large, impersonal societies where their adaptive strategy is likely to go undetected. This tendency to use deception in the mating process extends to other situations, resulting in the use of cheating, theft, risk-taking, and other antisocial behaviors and crimes (Fishbein, 2001, pp. 22–23).

In recent years, there has been considerable interest in evolutionary theories of rape. These theories hold that rape is a "normal" male natural selection strategy. Evolutionary theorists argue that forced copulation occurs in many species, and the key to understanding rape in humans is the wide disparity in parental investment between the sexes. The female reproductive strategy is to resist casual sexual relations with men, whereas the male reproductive strategy is to inseminate as many females as possible. From this perspective, all males are potential rapists, but whether or not they become rapists depends on environmental factors that affect their ability to obtain resources that will put them in a position to attract mates (Walsh & Ellis, 2007). Consistent with the cheater theory, males who are not successful in the mating process by way of noncoercive methods or deception must resort to forced copulation. In The Natural History of Rape, Thornhill and Palmer (2000) suggest that rape would not occur if human females had been selected to be willing to mate with any male under any circumstances, and if human males had been selected to be sexually attracted to only certain females under limited circumstances, rape would be far less frequent. Of the biological theories of crime, this theory is one of the more controversial in terms of its implications. Box 2.1 offers an example of how evolutionary theory of rape can be applied to a contemporary rape case and the criminal justice implications of this theoretical perspective.

Other evolutionary theories, such as the r/K theory, have been offered as an explanation for sex differences in offending behavior. The concept of r/K selection is based on a continuum along which organisms function. Organisms that are r-selected produce large numbers of offspring with little or no parental care. K-selected organisms produce few offspring and devote inordinate energy and time to their care and nurturing, maximizing each offspring’s potential for reproduction. As applied to criminal behavior, this theory assumes that altruistic and criminal behavior are at opposite ends of a continuum and that criminality should be found among individuals who exhibit all or most r-selected traits, including shorter periods of gestation (premature births), early sexual experiences, sexual promiscuity, child abandonment, neglect, abuse, and short life expectancy (Ellis, 1989, Ellis, 2001; Fishbein, 2001). Studies have shown that offenders possess more r-selected traits than do nonoffenders, and the reason males engage in more criminal behavior than females is that they are more r-selected (Ellis, 2001).

**Brain Chemistry and Function**

**Neurotransmitters**

Neurotransmitters are chemical messengers in the brain that convey "information" in the form of an electrically charged signal across neurons and from brain structure to brain structure. The balance, metabolism, and activity level of neurotransmitters (in part, a function of genetics) regulate emotion, impulse control, mood,
Box 2.1

Biology and Crime: The Case of the "Mall Rapist"

Case Example

James Perry, a 34-year-old married father of two, committed over two dozen rapes and attempted sexual assaults in southern Wisconsin and northern Illinois shopping malls from 1999 until his arrest in 2004. Known as the "Mall Rapist," Perry attacked female clothing store employees in stores and mall parking lots. In addition to the mall rapes, he made pornographic videos of himself raping two girls under the age of 10 and was charged with a 2001 sexual assault, where he allegedly approached a woman at a laundromat, threatened her with a screwdriver, and forced her into a bathroom, where he raped her. Sometime around 2003, authorities believe he changed his behavior from raping adult women to raping young girls. Also during this time he was arrested for domestic violence, charged with disorderly conduct and sentenced to 20 months probation, which he later violated and was reincarcerated for 5 days (Blume, 2004). After eluding police for five years, Perry was captured in early 2004, when he was caught on surveillance tape at a Comfort Inn in Madison. When spotted on the tape, he put a gun to the head of a 13-year-old girl. The girl escaped unharmed from what police believe was an attempted kidnapping. Perry was sentenced in July 2004, to 10 years in prison for the federal sexual exploitation convictions.

Madison Detective Lieutenant Jan Longfield described the case as "probably the worst sexual predator case that I have seen in 23 years." (Police Say Madison's "Mall Rapist" Behind Bars, 2004). Perry's employer, National Tower Service of Madison, issued a statement saying they were "shocked." Perry's wife of eight years and mother of his two daughters said after his arrest:

I guess that's how good they are. They know how to keep secrets and live separate lives. They do these things and they are able to come home to their family and make us feel safe. I don't know this man. I was married to him for eight years, but I don't know him. This is all a huge shock. He's done a lot of bad things. I don't know what else there is for me to say. (Blume, 2004)

Maggie Thurs, a member of the Wisconsin Coalition Against Sexual Assault, commented that for sex offenders who live double lives:

... home is somewhere where they have the opportunity to become that kind, loving, warm person that they know they are supposed to be... Sex offenders spend a lot of time working on this. They know that if they are going to get away with a crime, they need to do this. They need to go home and be the perfect husband, and then they'll go out and be a rapist or be violent. (Blume, 2004)

Analysis of Case From the Biological Perspective

Biological theories of rape are highly controversial. The dominant view since the 1970s has been that rape is a crime of violence, not sex. This view and the sociopolitical implications of associating rape behavior with biological forces have ensured that biological theories of rape have met with a great deal of criticism. One of the best-known (and controversial) biological theories of rape is the theory of evolutionary adaptation (Thornhill & Palmer, 2000). From this perspective, rape is an adaptation designed by sexual selection to facilitate reproductive success. The accumulated effects of natural selection impact the brain's neural architecture and information processing pathways predisposing certain behaviors that facilitate reproductive success. In other words, evolutionary processes create species-typical, sex-typical, and age-typical "evolved psychologies" that have probabilistic effects on behavior (Jones, 1999, p. 84).

Evolutionary theories of rape rest on the biological principle of sexual selection: Sexual selection (human mating rituals) is dictated by evolutionary pressures to sexually reproduce. Biological sex differences determine how many offspring males and females can produce and the amount of time, energy, and general investment it takes. Females are much more invested in reproduction because of the limits of their own bodies. The theoretical maximum number of children a female could mother would be approximately 10, whereas a man could father into the thousands. Male reproductive success is limited by access to fertile females; female reproductive success is limited by the time and energy it takes for each reproductive episode. Because of these differences, male-female competition for males is greater and female choice is greater than male choice regarding who one's mate will be. Different male and female psychologies concerning willingness to copulate indiscriminately have evolved as a result of these differences in sexual selection (Jones, 1999). According to leading biology and rape researchers Thornhill and Palmer (2000), "If human females had been selected to be willing to mate with any male under any circumstances, rape would not occur. On the other hand, if human males had been selected to be sexually attracted to only certain females under certain limited circumstances, rape would be far less frequent" (p. 84).

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How does all of this help us understand and explain the rapes and sexual assaults committed by James Perry? From the perspective of adaptation theory, Perry’s behavior was the result of the evolved behavioral predisposition to rape that exists in all males. However, all males do not rape; and all rapists are not sexual predators. As is the case with any human behavior, the heritable predisposition to rape is influenced by individual, environmental, and contextual factors. Studies comparing human rape to “rape” among most and primates have found that contextual factors such as male-male competition, the extent to which a male possesses resources necessary to attract a mate, and so on influence whether or not a male will rape. Causes of behavior can be proximate and ultimate. Proximate causes are short-term whereas ultimate causes are long-term (in the evolutionary sense). Proximate explanations of behaviors have to do with how certain mechanisms caused something to happen, and ultimate explanations deal with why particular mechanisms exist in a species (Thornhill & Palmer, 2000). Thus, the ultimate cause of Perry’s rape behavior was that he was biologically propelled to rape as an evolutionarily adaptive means of mating and reproducing. Even though rape may not produce increased likelihood of offspring in today’s world, the behavior can be seen as an evolutionary byproduct of the intense sexual desires of human males and the sexual choosiness of human females. That in earlier times increased the chances of reproductive success. Proximate causes such as childhood experiences, behavioral conditioning, stress, cultural images and rape myths, use of pornography, contextual factors, and other factors played a role in the manifestation of his rape behavior, but the ultimate cause of his behavior was natural selection and adaptation.

Perry was married with two children, so why rape to reproduce? Perry’s rape behavior increased his base of mating partners and his chances of producing a greater number of offspring from the evolutionary perspective, human males are in a better position to reproduce the more sex partners they have in other words, rape is an additional mating tactic, not a substitute for consensual intercourse. In addition, whether or not his rapes actually produced offspring or made him less likely to attract consenting mating partners in the future (i.e., by going to prison) is irrelevant because the evolutionary forces that drove his behavior are based on “evolutionary time”—how such behaviors worked in the past, not necessarily the present.

How does the adaptation theory explain Perry’s move from young women to children? Biological theorists argue that rape victims in their teens and early 20’s are overrepresented around the world (Thornhill & Palmer, 2000). However, victim selection depends, in part, on accessibility and vulnerability. In Perry’s case, his move to children occurred after having eluded police for several years. His change in behavior to child rape can be explained as a move to more vulnerable/accessible victims in an attempt to continue his behavior and to evade police. James Perry’s behavior may have been influenced by multiple adaptations to rape. His ability to evade police and go undetected by his wife, employer, and family for so many years suggests that he may be psychopathic. According to Thornhill and Palmer, psychopathic and normal men possess distinct psychological adaptations. Psychopathy is associated with criminal behavior, exploitation of others, and rape, and human rape behavior may be the product of one or multiple rape adaptations. In other words, individuals with a high level of psychopathy are more inclined to harm others and to engage in predatory violence. Perry’s biological predisposition to psychopathy and rape were the ultimate or distal causes of his predatory rape behavior.

Criminal Justice Application

The most direct application of biological theories to rape behavior is chemical castration. Chemical castration involves administering a drug (decaprygly) that decreases sexual impulses. The practice has been used in the United States, Israel, and Europe. The practice has been controversial on legal and moral grounds for many years. The first known offender in the United States to receive chemically castrating injections as a condition of probation was Joseph Frank Smith in 1983 in San Antonio, Texas (Jones, 1999). Chemical castration is now mandatory for some types of sex offenders in some jurisdictions (e.g., for pedophiles in California). The success of chemical castration as a rape-reducing tool depends on the extent to which rape is sexually motivated. From an evolutionary perspective, sexual desire plays a significant role in rape. Studies suggest that chemical castration significantly reduces paraphilic behavior (e.g., exhibitionism, voyeurism, pedophilia), but less is known about its effects on rapists.

The evolutionary theory of rape causation provides strong (or perhaps the only) support for chemical castration. If rape is not influenced by the evolutionary adaptation of sexual desire, then chemical castration is difficult to defend. However, in contrast to surgical castration, the chemical version is reversible and would have no more impact on a person’s future reproduction than would a period of incarceration (provided the incarceration did not involve castration visits).

In Perry’s case, he was sentenced to 18 years in prison, so chemical castration would serve only to reduce his sexual desires in the prison setting (which may be advantageous from a correctional management perspective). Certainly, Perry’s movement to child rape suggests that he has engaged in behaviors that are evolutionary byproducts of the rape adaptation. Perry’s predisposition to rape may thus extend to male rape or rape of female correctional staff, or it may act as an impetus to escape or to disruptive or violent acts. In his case, chemical castration would decrease sexual desire and reduce the likelihood of behaviors that can be seen as evolutionary byproducts of the rape adaptation (male rape) and frustrations associated with the inability to reproduce (escape attempts, disorderly conduct, violence).

Of course, had James Perry’s sexual deviance and sex-offending patterns been identified earlier, perhaps at the time when he was arrested for domestic violence and convicted of disorderly conduct, chemical castration might have been a particularly useful sanction to reduce his inclination to rape or have decreased the number of victims and incidents over time.

hunger, thirst, arousal of the nervous system, and other psychological and behavioral processes. Certain neurotransmitters have been strongly and consistently associated with aggressive and antisocial behavior (Fishbein, 2001) and appear to play a primary role in the behavioral display of different types of aggression (Meloy, 1988). Most of the research on neurochemistry and aggression has been conducted on animals. However, results of the few human studies that have been conducted validate the animal research findings.

Aggression can be classified as instrumental/predatory (planned, purposeful, emotionless) or expressive/affective (spontaneous, reactive, emotional). The two types
of aggression are controlled by different sets of neurotransmitters with distinct neuroanatomical pathways, and studies have shown that four neurotransmitters (serotonin, norepinephrine, dopamine, and acetylcholine) correlate in a distinctive manner with behavioral displays of predatory and affective aggression. The following example illustrates the differences in the display of predatory and affective aggression:

When a household cat is cornered and threatened, the neurochemical set produces a display of affective aggression: hissing, hair standing on end, dilated pupils, active clawing, arching back. When the same cat is stalking a bird in the backyard, predatory aggression dominates: quiet stalking of prey, the absence of ritualistic display, and focused attention on the target (Meloy, 1988, p. 25).

Studies show that affective aggression is associated with low levels of serotonin and high levels of norepinephrine, dopamine, and acetylcholine whereas predatory aggression is associated with low levels of serotonin, norepinephrine, dopamine, and high levels of acetylcholine (Meloy, 1988).

These findings do not support a link between specific neurotransmitters and crime because crime is a heterogeneous category consisting of subtypes of differentially motivated criminal behaviors. For example, most homicides are committed in the context of interpersonal disputes and are motivated by affective aggression whereas serial murder is generally motivated by predatory aggression (Miethe & McCorkle, 2001). However, the findings offer insight into the biochemical mechanisms associated with different behavioral outcomes. In addition to aggression, specific neurotransmitters (e.g., serotonin and norepinephrine) are correlated with low heart rate and skin conductance, which are both associated with antisocial behavior. Thus, neurochemical levels and activity have important implications for understanding and responding to criminal behavior.

**Brain Function**

Biological predisposition to crime may be the result of a disruption of normal neural mechanisms that control and mediate behavior. Neuropsychological theories of crime suggest that dysfunction or damage to areas of the brain contribute to aggression, violence, and antisocial behavior. This research assumes that individual differences in the functioning and quality of parts of the brain can be measured by neuropsychological tests, and that such differences predispose an individual to commit criminal behavior (Raine, 1993).

The brain can be divided into two parts—the cortex and subcortex. The cerebral cortex is made up of four regions or lobes: frontal, temporal, parietal, and occipital. Most neuropsychological research has focused on the left hemisphere of the brain, specifically on the anterior region made up of the frontal and temporal lobes. Some inconsistent evidence links frontal lobe and left hemisphere dysfunction to aggression violence, and antisocial behavior. Other research suggests that dysfunction in the limbic regions of the brain, particularly the amygdala and hippocampus (which regulate emotion), and reduced lateralization for language are associated with violence and aggression (Raine, 1993).

The story of Phineas Gage illustrates how damage to the brain can impact behavior. In 1848, Phineas Gage was the foreman of a Burlington Railroad work crew. In the process of trying to blast rock with gunpowder an accident occurred. A 3½ foot iron rod (a tamping rod used to prepare the rock for blasting) blasted out of the rock like a cannon, striking Gage just below the left eye. The rod blew through Gage's skull and frontal lobe with great speed, exiting through the midline of his skull (just above where the hair meets the forehead). The rod flew 50 feet in the air before landing covered with brains and blood. After the accident, Gage's crew was shocked to find that he was still able to speak and walk. Over a period of several weeks he made an almost complete physical recovery. However, his personality was severely altered. Previously said to be a well-balanced, energetic, and smart businessman, he became obnoxious, impatient, and antisocial, engaging in unpredictable and unrestrained behavior. Research inspired by Gage's experience has found that the area damaged in his case—the orbitofrontal cortex within the prefrontal cortex—is responsible for social skills, impulse control, forethought, and assessment of consequences. More recent research has found that damage to this area appears associated with a number of behavioral problems, such as alcoholism, drug abuse, conduct disorder, and antisocial behaviors (Fishbein, 2001).

**Hormones**

Studies on the relationship between hormones and crime have focused on testosterone and other male hormones called androgens. Data from animal and human studies suggest that male hormones are associated with aggression in some individuals under some circumstances (Fishbein, 2001). The surge of testosterone in postpubertal males (10 times greater than in postpubertal females) partially accounts for the onset of antisocial behavior in most adolescent males and the differences in offending rates between males and females of any age (Walsh, 2002). Male sex hormones operating on the human brain appear to increase the probability of "competitive/victimizing behavior"—behavior directed at others that exists along a continuum from altruistic acts that make no profit to acts that intentionally and directly harm or deprive others of their property (Ellis, 2005). There is some evidence to suggest that testosterone is associated with juvenile delinquency, but the association between testosterone and antisocial behavior diminishes in adulthood (Vold, Bernard, & Snipes, 2002). Other findings suggest that the link between testosterone and adult aggressive and violent behavior is well established but this relationship may be absent, or reversed with respect to aggression in children (Raine, 2002). Regarding sex offenders, testosterone provides the basis for general sexual drive, but research linking abnormality of androgen metabolism with aberrant sexual behavior is not strongly supported and is characterized by conflicting results (Hucker & Baine, 1989). The testosterone-aggression relationship appears to be dependent on contextual, social circumstance, and personality factors (Fishbein, 2001). A critical question is whether not the relationship between testosterone and aggression and violence is causal (Raine, 1993). It is unclear whether increased testosterone causes increased aggression or increased aggression.
and other behaviors, such as exposure to erotica and success in competition, results in increased testosterone levels (Fishbein, 2001; Raine, 1993; Vold, Bernard, & Snipes, 2002).

Female hormones have also been associated with antisocial and aggressive behavior. A number of studies support the hypothesis that a higher percentage of crimes of convicted women are committed four days before and four days after menstruation. Some women may be particularly susceptible to hormonal changes in the menstrual cycle that contribute to proneness to hostility during the menstrual phase (Raine, 1993). This research has led to the use of the “PMS defense,” though public interest in the PMS-crime link far exceeds the level of scientific support for the hypothesis. Evidence also suggests the influence of male hormones on muscular physique, masculine self-identity, and aggressiveness in adult females (Fishbein, 2001). However, research on the links between hormones and criminal behavior in women is scarce and no causal relationship has been established.

Psychophysiology and Other Biological Factors

The human nervous system is made up of the central nervous system (CNS) and peripheral nervous system, which includes the autonomic nervous system (ANS). The ANS resides outside the brain and is responsible for functions necessary for survival, including regulation of heart rate, digestion, blood pressure, circulation, and body temperature. The ANS is activated under stress situations. Individuals who respond to stress by becoming anxious have higher levels of ANS activity than those who do not. CNS and ANS activity are genetically determined, but behavioral manifestations are highly influenced by environmental factors such as learning experiences and stressors. Research shows that individuals prone to antisocial, sensation-seeking, and risk-taking behavior have unusually low physiological levels of CNS and ANS activity. A great deal of research has accumulated over the past 60 years on the link between underarousal and early disinhibited temperament, a childhood forerunner to antisocial behavior. Researchers have explored this link with a range of measurement techniques including analysis of heart rate, skin conductance activity, electroencephalograms (EEGs), and event-related potentials (ERPs) (Raine, 1993). These autonomic responses are also measured through the polygraph because they are considered to be indicators of anxiety and arousal.

Individuals with underactive CNS and ANS activity do not experience physiological and emotional discomfort to the same degree as individuals with average or above average CNS and ANS activity levels. Individuals who do not feel discomfort do not respond appropriately to punishment or threats of punishment and, as a result, are not effectively deterred from engaging in antisocial behavior. Researchers have measured low CNS and ANS activity in antisocial individuals through EEG differences and ERPs (the signals received by the EEG recorder), skin conductance (electrical activity in the skin), heart rate, and startle reflex. Study after study has found that antisocial, psychopathic, and violent offenders are more likely to be underaroused—to have low skin conductivity, low pulse rate, slow-wave activity in their EEG, and delays in their evoked potentials (Fishbein, 2001; Hare, 2001; Raine, 1998), as well as a deviant pattern of startle reactivity (Patrick, 2001). These deficits in emotional processing may be the physiological result of neurotransmitter imbalance (Fishbein, 2001; Raine, 1993).

Recent research addressing the interaction between biological and environmental factors shows that biological and social factors interact to produce antisocial and criminal behavior. The best-replicated biosocial effect appears to be the interaction of birth complications with negative home environments in predisposing adult violence (Raine, 2002). Sophisticated theories, particularly in the area of evolutionary psychology, are now being developed to explain the complex relationship between biology and environment in producing criminal behavior. Ellis (2005) proposes the evolutionary neuroandrogenic (ENA) theory, which envisions criminality as the result of a complex interaction between biological factors resulting from evolutionary history, social learning, and social environmental factors.

Psychological Theories—What Psychological Factors Contributed to This Behavior?

Psychological theories attribute criminal behavior to individual differences resulting from early psychodynamic development, information processing and cognition, and conditioning processes. Psychological theories of crime are micro-level theories that locate the source of criminality within the individual, with the idea that crime is a symptom of an individual's internal psychological condition. Much of the psychological research on criminal behavior has focused on the relationships between personality, mental disorder, and crime. Research at the intersection of psychology and criminology has emphasized integration of cognitive, behavioral, and psychodynamic perspectives in the development of functional concepts of psychopathy and criminality (Meloy, 1988; Walters, 1990). Because crime is a social construct, psychological research on criminal behavior involves study of internal psychological conditions that produce behaviors associated with crime such as antisocial behavior, psychopathy, aggression, and impulsivity. From this perspective, crime is a behavioral symptom that is a manifestation of an internal psychological condition. Recent research has focused to a large extent on the role of psychopathy in criminal behavior and the predictive utility of the construct in assessing dangerousness and future violence.

Psychodynamic and Personality Theories

Psychodynamic theories of criminal behavior focus on development of the psyche in infancy. From this perspective, motivation for criminal behavior is rooted in an individual's psychodynamic structure and development. Contemporary psychodynamic theories of criminal behavior are rooted in Freud's theory of the id, ego, and superego. Freud postulated that behavior is the product of the interaction of the id, ego, superego with the environment. The id represents the human drive for pleasure, the ego regulates the id in accordance with the demands of the external environment, and the superego reflects the conscience and ego ideal or the parental voice inside one's head that says "Do the right thing."