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GENDER, CRIME, AND THE CRIMINAL LAW DEFENSES

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I. INTRODUCTION

Gender is among the strongest predictors of crime,¹ particularly violent crime.² Arrest, self report, and victimization data consistently

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¹ See JAMES W. MESSERSCHMIDT, *MASCULINITIES AND CRIME: CRITIQUE AND RECONCEPTUALIZATION OF THEORY 1* (1993); JAMES Q. WILSON & RICHARD J. HERRNSTEIN, *CRIME AND HUMAN NATURE* 104-05 (1985); David F. Greenberg, *The Gendering of Crime in Marxist Theory*, in *CRIME AND CAPITALISM: READINGS IN MARXIST CRIMINOLOGY* 405, 405 (David F. Greenberg ed., 1993); Kenneth E. Moyer, *Sex Differences in Aggression*, in *SEX DIFFERENCES IN BEHAVIOR* 335, 335 (Richard C. Friedman et al. eds., 1974); Dartell Steffensmeier & Emilie Allan, *Gender, Age, and Crime*, in *CRIMINOLOGY: A CONTEMPORARY HANDBOOK* 67, 67 (Joseph F. Sheley ed., 1991); June Andrew, *Delinquency: Correlating Variables*, 10 J. CLIN. CHILD PSYCH. 136, 136-40 (1981). Recent analyses of historical data show, however, that such gender differences have not always existed. See Greenberg, *supra*; Helen Boritch, *Gender and Criminal Court Outcomes: An Historical Analysis*, 30 CRIMINOLOGY 293 (1992); Malcolm M. Feeley & Deborah L. Little, *The Vanishing Female: The Decline of Women in the Criminal Process, 1687-1912*, 25 L. & SOC'Y REV. 719 (1991).

² See *infra* notes 21 to 24 and accompanying text; see also MARTIN DALY & MARGO WILSON, *HOMICIDE* 156-86 (1988); DONNA MARTIN HAMPARIAN ET AL., *THE VIOLENT FEW: A STUDY OF DANGEROUS JUVENILE OFFENDERS* 51-87 (1978); Candace Kruttschnitt, *Gender and Interpersonal Violence*, in 3. UNDERSTANDING AND PREVENTING VIOLENCE: SOCIAL INFLUENCES 295, 295-378 (Albert J. Reiss, Jr. & Jeffrey A. Roth eds., 1994); Moyer, *supra* note 1, at 335; Deborah R. Baskin & Ira Sommers, *Females' Initiation into Violent Street Crime*, 10 JUST. Q. 559, 559-60 (1993); Ira Sommers & Deborah R. Baskin, *The Situational Context of Violent Female Offending* 30 J. RES. CRIME & DELINQ. 136, 140, 150-55 (1993); Steffensmeier & Allan,

show that men and boys commit significantly more crime, both serious and not, than women and girls.³ This pattern persists despite data indicating that crimes committed by females may be rising.⁴ Evidence also suggests that males are generally more aggressive than females,⁵ even before the preschool years.⁶ Yet most theories and explanations

supra note 1, at 67-70.

³ See FRED A. ADLER ET AL., *CRIMINOLOGY* 43-45 (1991); 1 UNDERSTANDING AND PREVENTING VIOLENCE 5 (Albert J. Reiss, Jr. & Jeffrey A. Roth eds., 1993); RITA JAMES SIMON, *WOMEN AND CRIME* 33-47 (1975); Kruttschnitt, *supra* note 2, at 298-314; Henry J. Steadman et al., *Designing a New Generation of Risk Assessment Research*, in *VIOLENCE AND MENTAL DISORDER: DEVELOPMENTS IN RISK ASSESSMENT* 297, 309 (John Monahan & Henry J. Steadman eds., 1994); Lynn Kratzer & Sheila Hodgins, *Adult Outcomes of Childhood Conduct Problems: A Cohort Study* (1994) (manuscript submitted for publication); see also John Monahan et al., *Ethical and Legal Duties in Conducting Research on Violence: Lessons From the MacArthur Risk Assessment Study*, 8 *VIOLENCE AND VICTIMS* 387, 388 (1993) (identifying gender as one of the risk markers for violence in planning the MacArthur Risk Assessment Study). Official statistics, however, show a greater gender disparity than self report studies. Whereas official statistics report male/female juvenile offense ratios as ranging between 3:1 and 7:1, self report studies show male/female offense ratios as ranging between 1.2:1 and 2.5:1. See Ronda L. Romanowski, *Female Juvenile Offenders: Prevalence, Patterns and Etiology* (1991) (unpublished manuscript, Northwestern University Medical Graduate School). Therefore, the nature and extent of female delinquency appears to more closely resemble that of male delinquency than official statistics demonstrate. See Rachelle J. Canter, *Family Correlates of Male and Female Delinquency*, 20 *CRIMINOLOGY* 146, 146-67 (1982). Kruttschnitt emphasizes that this male-female crime convergence is particularly apparent for less serious offenses. See Kruttschnitt, *supra* note 2.

⁴ See FRED A. ADLER, *SISTERS IN CRIME: THE RISE OF THE NEW FEMALE CRIMINAL* 5-30, 85-169 (1975); SIMON, *supra* note 3, at 19-67; Susan K. Datesman & Frank R. Scarpitti, *The Extent and Nature of Female Crime*, in *WOMEN, CRIME, & JUSTICE* 1, 8-64 (Susan K. Datesman & Frank R. Scarpitti eds., 1980); Roy L. Austin, *Recent Trends in Official Male and Female Crime Rates: The Convergence Controversy*, 21 *J. CRIM. JUST.* 447 (1993); Deborah Baskin et al., *The Political Economy of Female Violent Street Crime*, 20 *FORDHAM URB. L.J.* 401, 402-03 (1993). But see Kruttschnitt, *supra* note 2, at 314-17 (concluding that gender patterns are stable, rather than changing, over time); Darrell J. Steffensmeier, *Sex Differences in Patterns of Adult Crime, 1965-77: A Review and Assessment*, 58 *SOCIAL FORCES* 1080 (1980) (questioning whether female crime is rising); Darrell J. Steffensmeier, *National Trends in Female Arrests, 1960-1990: Assessment and Recommendations for Research*, 9 *J. QUANTITATIVE CRIM.* 411 (1993) (contending that the profile of female offenders has not changed over time relative to males and any changes that have been demonstrated have been in terms of rises in property crimes only, particularly minor thefts and fraud).

⁵ See KATHERINE BLICK HOYENGA & KERMIT T. HOYENGA, *GENDER-RELATED DIFFERENCES: ORIGINS AND OUTCOMES* 337-56 (1993); GERDA SIANN, *ACCOUNTING FOR AGGRESSION: PERSPECTIVES ON AGGRESSION AND VIOLENCE* 33-37 (1985); Alice H. Eagly & Valerie J. Steffen, *Gender and Aggressive Behavior: A Meta-Analytic Review of the Social Psychological Literature*, 100 *PSYCH. BULLETIN* 309 (1986).

⁶ See Eleanor Maccoby & Carol Jacklin, *Sex Differences in Aggression: A Rejoinder & Reprise*, 51 *CHILD DEV.* 964, 964-80 (1980). But see WILSON & HERRNSTEIN, *supra* note 1, at 117-19 (noting that each of the reasons for Maccoby's and Jacklin's conclusion can "with varying plausibility, be challenged"); Kruttschnitt, *supra* note 2, at 330 (contending that, irrespective of "a child's inborn or early acquired disposition, parental behaviors appear to have a strong mediating effect"); Todd Tieger, *On the Biological Basis of Sex Differences in Aggression*, 51 *CHILD DEV.* 943, 945-51 (1980) (contending, among other things, that the role of hormonal influences on aggressive human behavior is unclear and that cross cul-

of crime are gender blind. They either bypass the gender issue entirely or focus solely on why females fail to resemble males in their behavior.⁷ These theories also ignore the possibility that explanations for the gender disparity in crime may help account for the underlying correlates of crime in general.⁸

This Article attempts to explain some of this gender disparity by analyzing the results of the "Biosocial Study," one of this country's largest longitudinal⁹ studies of biological, psychological, and sociological predictors of crime.¹⁰ The Biosocial Study followed nearly 1000 Philadelphia residents from birth through early adulthood and examined numerous variables. The individuals came from families who participated in the Philadelphia Collaborative Perinatal Project at Pennsylvania Hospital between 1959 and 1966. Pennsylvania Hospital was one of twelve medical centers the National Institute of Neurological Diseases and Stroke included in an unprecedented, nationwide study of biological and environmental influences upon the pregnancies of 60,000 women, as well as the physical, neurological, and psychological development of their children.¹¹

tural studies of children reveal strong social and environmental influences on children's early behavior).

⁷ See Meda Chesney-Lind, *Women and Crime: The Female Offender*, 12 SIGNS 78, 78-96 (1986); Douglas A. Smith & Raymond Paternoster, *The Gender Gap in Theories of Deviance: Issues and Evidence*, 24 J. RES. CRIME & DELINQ. 140, 140-72 (1987); see also Stephen J. Schulhofer, *The Gender Question in Criminal Law*, 7 SOC. PHIL. & POL'Y 105, 105 (1990) ("[C]riminal law, constructed and expounded almost exclusively by males, can fairly be characterized (descriptively) as 'sexist' or at least 'gendered' (that is, male-oriented) in its core assumptions."); Robin West, *Jurisprudence and Gender*, 55 U. CHI. L. REV. 1, 2 (1988) (contending that "all of our modern legal theory . . . is essentially and irretrievably masculine").

⁸ See Judith Allen, *Men, Crime, and Criminology: Recasting the Questions*, 17 INT'L J. SOC. L. 19, 19-39 (1989) (noting that any explanation for the gender disparity in crime "might be posed as a litmus test for the viability of the discipline" of criminology).

⁹ A longitudinal study analyzes the same group of individuals over a period of time. See JOHN M. NEALE & ROBERT M. LIEBERT, *SCIENCE AND BEHAVIOR: AN INTRODUCTION TO METHODS OF RESEARCH* 109 (3d ed. 1986); JULIAN L. SIMON & PAUL BURSTEIN, *BASIC RESEARCH METHODS IN SOCIAL SCIENCE* 90 (3d ed. 1985). For a general discussion of the use of social science research methods in legal contexts, see JOHN MONAHAN & LAURENS WALKER, *SOCIAL SCIENCE IN LAW: CASES AND MATERIALS* 31-81 (3d ed. 1994).

¹⁰ The Biosocial Study is described in detail in two sources: DEBORAH W. DENNO, *BIOLOGY AND VIOLENCE: FROM BIRTH TO ADULTHOOD* (1990) [hereinafter DENNO, *BIOLOGY AND VIOLENCE*]; Deborah W. Denno, Comment, *Human Biology and Criminal Responsibility: Free Will or Free Ride?*, 137 U. PA. L. REV. 615 (1988).

¹¹ See KENNETH NISWANDER & MYRON GORDON, *THE WOMEN AND THEIR PREGNANCIES* (1972). Examination of the study children from the time of their birth through age seven continued until 1974, completing a total project cost exceeding 100 million dollars. See Joseph A. McFalls, Jr., *Social Science and the Collaborative Perinatal Project: An Opportunity for Research*, 4 PUBLIC DATA USE 37, 37-47 (1976). Numerous publications have resulted from examining these data. See, e.g., SARAH BROMAN ET AL., *PRESCHOOL IQ: PRENATAL AND EARLY DEVELOPMENTAL CORRELATES* (1975); JANET B. HARDY ET AL., *THE FIRST YEAR OF LIFE* (1979);

The Biosocial Study and its data are unique in this country. Few researchers have conducted longitudinal studies of crime and behavioral disorders,¹² and no one has been able to intensively analyze a large sample of individuals both before and after the start of their criminal careers. Moreover, many studies examine only males or do not focus on gender differences when they include both males and females.¹³

As this Article discusses, the results of the Biosocial Study confirmed past research which had demonstrated gender differences in the prevalence of crime. Males engaged in more crime and violence than females, and they were more likely to repeat their crimes. However, the Biosocial Study also corresponded with some research and theory which had indicated gender differences in the prediction of crime. With some exceptions, biological factors were found to be more predictive of crime among females, whereas environmental factors were found to be more predictive of crime among males.¹⁴ Also, more factors overall were correlated with crime among females than males. This Article considers the consequences of these results with respect to whether there should be a gender-based standard for punishment or defenses.

This Article uses loose definitions of the terms "biological" and "environmental" or "sociological," because of their close association with related terms, and with one another. Generally, "biological" factors are "nonsocial, nonbehavioral measures of . . . constitution and functioning,"¹⁵ such as neurological abnormalities. "Environmental" factors include measures without a biological base, such as family income. Factors comprising "behaviorally-defined characteristics," like cognitive or intellectual ability and achievement, may have a partial biological base,¹⁶ which a certain environment could perpetuate or alter. The term "sex" refers to the chromosomal constitution of an individual; the term "gender" refers to the sociological, psychological, and cultural constructions of male and female differences.¹⁷ Lastly,

PAUL L. NICHOLS & TA-CHUAN CHEN, MINIMAL BRAIN DYSFUNCTION: A PROSPECTIVE STUDY (1981).

¹² See *infra* notes 123 to 131 and accompanying text.

¹³ Although prior research on the Biosocial Study examined gender differences, see DENNO, BIOLOGY AND VIOLENCE, *supra* note 10, it emphasized possible variations in cognition, such as laterality and verbal and spatial IQ, as well as crime predictors that males and females shared. It did not focus on gender in the theoretical and legal context discussed in this Article.

¹⁴ See *infra* Section III.

¹⁵ Sarnoff A. Mednick et al., *Biology and Violence*, in CRIMINAL VIOLENCE 21, 22 (Marvin E. Wolfgang & Neil Alan Weiner eds., 1982).

¹⁶ See *id.*

¹⁷ See Kruttschnitt, *supra* note 2, at 295-96. As Kruttschnitt notes, a reference to "sex

the term "defenses" includes three types: (1) "complete" defenses, such as insanity, which may result in total acquittal; (2) "partial" defenses, such as provocation; and (3) mitigating factors, such as mental impairment. These latter two defenses may reduce either the charge (*e.g.*, from murder to manslaughter) or the sentence (*e.g.*, from life imprisonment to twenty years).

Section II analyzes the literature and research on gender differences in crime. Section III describes the Biosocial Study and its results, noting the gender differences in the prevalence and prediction of crime and the inability of any one factor to be a strong predictor of crime. Relying on the Biosocial Study's results, this Article proposes a new gender-based defense which incorporates the finding of gender variations among predictors of crime. This "gender-variant" defense recognizes that crime among females may be more strongly linked to certain biological factors, such as neurological abnormalities, whereas crime among males may be more strongly linked to certain environmental factors, such as lead poisoning. Such results suggest that gender is a factor in determining whether any particular condition renders individuals less culpable for their behavior.

Section IV considers whether gender differences warrant disparate types of punishment or treatment within the criminal justice system by analyzing the gender-variant defense within a continuum of four gender-based defenses. This continuum ranges from biologically-based defenses to socially or culturally constructed ones: (1) gender-specific (*e.g.*, post partum depression); (2) gender-dominant (*e.g.*, high testosterone); (3) gender-variant (*e.g.*, neurological factors or lead poisoning); and (4) gender-cultural (*e.g.*, battered woman syndrome). Commentators have rarely examined or compared these defenses in the aggregate since they typically focus on just one. Yet, looking at these defenses together, and more broadly, provides a perspective on how the criminal justice system views gender and gender-stereotyping. These defenses have not been widely-used, but they are rapidly gaining popularity. This Article questions whether they

differences" in any explanation of crime rates would suggest that the differences are biologically-based; a reference to "gender differences," however, would recognize social, psychological, and cultural influences. See *id.* at 296-97. Deborah Rhode properly discusses the difficulty with this "sex-gender" distinction, noting for example the interaction and interdependence between biological and social factors. See Deborah L. Rhode, *Theoretical Perspectives on Sexual Difference*, in *THEORETICAL PERSPECTIVES ON SEXUAL DIFFERENCE* 1, 2 (Deborah L. Rhode ed., 1990). She also critiques "a historical tradition that ascribed overriding importance to biological explanations for differences in the sexes' social roles and status." *Id.* at 3. This Article relies on this sex-gender distinction, however, for the very purpose that Rhode critiques it, *i.e.*, to illustrate how cultural stereotyping can inappropriately amplify biological differences between the genders through the use of certain criminal law defenses. Similarly, this Article recognizes that the distinction is artificial.

should be accepted.

Next, this section discusses and critiques the tendency for the criminal law to view the more biologically-based defenses as manifestations of gender stereotypes and to explain the more culturally-constructed defenses in terms of supposed biological or psychological gender differences. Even though defendants use stereotypes to make their defenses more persuasive to a jury, they are frequently irrelevant and have no basis in fact. Thus, courts should render them inadmissible. Moreover, gender-stereotyping stifles the criminal justice system's "greater" goal of gender neutrality.¹⁸ For example, a gender-stereotyped defense may appear to win an acquittal, but other factors, such as severity of the crime, are actually far more influential on case outcomes. Further, gender-stereotyping can result in personal stigmatization, or harm men or women as a group.¹⁹ If poorly used, it can ease conviction.²⁰ For these reasons, this section concludes that the potential harm of gender-stereotyping outweighs any perceived benefit.

Section V concludes that gender differences in prevalence and prediction should not be considered in sentencing. Sentencing decisions based upon generalizations about immutable individual characteristics such as gender offend society's notions of justice. This constitutes the worst form of stereotyping.

In sum, gender differences in prevalence or prediction or gender-stereotyping should not justify either mitigations in punishment or the underlying rationales for criminal law defenses, unless the de-

¹⁸ But see Myrna S. Raeder, *Gender and Sentencing: Single Moms, Battered Women, and Other Sex-Based Anomalies in the Gender-Free World of the Federal Sentencing Guidelines*, 20 PEPP. L. REV. 905, 909 (1993) (contending, with respect to the Federal Sentencing Guidelines, that "the lofty goal of gender neutrality has backfired, wreaking havoc in the lives of female offenders and their children who are forgotten by the Sentencing Guidelines structure"); see also *infra* notes 397 to 408 and accompanying text.

¹⁹ See ALAN M. DERSHOWITZ, *THE ABUSE EXCUSE AND OTHER COP-OUTS, SOB STORIES, AND EVASIONS OF RESPONSIBILITY* (1994); Anne M. Coughlin, *Excusing Women*, 82 CAL. L. REV. 3 (1994); *infra* notes 343 to 353 and accompanying text. Alan Dershowitz includes gender-stereotyped defenses among those he considers to be "abuse excuses," i.e., legal strategies "by which criminal defendants claim a history of abuse as an excuse for violent retaliation." DERSHOWITZ, *supra*, at 3. He claims that such excuses can: (1) stigmatize all abuse victims even though only a very few have ever engaged in violent crime or have used their particular abuse to justify their conduct, see *id.* at 6, 29; (2) impair the credibility of sound defenses that are used appropriately, see *id.* at 29; (3) "confirm the sexist stereotype of the woman out of control"; see *id.* at 30; and hinder civil liberties by promoting vigilante justice. See *id.* at 28.

²⁰ Gender-stereotyping can ease conviction in a particular case if the jury finds it to be repugnant, see *infra* notes 267 to 268 and accompanying text, or future cases as a kind of "backlash." For example, Charles P. Ewing, a psychologist and a law professor, claims that one jury deadlocked in a substantial battered woman syndrome case as a "backlash" created by the media coverage of the Eric and Lyle Menendez and Lorena Bobbitt cases. See Stephanie B. Goldberg, *Fault Lines*, 80 A.B.A. J. 40, 42 (June 1994).

fenses are appropriately factually-based. It is beyond the scope of this Article to discuss the evidentiary issues involved in such a fact-based determination. At the same time, this Article's account of the Biosocial Study and its critique of gender-based defenses illustrate ways to make one. Lastly, this Article questions whether differential treatment is warranted for distinguishing among biological factors other than gender, given the results of the Biosocial Study and the dubious rationale that the criminal law offers for some biological defenses, but not others.

II. THE NATURE AND PREVALENCE OF GENDER DIFFERENCES IN CRIME

Males comprised eighty-eight percent of those persons arrested for violent crime in 1992²¹ and approximately ninety-five percent of new court commitments for violent offenses in 1991.²² Most conventional theories of crime do not sufficiently explain the overwhelming domination of males in violent crime.²³ Yet, because crime and violence are associated with maleness, society deems women who engage in crime to be "doubly deviant"—defying both the law and their gender role.²⁴ As the following sections show, this perspective toward female criminals has remained constant.

A. A HISTORICAL VIEW OF FEMALE CRIME

Historically, commentators have explained women's lesser involvement in crime as an "underachievement"²⁵ attributable to their biology or sexuality.²⁶ Moreover, they have often confused sex with

²¹ FEDERAL BUREAU OF INVESTIGATION, UNIFORM CRIME REPORTS FOR THE UNITED STATES Table 42 at 234 (1992).

²² BUREAU OF JUSTICE STATISTICS, NATIONAL CORRECTIONS REPORTING PROGRAM, 1991 Table 1-8 at 15, Table 5-4 at 57 (1992) (In 1991, males comprised 95% of new court commitments to state prison and 93.1% of new court commitments to federal prison).

²³ See MESSERSCHMIDT, *supra* note 1, at 2-4. For a review of the literature on the etiology of female crime, see CAROL SMART, WOMEN, CRIME, AND CRIMINOLOGY: A FEMINIST CRITIQUE, 27-76 (1976); Dorie Klein, *The Etiology of Female Crime: A Review of the Literature*, in WOMEN, CRIME, AND JUSTICE 70, 70-105 (Susan K. Dantesman & Frank R. Scarpitti eds., 1980); Kathleen Daly & Meda Chesney-Lind, *Feminism and Criminology*, 5 JUST. Q. 497, 514-27 (1988).

²⁴ See Baskin, et al., *supra* note 4, at 402; Coughlin, *supra* note 19, at 3; Patricia Erickson & Glenn F. Murray, *Sex Differences in Cocaine Use and Experiences: A Double Standard Revived?*, 15 AM. J. DRUG ALCOHOL ABUSE 135, 136 (1989). This position for female offenders was recognized by Cesare Lombroso at the turn of the century. "[T]he born female criminal is, so to speak, doubly exceptional, as a woman and as a criminal. For criminals are an exception among civilised people, and women are an exception among criminals" CESARE LOMBROSO & WILLIAM FERRERO, *THE FEMALE OFFENDER* 151 (1895).

²⁵ Beverly R. Fletcher & Dreauna G. Moon, *Introduction*, in WOMEN PRISONERS: A FORGOTTEN POPULATION 5, 12 (Beverly R. Fletcher et al. eds., 1993).

²⁶ As Carol Smart notes, classical studies of female criminality are based upon a biologi-

gender, characterizing crime among females as masculine or malelike, a perspective that remains in current research on female crime.²⁷

Cesare Lombroso, an Italian physician, was the first to explain female crime in this manner.²⁸ Near the turn of the twentieth century, Lombroso espoused his belief that criminals possess an innate and "atavistic" predisposition toward crime.²⁹ Lombroso and William Ferrero attributed women's lower crime rate to their "piety, maternity, want of passion, sexual coldness, weakness, and undeveloped intelligence."³⁰ Women criminals, however, were deficient in such typical feminine characteristics. Instead, they exhibited "strong passions and intensely erotic tendencies," as well as high intelligence and physical strength.³¹ Still, society believed that women criminals were capable only of a lower level of criminality because, as women, they lacked the "combination of intellectual functions" required of more demanding (*i.e.*, masculine) crimes, such as highway robbery, murder, and assault.³²

Early socialist criminologists, emphasizing the importance of economic conditions on crime, criticized Lombroso's theories.³³ However, Willem Bongers, a prominent socialist criminologist, shared Lombroso's views³⁴—despite his emphasis on economic conditions. According to Bongers, women commit fewer crimes because they have less "strength and courage" than men.³⁵ Likewise, women are not involved in "sexual crimes" both because they are physically unable to

cal determinist view that emphasizes a "non-cognitive, physiological" explanation for crimes committed by women. See SMART, *supra* note 23, at 27.

²⁷ See *id.* at 33.

²⁸ For a thorough profile of Lombroso's life and work, see Marvin E. Wolfgang, *Cesare Lombroso, 1835-1909*, in PIONEERS IN CRIMINOLOGY 232 (Hermann Mannheim ed., 1955; 2d ed. 1973).

²⁹ See CESARE LOMBROSO, CRIMINAL MAN 135 (1911). According to Lombroso, "[a]tavism, the reversion to a former state, is the first feeble indication of the reaction opposed by nature to the perturbing causes which seek to alter her delicate mechanism." *Id.*

³⁰ LOMBROSO & FERRERO, *supra* note 24, at 151.

³¹ *Id.* Lombroso describes female offenders as more masculine. "Her maternal sense is weak because psychologically and anthropologically she belongs more to the male than to the female sex." *Id.* at 153.

³² See CESARE LOMBROSO, CRIME: ITS CAUSES AND REMEDIES 185 (1911) ("To conceive an assassination, to make ready for it, to put it into execution demands, in a great number of cases at least, not only physical force, but a certain energy and a certain combination of intellectual functions. In this sort of development women almost always fall short of men.").

³³ See MESSERSCHMIDT, *supra* note 1, at 6; see also Wolfgang, *supra* note 28, at 257-71, for a more modern critique of Lombroso's theories and research.

³⁴ See MESSERSCHMIDT, *supra* note 1, at 6.

³⁵ WILLEM BONGER, CRIMINALITY AND ECONOMIC CONDITIONS 60 (1916).

commit them,³⁶ and because "the role of women in sexual life (and thus in the criminal sexual life) is rather passive than active."³⁷ Thus, Bonger emphasized both the impact of women's biology and their social conditions and positions in capitalist societies, as the reasons for their lower crime rate.³⁸ In 1923, W.I. Thomas continued this sexual nature-nurture theme depicting female criminality as primarily the result of sexual "demoralization," evidenced by casual sexual relations and poor socialization.³⁹ Indeed, a 1926 treatise on cocaine addiction viewed female cocaine users as particularly sexually "insatiable" under the drug's influence. The authors believed that such sexuality was the "stimulus" for later addiction and prostitution.⁴⁰

Postwar views of female crime further emphasized sexuality and biological and sociological influences. For example, scholars compare Otto Pollak's book, *The Criminality of Women*,⁴¹ to the works of Lombroso, Ferrero, and Thomas, because it takes a similar approach to the study of female crime.⁴² Unlike Lombroso and Ferrero, Pollak did not rely entirely on a biological analysis, yet he did recognize the significance of biological and physiological foundations to female crime in the context of social and cultural influences.

According to Pollak, females are inherently manipulative and deceitful, characteristics derived from a number of their physiological and social attributes.⁴³ These include their passive roles during sexual intercourse and their ability to feign arousal, as well as social norms requiring women to hide menstruation and sexual information from children.⁴⁴ Such deceit allows females to conceal their crimes which,

³⁶ See *id.*

³⁷ *Id.*

³⁸ See *id.* at 59-64.

³⁹ See WILLIAM I. THOMAS, *THE UNADJUSTED GIRL* 98-150 (1923). Correspondingly, in the late nineteenth and early twentieth centuries, middle-class women could be acquitted for shop-lifting by attributing their behavior to kleptomania, then considered to be a "mental disorder" caused by "womb disease mania." It was believed that the disease lead to "larceny and eroticism with hysteria." ELAINE S. ABELSON, *WHEN LADIES GO A-THIEVING: MIDDLE-CLASS SHOPLIFTERS IN THE VICTORIAN DEPARTMENT STORE* 173-76 (1989).

⁴⁰ See ORIANA JOSSEAU KALANT, *MAIER'S COCAINE ADDICTION* 82 (1987) (translating *DER KOKAINISMUS* (1926)).

⁴¹ OTTO POLLAK, *THE CRIMINALITY OF WOMEN* (1950).

⁴² See SMART, *supra* note 23, at 46.

⁴³ See POLLAK, *supra* note 41, at 8-10.

⁴⁴ See *id.* at 10. As Pollak explained, a man "must achieve an erection in order to perform the sex act and will not be able to hide his failure." *Id.* For women, however, lack of orgasm does not prevent her ability to participate in the sex act. It cannot be denied that this basic physiological difference may well have a great influence on the degree of confidence which the two sexes have in the possible success of concealment and thus on their character pattern in this respect.

Id.

if detected, would be similar in frequency to males'.⁴⁵ Pollak particularly emphasized the significance of women's "generative" phases—menstruation, pregnancy, and menopause—as illustrations of the biological or psychological imbalances leading to crime.⁴⁶ Like Bonger, however, Pollak also attributed women's criminality to gender inequality in society.⁴⁷

Pollak's theory, as well as other earlier theories of female crime, has been criticized.⁴⁸ Moreover, researchers have begun to rely more heavily on sociological explanations of women's lower criminality. They focus in particular on the propensity for society to more strongly persuade girls than boys to avoid delinquent behavior⁴⁹ and risk taking.⁵⁰ Essentially, society expects girls to follow biologically and culturally based "gender norms."⁵¹ Although some researchers maintain that crime among females has increased as a consequence of growing gender equality,⁵² others discount this explanation, focusing instead on the greater formalization of social control.⁵³ Social control theorists contend that the increase in arrests of female offenders is due to changes in law enforcement and reporting practices that create more consistent standards for decision making when an arrest is made. These changes reduce the effects of gender on the probability of arrest and the amount of "hidden" female crime.⁵⁴

⁴⁵ See *id.* at 5-6.

⁴⁶ See *id.* at 157. "[T]hese generative phases are frequently accompanied by psychological disturbances which may upset the need and satisfaction balance of the individual or weaken her internal inhibitions, and thus become causative factors in female crime." *Id.*

⁴⁷ See *id.* at 2-3.

⁴⁸ See FRANCES HEIDENSOHN, *WOMEN AND CRIME* 120-21 (1985); SMART, *supra* note 23, at 46-53 (1976).

⁴⁹ See Greenberg, *supra* note 1, at 407-09; Ruth Morris, *Attitudes Toward Delinquency by Delinquents, Non-Delinquents, and Their Friends*, 5 BRITISH J. CRIMINOLOGY 249, 265 (1965); Raeder, *supra* note 18, at 909.

⁵⁰ See JOHN HAGAN, *STRUCTURAL CRIMINOLOGY* 158 (1989); John Hagan & Fiona Kay, *Gender and Delinquency in White-Collar Families: A Power-Control Perspective*, 36 CRIME & DELINQ. 391, 391-407 (1990).

⁵¹ See Darrell Steffensmeier & Emilie Anderson Allan, *Sex Differences in Urban Arrest Patterns, 1934-1979*, 23 SOCIAL PROBLEMS 37, 37-50 (1981).

⁵² See *supra* note 4 and accompanying text.

⁵³ For a discussion of this debate, see Steffensmeier (1993), *supra* note 4, at 411-41; Darrell Steffensmeier et al., *Development and Female Crime: A Cross-National Test of Alternative Explanations*, 68 SOCIAL FORCES 262, 262-83 (1989); Darrell Steffensmeier et al., *World War II and Its Effect on the Sex Differential in Arrests: An Empirical Test of the Sex-Role Equality and Crime Proposition*, 21 SOCIOLOGICAL Q. 403, 403-06 (1980); Darrell Steffensmeier & Cathy Streifel, *Time-Series Analysis of the Female Percentage of Arrests for Property Crimes, 1960-1985: A Test of Alternative Explanations*, 9 JUST. Q. 77, 77-103 (1992); Darrell Steffensmeier & Cathy Streifel, *Age, Gender, and Crime Across Three Historic Periods: 1935, 1960 and 1985*, 69 SOCIAL FORCES, 869, 870-71 (1991).

⁵⁴ See Steffensmeier & Streifel (1992), *supra* note 53, at 77-103.

B. A MODERN VIEW OF FEMALE CRIME

The social-biological approach persists in more recent research on female crime which has focused on a variety of factors: parental deprivation and an inability to adjust to "feminine roles";⁵⁵ psychiatric and familial disorders and impaired physical health;⁵⁶ sexual corruption;⁵⁷ conduct disorders;⁵⁸ and premenstrual and menstrual syndromes.⁵⁹ Commentators have criticized the methodology of these studies,⁶⁰ and their results remain inconclusive.

For example, most research has focused on females who commit minor offenses such as prostitution or drug use, and therefore may not vary significantly from nonoffenders. Research results are stronger when a study compares either nonoffenders or minor offenders to violent or habitual female offenders.

Researchers have linked violence among females to a host of factors: homosexuality, alcohol abuse, and psychiatric disturbances;⁶¹ neurological abnormalities and problems with impulse control;⁶² severe maternal loss, parental punishment, and neurological disorders among relatives;⁶³ and poor medical histories (indicated by injuries and perinatal and neurological abnormalities).⁶⁴ Although some research reports lower intelligence and achievement levels among female delinquents,⁶⁵ additional research indicates that other factors are more important contributors to female crime.⁶⁶

Familial and environmental factors are more consistently significant. For example, considerable evidence shows that a broken home

⁵⁵ See MABEL RUTH FERNALD ET AL., A STUDY OF WOMEN DELINQUENTS IN NEW YORK STATE 525-26 (1986); CLYDE B. VEDDER & DORA B. SOMERVILLE, THE DELINQUENT GIRL 49-50, 153-54 (1970).

⁵⁶ See JOHN COWIE ET AL., DELINQUENCY IN GIRLS 169-79 (1968).

⁵⁷ See Erickson & Murray, *supra* note 24, at 137.

⁵⁸ See Kratzer & Hodgins, *supra* note 3.

⁵⁹ See *infra* notes 269 to 303.

⁶⁰ See, e.g., SMART, *supra* note 23, at 54-76 (1976); Denno, *supra* note 10, at 619-45; Deborah W. Denno, Sex Differences in Cognition and Crime: Early Developmental, Biological, and Sociological Correlates 35-73 (1982) (unpublished Ph.D. dissertation, University of Pennsylvania); Erickson & Murray, *supra* note 24, at 137.

⁶¹ See David A. Ward et al., *Crimes of Violence by Women*, in WOMEN, CRIME, AND JUSTICE 171, 171-91 (Susan K. Dantesman & Frank R. Scarpitti eds., 1980).

⁶² See Carlos E. Climent et al., *Epidemiological Studies of Female Prisoners. IV. Homosexual Behavior*, 164 J. NERV. & MENTAL DISEASE 25, 25-29 (1977).

⁶³ See Carlos E. Climent et al., *Epidemiological Studies of Women Prisoners. I. Medical and Psychiatric Variables Related to Violent Behavior*, 130 AM. J. PSYCH. 985, 985-90 (1973).

⁶⁴ See Shelley S. Shanok & Dorothy O. Lewis, *Medical Histories of Female Delinquents: Clinical and Epidemiological Findings*, 38 ARCHIVES OF GEN. PSYCH. 211, 211-13 (1981).

⁶⁵ See WILSON & HERRNSTEIN, *supra* note 1, at 116.

⁶⁶ See Climent et al., *supra* note 63, at 985-90; David R. Offord & Mary F. Poushinsky, *School Performance, IQ and Female Delinquency*, 27 INT'L J. SOCIAL PSYCH. 53, 53-62 (1982).

is one of the strongest predictors of delinquency among females.⁶⁷ Yet, the research is mixed with respect to whether a broken home or other negative family experiences have a greater impact on males or on females.⁶⁸ Some researchers contend that the consequences of family disorganization are more detrimental for females in light of the greater importance of the family for their supervision and attachment to conventional norms.⁶⁹ Others believe that the effects of family life show either no gender differences⁷⁰ or that stressful life events are more strongly associated with behavioral problems among males than among females.⁷¹ One recent study concluded that the relationship was more complex, noting that the greater vulnerability of males or females may depend on the particular risk factor being analyzed (*e.g.*, marital stability and change).⁷² For example, researchers found a significant association between delinquency among females and negative family events such as marital discord, recent marital disruption, and living in a single-parent home. They did not find any associations between those events and delinquency among males. Instead, males were more likely to appear depressed and anxious in the face of their parents' marital dissolution.⁷³

Similar to research on the correlates of male delinquency, results with females may vary according to different samples and methodological techniques.⁷⁴ In general, however, research results show the following with respect to gender differences in the prediction of crime: (1) With some exceptions,⁷⁵ the factors found to be influential

⁶⁷ See COWIE ET AL., *supra* note 56, at 164-65; Susan K. Datesman & Frank R. Scarpitti, *Female Delinquency and Broken Homes: A Reassessment*, in WOMEN, CRIME, AND JUSTICE 129, 129 (Susan K. Datesman & Frank R. Scarpitti eds., 1980). This finding may be influenced by the racial composition of the sample. For example, one analysis of female violence showed no evidence of lower intelligence scores or a higher incidence of broken homes among offenders, while controlling for race. See Ward et al., *supra* note 61, at 171-91. However, in one study, loss of a father before age 10 was found to be highly correlated with depression among violent female offenders. See Carlos E. Climent et al., *Parental Loss, Depression and Violence. III. Epidemiological Studies of Female Prisoners*, 55 ACTA PSYCHIATRICA SCANDINAVICA 261, 261-68 (1977).

⁶⁸ See Maude Dornfeld & Candace Kruttschnitt, *Do the Stereotypes Fit? Mapping Gender Specific Outcomes and Risk Factors*, 30 CRIMINOLOGY 397, 397 (1992).

⁶⁹ See Datesman & Scarpitti, *supra* note 67, at 129; Steffensmeier & Allan, *supra* note 1, at 73-74.

⁷⁰ See Canter, *supra* note 3, at 149-67; Dornfeld & Kruttschnitt, *supra* note 68, at 397.

⁷¹ See Dornfeld & Kruttschnitt, *supra* note 68, at 397.

⁷² See *id.*

⁷³ See *id.* at 409-12. Because the sample in this study was young (the great majority of subjects were under age 16), the authors rightly emphasize that the results of their study could change if the subjects were older. See *id.* at 407, 413.

⁷⁴ See generally DENNO, BIOLOGY AND VIOLENCE, *supra* note 10.

⁷⁵ For example, there is some evidence that some minor physical anomalies may be associated with hyperactive behavior among boys but not with hypoactive behavior among

in crime among males are also influential in crime among females;⁷⁶ and (2) because society places stricter cultural constraints on female behavior,⁷⁷ females who become delinquent or violent appear to deviate more significantly from the norm—biologically, psychologically, or sociologically—than their male counterparts.⁷⁸ Thus, females who decide to engage in crime “must traverse a greater moral and psychological distance than males.”⁷⁹

C. GENDER AND PREVALENCE

Gender differences in the prediction of crime may substantially

girls. The bases for these differences could be attributed to biological factors (*e.g.*, different hormonal or central nervous system structures) or socialization processes that accentuate behavioral problems among boys but inhibit them among girls. See Mary F. Waldrop et al., *Minor Physical Anomalies and Inhibited Behavior in Elementary School Girls*, 17 J. CHILD PSYCHOLOGY & PSYCHIATRY & ALLIED DISCIPLINES 113, 113-22 (1976).

⁷⁶ See WILSON & HERRNSTEIN, *supra* note 1, at 115-16; Steffensmeier & Allan, *supra* note 1, at 71; Romanowski, *supra* note 3, at 204. The research of Sheldon and Eleanor Glueck on both males and females has had comparable results. Compare generally SHELDON GLUECK & ELEANOR T. GLUECK, *FIVE HUNDRED DELINQUENT WOMEN* (1934) with SHELDON GLUECK & ELEANOR T. GLUECK, *FIVE HUNDRED CRIMINAL CAREERS* (1930). According to Steffensmeier and Allan, *supra* note 1,

[g]roups or societies that have high male rates of crime also have high female rates, whereas groups or societies that have low male rates also have low female rates. Over time, when the male rate rises, declines, or holds steady across a specific historic period, the female rate behaves in a similar fashion. This suggests that the rates of both sexes are influenced by similar social and legal forces, independent of any condition unique to women.

Id. at 71.

⁷⁷ Steffensmeier & Allan, *supra* note 1, at 71.

[I]t is probable that the lower involvement of girls in delinquency continues to be primarily related to existing socialization patterns, in particular the greater restrictions placed on the freedom of movement of most girls at the age when their male peers are “discovering” delinquency. . . . The realization of a lack of access to illegitimate opportunity structures for adolescent girls and women is of course a most perceptive insight into an understanding of female criminality.

SMART, *supra* note 23, at 68.

⁷⁸ See COWIE ET AL., *supra* note 56, at 166; C. Robert Cloninger et al., *Implications of Sex Differences in the Prevalences of Antisocial Personality, Alcoholism, and Criminality for Familial Transmission*, 35 ARCH. GEN. PSYCH. 941, 941-51 (1978); C. Robert Cloninger et al., *The Multifactorial Model of Disease Transmission: II. Sex Differences in the Familial Transmission of Sociopathy (antisocial personality)*, 127 BRITISH J. PSYCH. 11, 11-22 (1975).

⁷⁹ Steffensmeier & Allan, *supra* note 1, at 71; see also WILSON & HERRNSTEIN, *supra* note 1, at 117 (“If aggression or its antisocial expression is stronger in the average male than the average female, then females would be less likely to pass over the threshold into criminal behavior and, when they did, they would be more atypical, or deviant, among women than male offenders are among men.”). Lombroso drew a similar, albeit more strongly put, conclusion:

As a double exception [to her gender and to criminality], the criminal woman is consequently a monster. Her normal sister is kept in the paths of virtue by many causes, such as maternity, piety, weakness, and when these counter influences fail, and a woman commits a crime, we may conclude that her wickedness must have been enormous before it could triumph over so many obstacles.

LOMBROSO & FERRERO, *supra* note 24, at 152.

affect differences in prevalence. Gender becomes particularly important when assessing the "criminal careers"⁸⁰ of individual offenders, because predictive influences may vary depending on an individual's age and physiological development. An analysis of a criminal career focuses on two key elements: (1) *participation*—the difference between those who do or do not commit a crime; and (2) *frequency*—the number of crimes an active offender commits.⁸¹ Certain factors, such as the offender's age at the initiation of a criminal career, the escalation and desistance of the offender's criminal behavior, and the policy approaches for restraining criminal careers, are influential in determining the onset and continuation of criminal careers. The most pertinent policies include the "three-strikes-and-you're-out" legislation that Congress has included in the new federal Crime Bill,⁸² and which is currently implemented in a number of states.⁸³

⁸⁰ A criminal career is the depiction of the number and types of crimes committed by an individual over a period of time. See 1 CRIMINAL CAREERS AND "CAREER CRIMINALS" 12 (Albert Blumstein et al. eds., 1986).

⁸¹ See Kruttschnitt, *supra* note 2, at 318-19.

⁸² The federal statute imposing penalties for manufacture or distribution of controlled substances already contains a provision that if a "person commits a violation . . . of this title after two or more prior convictions for a felony drug offense have become final, such person shall be sentenced to a mandatory term of life imprisonment without release . . ." 21 U.S.C.A. § 841(b)(1)(A) (West Supp. 1994). In addition, the recently enacted federal Crime Bill contains a provision that "a person who is convicted in a court of the United States of a serious violent felony shall be sentenced to life imprisonment if: (A) the person has been convicted (and those convictions have become final) on separate prior occasions in a court of the United States or of a State of: (i) 2 or more serious violent felonies; or (ii) one or more serious violent felonies and one or more serious drug offenses. . . ." H.R. REP. NO. 711, 103d Cong., 2d Sess., title VIII, § 70001, 1994 WL 454841 (1994). Furthermore, the portion of the Crime Bill allocating federal funding to states in need of prison space attempts to induce states to enact similar legislation. It requires that, in order to be eligible for funding, states "shall demonstrate that the State: (1) has in effect laws which require that persons convicted of violent crimes serve not less than 85 percent of the sentence imposed; or (2) since 1993: (A) has increased the percentage of convicted violent offenders sentenced to prison; (B) has increased the average prison time which will be served in prison by convicted violent offenders sentenced to prison; (C) has increased the percentage of sentences which will be served in prison by violent offenders sentenced to prison; and (D) has in effect at the time of application laws requiring that a person who is convicted of a violent crime shall serve not less than 85 percent of the sentence imposed if: (i) the person has been convicted on 1 or more prior occasions in a court of the United States or of a State of a violent crime or a serious drug offense; and (ii) each violent crime or serious drug offense was committed after the defendant's conviction of the preceding violent crime or serious drug offense." *Id.* at tit. II, § 20102.

⁸³ For example, Washington places third-time felons and fourth-time fraudulent misdemeanors in prison for life. WASH. REV. CODE ANN. § 9.92.090 (West 1994). California sets forth a number of specific violent crimes for which three-time felons receive twenty year sentences and four-time felons receive life without parole. CAL. PENAL CODE § 667.7 (West 1994). Florida sentences those with two prior felony convictions to life, 30 years, or 10 years, depending on the degree of the current felony. FLA. STAT. ANN. § 775.084 (West 1994). Texas sentences third-time felons to "life, or for any term of not more than 99 years

The limited research that has compared violent male and female career criminals has found substantial differences: (1) although violent offenses comprise only a small percentage of all the offenses committed by offenders in any population, females participate in substantially less violent crime than males during the course of their criminal careers;⁸⁴ (2) the careers of violent females both begin and peak earlier than those of males;⁸⁵ (3) females are far less likely than males to repeat their violent offenses; and (4) females are far more likely to desist from further violence.⁸⁶

Other researchers have shown, however, that although females are far less apt to participate in serious criminal activity than males, once they do participate, they commit crime at a comparable rate.⁸⁷ These researchers suggest that the large differences reported for males and females in aggregate crime statistics may be due to the differences found in rates of participation, not in frequency of offending.⁸⁸ This is a viable suggestion, but the limited amount of research comparing gender differences in crime rates prevents certainty. The next section of this Article demonstrates that comparisons between male and female offenders in the Biosocial Study did not support this proposal; males had both higher rates of participation in crime, as well as greater frequency in offending.⁸⁹

or less than 25 years." TEX. PENAL CODE ANN. § 12.42 (West 1994). Alabama adopted a scheme which sentences second-, third-, and fourth-time felons more harshly based on the class of the offense, with the result being life without parole or similarly long sentences. ALA. CODE § 13A-5-9 (1977). Arkansas has a similar 'class of the offense' scheme that results in sentences ranging from three years to life without parole. ARK. CODE ANN. § 5-4-501 (Michie 1987). Kentucky sentences second-time felons "for the next highest degree than the offense for which convicted" and third-time felons from ten years to life, without parole. KY. REV. STAT. ANN. § 532.080 (Michie/Bobbs-Merrill 1971). Minnesota sentences third-time sex criminals to life. MINN. STAT. ANN. § 609.346 (West 1994). Indiana allows third-time felons to be given sentences three times longer than the presumptive sentence for the crime, and third-time violent felons to be given life sentences without parole. IND. CODE ANN. § 35-50-2-8 (Burns 1994). Illinois sentences certain third-time felons to "natural life imprisonment." 730 ILCS 5/5-5-3 (Michie 1993). Colorado sentences third-time felons to "three times the maximum of the presumptive range" and fourth-time felons to four times that, or "at least forty calendar years". COLO. REV. STAT. ANN. § 16-13-101 (West 1994). Maryland sentences third-time felons to 25 years and fourth-time felons to life without possibility of parole. MD. CODE ANN. 1957, Art. 27, § 643b.

⁸⁴ See Neil Alan Weiner, *Violent Criminal Careers and Violent Career Criminals*, in *Violent Crime, Violent Criminals* 35, 49, 56, 121 (Neil Alan Weiner & Marvin E. Wolfgang eds., 1989); 1 *CRIMINAL CAREERS AND "CAREER CRIMINALS,"* *supra* note 80, at 40.

⁸⁵ See Weiner, *supra* note 84, at 102.

⁸⁶ See *id.* at 108-09.

⁸⁷ See 1 *CRIMINAL CAREERS AND "CAREER CRIMINALS,"* *supra* note 80, at 67.

⁸⁸ See *id.* Kruttschnitt notes that the differences in results among research studies may be due to the different kinds of data sets that the researchers used. See Kruttschnitt, *supra* note 2, at 319-20.

⁸⁹ See *infra* notes 133 to 153 and accompanying text.

Gender differences in the prevalence and seriousness of crime hold within all ethnic groups, but in different magnitudes. For example, there are fewer gender differences in the prevalence of crime among black offenders relative to white offenders. Further, the discrepancy in crime rates between black females and white females is considerably greater than the discrepancy between black males and white males.⁹⁰ In some studies, however, black females have demonstrated a higher incidence of violence than white males,⁹¹ a disparity some have attributed to a differential exposure to poverty.⁹² In general, there has been relatively little crime research on blacks, a limitation that has been roundly criticized.⁹³

The following sections of this Article examine possible gender differences in crime within a sample of black males and females, relying on an unusually rich data base of biological, psychological, and sociological variables. These sections focus on two issues: (1) differences in prevalence, with a particular emphasis on criminal careers, and (2) differences in prediction and how it may be interrelated with prevalence. Prevalence is important in determining the nature and extent of gender differences in crime and violence and in examining whether such differences justify gender-based standards of punishment or sentencing. Prediction is important in assessing what factors may have contributed to criminal acts over various developmental stages and, more particularly, why there may be some gender differences in the types of predictors. This approach also enables some investigation of the suggestion that biological factors can better explain crime among females, whereas social or environmental factors can better explain crime among males.⁹⁴ Whether such differences should justify differences in punishment, or gender-based defenses, is addressed in the last part of this Article.

⁹⁰ See Susan K. Datesman & Frank R. Scarpitti, *The Extent and Nature of Female Crime*, in *WOMEN, CRIME, AND JUSTICE* 3, 3-64 (Susan K. Datesman & Frank R. Scarpitti eds., 1980); Kruttschnitt, *supra* note 2, at 311-12; Lee H. Bowker, *The Incidence of Female Crime and Delinquency—A Comparison of Official and Self-Report Statistics*, 1 *INT'L J. WOMEN'S STUDIES* 178, 178-92 (1978).

⁹¹ See Kruttschnitt, *supra* note 2, at 311-12; Baskin et al., *supra* note 4; Bowker, *supra* note 90, at 178-92; Roland Chilton & Susan K. Datesman, *Gender, Race, and Crime: An Analysis of Urban Arrest Trends, 1960-1980*, 1 *GENDER & SOC'Y* 152, 152-71 (1987); Gary D. Hill & Elizabeth M. Crawford, *Women, Race, and Crime*, 28 *CRIMINOLOGY* 601, 601-23 (1990); John H. Laub & M. Joan McDermott, *An Analysis of Serious Crime by Young Black Women*, 23 *CRIMINOLOGY* 81, 81-98 (1985).

⁹² See Baskin et al., *supra* note 4.

⁹³ See *infra* note 96 and accompanying text.

⁹⁴ See SMART, *supra* note 23, at 56.

III. THE BIOSOCIAL STUDY OF CRIME

The 987 subjects who participated in the Biosocial Study were born at Philadelphia's Pennsylvania Hospital between 1959 and 1962. The subjects and their families were originally part of the Collaborative Perinatal Project, one of the largest medical projects ever conducted in the United States.⁹⁵ Each one of the subjects was black because there were too few white subjects to study, and because, at the time, commentators had complained that little research had been devoted to studying crime among black youths.⁹⁶ The sample was se-

⁹⁵ In 1957, the National Institute of Neurological Diseases and Stroke launched the Collaborative Perinatal Project, a nationwide study of biological and environmental influences on pregnancy, and infant and childhood mortality, as well as physical, neurological, and psychological development in children. Nearly 60,000 pregnant women participated in the study between 1959 and 1966 in 15 different medical centers. One of these medical centers was located in Philadelphia. Examination of the children from the time of their birth through age seven continued until 1974. See NISWANDER & GORDON, *supra* note 11, at 3-7.

The Philadelphia Perinatal Project comprised the nearly 10,000 pregnant patients who delivered their children at Pennsylvania Hospital between 1959 and 1965; the children were later tested at Children's Hospital of the University of Pennsylvania. See *id.* at 11. All pregnant women who attended Pennsylvania Hospital during this time were included in the Philadelphia Perinatal Project if they wanted to be, except for those women who were unregistered emergency deliveries or who were planning to deliver elsewhere. The total sample in the Philadelphia Perinatal Project reflects, in part, the characteristics of families who would be interested in receiving inexpensive maternity care provided by a public clinic. The sample was comprised predominantly (87%) of black families whose socioeconomic levels were slightly lower than those of the United States population at the time. See *id.* at 10, 475, 498. In 1978, the National Institute of Justice awarded a grant to the Sellin Center for Studies in Criminology and Criminal Law at the University of Pennsylvania to examine the Philadelphia Perinatal Project children. As part of the grant, public school and police record data were collected on all 10,000 youths. For eight years thereafter, detailed data were organized and analyzed on a subsample consisting of the nearly 1000 individuals who constituted the subjects for the Biosocial Study. These 1000 subjects were selected from the first four years (1959-62) or from "cohorts" of 2958 black mothers who participated in the Philadelphia Perinatal Project. A "cohort" is "[a]ny group that passes through a set of experiences or institutions at the same time." NEALE & LIEBERT, *supra* note 9, at 309.

⁹⁶ The Biosocial Study's research on black youths was initiated in 1980 at a time when black commentators were criticizing the Office of Juvenile Justice and Delinquency Prevention ("Office") for spending most (80%) of its monies researching white youths. See William Raspberry, *Youth Crime Funds Go to the Whites*, PHILA. INQUIRER, Apr. 1, 1980, at 9A. Essentially, commentators accused the Office of using crime statistics on black youths in order to acquire money, which the Office would then spend on research or rehabilitation programs for white youths. One result was that a growing number of white youths were being removed from the criminal justice system through deinstitutionalization and diversion programs, while a growing number of black youths were populating the prisons. Some commentators claimed that the premise underlying such differential treatment was that serious black offenders could not be similarly treated through counselling or diversion. See *id.* Because of these claims, many federal programs providing research funding on crime today urge grant applicants "to assess carefully the feasibility of including the broadest possible representation of minority groups" in their samples. Dept. of Health and

lected according to certain criteria to ensure that all subjects attended Philadelphia public schools and remained in the city, and thus the same urban environment, from the time of their birth to age twenty-two.⁹⁷ To test different theories of crime, the Biosocial Study used, in addition to urban environment, three primary data sources: (1) the Collaborative Perinatal Project's data set of early biological and environmental factors; (2) public school records; and (3) official police records for juveniles and adults.

The amount of data available for early biological and environmental factors was extraordinarily comprehensive. Upon registration for the Perinatal Project, each mother underwent a battery of interviews and physical examinations that provided data for each pregnancy, including the mother's reproductive history, recent and past medical history, and labor and delivery events. Data recorded for each child included information on neurological examinations conducted at birth, throughout the hospital stay, at four months, and at ages one and seven. Additionally, the children had their speech, language, and hearing examined at ages three and eight. Researchers collected socioeconomic and family data during the mother's registration and the child's seven-year examination.⁹⁸

Philadelphia public school records also contained a variety of

Human Services, Public Health Service, Nat'l Insts. of Health, Nat'l Inst. on Alcohol Abuse and Alcoholism, *Program Announcement: Research on Relationships Between Alcohol and Violence* (June 1993). The racial and socioeconomic characteristics of the Biosocial Study's sample (black and lower-class) limits the extent to which the results of the Study can be generalized to other groups that may comprise individuals of a different race and socioeconomic status, such as middle-class whites. However, the demographic homogeneity of the Biosocial Study's sample provides built-in "controls" for those racial and socioeconomic factors that have been strongly linked to crime and its determinants. See generally MARVIN E. WOLFGANG ET AL., *DELINQUENCY IN A BIRTH COHORT* (1972). Therefore, it can be assumed that the results of the Biosocial Study are not attributed to racial and socioeconomic variations among individuals.

⁹⁷ These subjects were selected according to the following criteria: (1) attended a Philadelphia public school, (2) stayed in Philadelphia from ages 10 through 17, (3) received selected intelligence tests within six months of age seven and achievement tests at ages 13 and 14, and (4) did not have a sibling in the sample to prevent the possible biases that could result in examining family members. Comparisons between the final sample of 987 subjects and the excluded sample of 2158 black subjects showed no significant differences in key variables: total family income, per capita family income, the number of prenatal examinations attended by the mother, the mother's age, and the distribution of males and females. In general, the final sample appeared to be representative of the sample from which it was drawn. See DENNO, *BIOLOGY AND VIOLENCE*, *supra* note 10, at 30.

⁹⁸ Data were collected immediately after an event occurred. Highly structured forms and manuals were used to ensure comprehensiveness and comparability among the coders who recorded the data. All coders were either medical doctors or psychologists trained to record data systematically. For descriptions of the numerous procedures used to ensure reliability in the Project's coding, see NISWANDER & GORDON, *supra* note 11, at 17-19, 500-24.

data about each subject. The Biosocial Study relied predominately on two types: (1) academic achievement during ages thirteen and fourteen⁹⁹ and (2) evidence of learning or disciplinary problems.¹⁰⁰

In addition, the Biosocial Study collected official police records for all subjects from ages seven to twenty-two. The Study used three different measures of juvenile and adult crime: (1) number of offenses; (2) categorization of juvenile offenders according to levels of the most serious offense recorded (violence, property, and nonindex);¹⁰¹ and (3) seriousness of offenses.¹⁰²

⁹⁹ The California Achievement Test measured academic achievement in grades seven and eight, which were attended during ages 13 and 14. Social scientists have described the California Achievement Test as an excellent data source for measuring both verbal and mathematical achievement. See DENNO, *BIOLOGY AND VIOLENCE*, *supra* note 10, at 171-73. Researchers have found a high correlation between that test and the other tests measuring achievement that were administered in the Perinatal Project at age seven. *Id.* at 169. Moreover, the standardization sample for the California Achievement Test allowed for "proportionate representation in the national norms of minority group students in the total school population." *Id.* at 171 (citation omitted). However, social scientists have found evidence of test bias in a number of other psychological tests administered in the Perinatal Project based upon a wide range of possible racial, socioeconomic, and cultural influences. *Id.* at 173. Because the individuals in the Biosocial Study were racially and socioeconomically homogenous, many of the factors most influential in creating test bias did not exist in the Study's analyses.

¹⁰⁰ Learning and disciplinary problems during school were measured, respectively, by the presence of any record of the child's involvement in special school programs for those classified as being mentally retarded or as having disciplinary problems. Children with disciplinary problems were diagnosed as having normal intelligence but some record of asocial behavior in school, including a history of starting fires, physical aggression toward teachers, maladjustment to school, and conduct disturbance. The Philadelphia School Board stated that any school's recommendation of a child to a special school program was made independently of any knowledge of that child's official delinquency status. See *id.* at 32, 62-63.

¹⁰¹ See *id.* at 32. Violent offenders were those individuals who had a record of at least one violent offense at any time during their juvenile criminal career. Violent offenses consisted of murder, assault with intent to kill, aggravated assault, simple assault, rape, robbery with injury, and any other offense that involved injury to the victim. Property offenders had a record of at least one property-related offense, but no history of violent offenses. Property-related offenses included vandalism, burglary, robbery without injury, and auto theft. Nonindex offenders had a record of at least one nonindex offense, but no history of violent or property-related offenses. Nonindex offenses comprised truancy, disorderly conduct, running away, fraud, and possession of alcohol, marihuana, or hard drugs. See *id.* at 39.

¹⁰² The method of ranking and scoring offense seriousness was based on a widely accepted and validated system of assigning numerical weights to different components of an offense that was derived from a national survey of crime severity. See generally MARVIN E. WOLFGANG ET AL., *THE NATIONAL SURVEY OF CRIME SEVERITY* (1985). The different components of an offense included the seriousness of personal injury to the victim, the amount of property theft or damage, the extent to which the victim was intimidated (*e.g.*, through a threat of gross bodily harm), the number of premises that the offender entered, and the number of vehicles stolen. *Id.* at 129-36.

A. BIOLOGICAL AND SOCIOLOGICAL THEORIES OF CRIME

A multidisciplinary approach to crime is crucial for understanding both why crime occurs and the conditions for any possible gender differences. This approach also requires some sense of the Biosocial Study sample's surroundings.

1. *Urban, Socioeconomic, and Environmental Factors*

When the Biosocial Study's subjects were young children, most blacks with low incomes were concentrated in Philadelphia's inner city areas, which were socially and culturally isolated.¹⁰³ It is difficult to measure whether any improvement occurred during the Study's twenty-two year period.¹⁰⁴ In Philadelphia and other large cities, other types of problems had increased substantially since the 1960s, such as homelessness,¹⁰⁵ drug abuse,¹⁰⁶ and the social isolation of the ghetto.¹⁰⁷ These factors have been found to be significant contributors to crime generally,¹⁰⁸ and to the likelihood of criminal behavior among females in particular.¹⁰⁹

¹⁰³ See CONRAD WEILER, PHILADELPHIA: NEIGHBORHOOD, AUTHORITY, AND THE URBAN CRISIS 181-82 (1974); John F. Bauman et al., *Public Housing, Isolation, and the Urban Underclass*, 17 J. URB. HIST. 264, 265, 273-86 (1991).

¹⁰⁴ See ROGER LANE, WILLIAM DORSEY'S PHILADELPHIA AND OURS ON THE PAST AND FUTURE OF THE BLACK CITY IN AMERICA 374-409 (1991); William J. Wilson, *The Ghetto Underclass and the Social Transformation of the Inner City*, in THE BLACK SCHOLAR at 10-11 (May/June 1988); see generally WILLIAM J. STULL & JANICE FANNING MADDEN, POST-INDUSTRIAL PHILADELPHIA: STRUCTURAL CHANGES IN THE METROPOLITAN ECONOMY (1990).

¹⁰⁵ See Elaine R. Fox & Lisa Roth, *Homeless Children: Philadelphia as a Case Study*, 506 ANNALS AM. ACAD. POL. & SOC. SCI. 141 (1989).

¹⁰⁶ See, e.g., Michael deCourcy Hinds, *Pennsylvania City Hopes It's Bouncing Back From the Bottom*, N.Y. TIMES, Jan. 5, 1992, at A14; Tom Morganthau, *Children of the Underclass*, NEWSWEEK, Sept. 11, 1989, at 16.

¹⁰⁷ See Wilson, *supra* note 104, at 14-16.

¹⁰⁸ Evidence that crime is associated with community and urban factors was first investigated on a large scale by Clifford Shah and Henry McKay in Chicago and other metropolitan areas. See CLIFFORD R. SHAW & HENRY D. MCKAY, JUVENILE DELINQUENCY IN URBAN AREAS (1972). A substantial amount of research since that time has confirmed their conclusion that high rates of crime are concentrated in areas where residents are deprived socioeconomically. See Reiss & Roth, *supra* note 3, at 131-39; E. Britt Patterson, *Poverty, Income Inequality, and Community Crime Rates*, 29 CRIMINOLOGY 755, 755-64 (1991) (reviewing recent research on poverty and crime). Other researchers contend, however, that social instability, and not socioeconomic deprivation, accounts for the association between community characteristics and crime. See Patterson, *supra*, at 762-63 (noting that although a considerable amount of research demonstrates a link between poverty and crime, other research has uncovered additional factors indicating a link between crime and factors associated with social instability, including: residential mobility, family disorganization, and population density); see also Richard Block, *Community, Environment, and Violent Crime*, 17 CRIMINOLOGY 46 (1979) (emphasizing factors other than poverty).

¹⁰⁹ See, e.g., Baskin & Sommers, *supra* note 2, at 577 (showing that initiation into violent street crime for the women offenders in their study was "influenced strongly by the neighborhood environment").

Aside from "controlling," or accounting for the effects of urban environment, the Biosocial Study examined other kinds of socioeconomic and environmental data, as well as indicators of family instability or disorganization. These data included: parents' occupation, education, and employment history; family income and size; religion; welfare status; child's residence in a foster home; and number of persons supported in the household. Many of these factors were interrelated.¹¹⁰

2. *Biological and Psychological Factors*

Biological and psychological theories of crime emphasize the physiological and psychological capacities for individuals to adjust to their environments and to learn appropriate behavior. Individuals who show central nervous system disorders, delayed maturation, or low intelligence test scores, for example, may be more vulnerable to negative or stressful environments.¹¹¹ These relationships exist regardless of the racial or socioeconomic characteristics of those individuals, although low income minorities are more likely to be raised in stressful environments.¹¹²

In the Biosocial Study, indicators of developmental or psychological theories were grouped very generally into six types: (1) early central nervous system development (*e.g.*, prenatal, perinatal, and pregnancy complications and the Apgar score, which is an accepted and validated scale of health and development immediately following birth);¹¹³ (2) intelligence and cerebral dominance or laterality (*e.g.*, measures of verbal and spatial ability, as well as indicators of cerebral dominance or laterality, such as the child's hand, eye, and foot preference, which are indicative of learning disabilities);¹¹⁴ (3) physical

¹¹⁰ For a description of how these variables were measured and interrelated, see DENNO, *BIOLOGY AND VIOLENCE*, *supra* note 10, at 19-24.

¹¹¹ See *id.* at 24-28.

¹¹² See *id.* at 19.

¹¹³ The term "prenatal" refers to the period between conception and birth. The term "perinatal" refers to the period near the time of birth. Considerable research points to associations among prenatal and perinatal complications and central nervous system dysfunction. Generally, early brain damage, primarily due to hypoxia (a severe lack of oxygen), may be related to later neuropsychiatric disturbances such as impaired intelligence or achievement, attention-deficit disorder (minimal brain dysfunction), pathological cerebral dominance, and reading failure. Directly or indirectly through these disturbances, pregnancy complication may also lead to general physical or behavioral disorders and delinquency. See *id.*

¹¹⁴ Evidence of anatomic and functional differences in the lateralization of the two (left and right) hemispheres of the brain provides one explanation for intellectual variation in the general population. "Lateralization" refers to the "localization of a psychological function in a single hemisphere." Bonnie Burstein et al., *Sex Differences in Cognitive Functioning: Evidence, Determinants, Implications*, 23 *HUMAN DEVELOPMENT* 289, 204 (1980). Individuals

growth and development (*e.g.*, measures of height and weight);¹¹⁵ (4) neurological status (*e.g.*, "soft neurological signs" or lack of coordination); (5) attention deficit disorder and hyperactivity (*e.g.*, evidence of disciplinary problems in childhood and adolescence, as well as mixed indicators of cerebral dominance or laterality and difficulty with left-right identification);¹¹⁶ and (6) general physical health (*e.g.*, high

who are more lateralized tend to show greater hemispheric specialization in processing information relative to less lateralized individuals. For most (right-handed) individuals, the left cerebral hemisphere specializes in processing verbal stimuli—notably language functions—in a sequential, analytic, and propositional mode, whereas the right hemisphere specializes in processing nonverbal stimuli—particularly spatial functions—in a nonlinguistic, holistic, and synthetic manner. WISC Verbal IQ and other verbal measures are widely used indicators of left-hemispheric abilities; WISC Performance IQ and other spatial measures are indicators of right-hemispheric abilities. Additional factors have also been found to be associated with cerebral lateralization, most notably hand preference and, to a lesser extent, eye and foot preference.

Generally, handedness, gender, and intellectual abilities show three basic interrelationships reported in the literature: (1) a disproportionately higher incidence of males and left-or-mixed-handers among children with language, reading, or learning disorders; (2) evidence that the different patterns of hemispheric specialization in males and females may be related to handedness; and (3) a higher incidence of left-handedness in males relative to females.

Evidence that some left-handers tend to rely on the "less analytic, more emotional, more impulsive response modes" associated with the right hemisphere has been used to explain their greater involvement in delinquency and violence. This tendency may also explain why left-handers and delinquents experience greater deficits in left hemisphere tasks such as reading and language. Some investigators suggest a greater left hemisphere deficit among both delinquents and poor readers irrespective of their lateral preference. Other research points to a right hemisphere deficit among delinquents or evidence of other symptoms of cerebral disorder, such as attention deficit disorder or what the earlier literature labeled as minimal brain dysfunction. *See* DENNO, BIOLOGY AND VIOLENCE, *supra* note 10, at 13-15.

¹¹⁵ Physical growth, even at an early age, is one of several indicators of subsequent health and development and physical maturation during adolescence. Relationships among indicators of physical development and central nervous system and behavioral disorders, however, are inconsistent. *See* DENNO, BIOLOGY AND VIOLENCE, *supra* note 10, at 16.

¹¹⁶ The terminology for such conditions has changed over time. Today, the condition is known as "attention deficit hyperactivity disorder." This Article will refer to the terms attention deficit disorder and hyperactivity separately, however, (as is still done) because this Article is based on older data that have been collected and analyzed with these particular conditions in mind. Attention deficit disorder (ADD), or what much of the earlier literature termed minimal brain dysfunction, and hyperactivity are noted correlates of school failure and delinquency. The term hyperactivity, in particular, describes the heterogeneous behaviors of children who show one or more of the following: overactivity, perceptual-motor impairments, impulsivity, emotional lability, attention deficits, minor disturbances of speech, intellectual defects (*e.g.*, learning disabilities), clumsiness, and antisocial responses. By definition, children with below normal intelligence or very severe neurological problems are excluded. Explanations for the causes of ADD include prenatal or birth trauma, neurodevelopmental lag, psychogenic factors, minor physical anomalies, genetic transmission, and poor living environment.

Generally, children with ADD indicate certain learning or behavioral deficiencies associated with central nervous system dysfunctioning. Problem behaviors among ADD children appear to correspond with age. For example, young children (ages 2 to 6 years) may

blood pressure, pica, lead poisoning, and anemia).¹¹⁷

This research suggests that both biological and environmental influences, as well as gender, interact and cumulate as risk factors predictive of later mental and behavioral disorders. For example, males "appear to be more vulnerable to all manner of environmental insult and developmental difficulty."¹¹⁸ Overall, they experience a higher incidence of prenatal and perinatal mortality and complications, childhood diseases, reading and learning disorders, mental retardation,¹¹⁹ as well as left-handedness and left hemisphere deficits.¹²⁰ The incidence for most of these disorders is highest in socioeconomically deprived or "stressed" circumstances.¹²¹ Likewise, researchers found a disproportionate number of delinquents and criminals among individuals with cognitive and developmental difficulties.¹²²

B. CRIMINAL BEHAVIOR AT DIFFERENT AGES

Few studies have examined criminal behavior over a person's life span.¹²³ Uniform Crime Report data show, however, considerable differences in the types and frequencies of arrests reported according to age. In general, juveniles (ages ten to eighteen) are more likely than young adults to have a police contact for property offenses and relatively less serious crimes, whereas young adults (ages nineteen to twenty-five) are more likely than juveniles to have a police contact for

exhibit lack of discipline and hyperactivity; older children (during elementary school and adolescence) may demonstrate reading and learning disorders, academic underachievement, and delinquent or aggressive behaviors. Whereas central nervous system dysfunction may underlie some childhood disorders, evidence suggests that behavioral deviations can result from developmental or maturational lags many children eventually do not outgrow. Longitudinal follow-up studies indicate that children who do not outgrow behavioral disorders may retain antisocial conduct into adulthood. See *id.* at 15-16.

¹¹⁷ See *id.* at 37-39.

¹¹⁸ June Machover Reinisch et al., *Prenatal Influences on Cognitive Abilities: Data From Experimental Animals and Human Genetic and Endocrine Syndromes*, in *SEX-RELATED DIFFERENCES IN COGNITIVE FUNCTIONING: DEVELOPMENTAL ISSUES* 215, 220 (Michele Andrisin Wittig & Anne C. Petersen eds., 1979).

¹¹⁹ See *id.*

¹²⁰ See Louise Carter-Salzman, *Patterns of Cognitive Functioning in Relation to Handedness and Sex-Related Differences*, in *SEX-RELATED DIFFERENCES IN COGNITIVE FUNCTIONING: DEVELOPMENTAL ISSUES* 189, 204-09 (Michele Andrisin Wittig & Anne C. Petersen eds., 1979).

¹²¹ KATHERINE BLICK HOYENGA & KERMIT T. HOYENGA, *THE QUESTION OF SEX DIFFERENCES: PSYCHOLOGICAL, CULTURAL, AND BIOLOGICAL ISSUES* 236-37 (1979); DENNIS HERBERT STOTT, *STUDIES OF TROUBLESOME CHILDREN* 9-61 (1966).

¹²² For a review of the literature, see DENNO, *BIOLOGY AND VIOLENCE*, *supra* note 10; Terrie E. Moffitt, *The Neuropsychology of Juvenile Delinquency: A Critical Review*, in *CRIMINAL JUSTICE: AN ANNUAL REVIEW OF RESEARCH* 99 (Norval Morris & Michael Tonry eds., 1990); Terrie E. Moffitt & Bill Henry, *Neuropsychological Studies of Juvenile Delinquency and Juvenile Violence*, in *NEUROPSYCHOLOGY OF AGGRESSION* 67 (J. S. Milner ed., 1991).

¹²³ See Marvin E. Wolfgang et al., *Preface*, in *FROM BOY TO MAN, FROM DELINQUENCY TO CRIME* xiii (Marvin E. Wolfgang et al. eds., 1987).

violent and serious crimes.¹²⁴ Moreover, juveniles who evidence relatively more aggressive childhood behavior or delinquent offenses are more likely to be adult offenders than their less delinquent or non-delinquent counterparts.¹²⁵

Among both juveniles and adults, however, research shows that a small percentage of individuals is responsible for the majority of police contacts.¹²⁶ For example, a longitudinal study of nearly 10,000 boys born in 1945, and living in Philadelphia from ages ten to eighteen,¹²⁷ determined that chronic offenders (those who have five or more offenses) constituted only 6% of the entire cohort of boys and 18% of the offenders. However, chronic offenders were responsible for over half (52%) of all police contacts in the cohort.¹²⁸ A subsequent study, of a cohort of Philadelphia boys born in 1958,¹²⁹ showed an increase in the number of offenses committed by chronic delinquents. Chronic delinquents comprised 7.5% of the cohort and 23% of the offenders, yet they were responsible for 61% of all police contacts in the cohort.¹³⁰ Research has also shown that a small group of adult offenders is responsible for most adult offenses.¹³¹

The behaviors and characteristics of chronic offenders are important with respect to both social policy and criminal responsibility. For example, "there is excellent evidence that some biological factors are especially useful in distinguishing chronic offenders."¹³² Yet, only a limited amount of research has examined gender distinctions among

¹²⁴ See Frank E. Zimring, *American Youth Violence: Issues and Trends*, in CRIME AND JUSTICE: AN ANNUAL REVIEW OF RESEARCH 67, 72-86 (Norval Morris ed., 1979); see also Marvin E. Wolfgang et al., *Juvenile and Adult Criminal Careers*, in FROM BOY TO MAN, FROM DELINQUENCY TO CRIME 20, 32 (Marvin E. Wolfgang et al. eds., 1987) (noting that when criminal careers are analyzed up to age 30, "the data clearly indicate that, regardless of offense type, the offenses committed later in an individual's career were, on the average, much more serious than those he committed earlier").

¹²⁵ See DONALD J. WEST & DAVID P. FARRINGTON, WHO BECOMES DELINQUENT? 11-14 (1973); David. Magnusson, et al., *Aggression and Criminality in a Longitudinal Perspective*, in PROSPECTIVE STUDIES OF CRIME AND DELINQUENCY 277, 277-301 (Sarnoff A. Mednick & Katherine Van Dusen eds., 1983).

¹²⁶ See HAMPARIAN ET AL., *supra* note 2; PAUL E. TRACY ET AL., DELINQUENCY CAREERS IN TWO BIRTH COHORTS 81-83 (1990); David Farrington, *Offending From 10 to 25 Years of Age*, in PROSPECTIVE STUDIES OF CRIME AND DELINQUENCY 17, 17-37 (Sarnoff A. Mednick & Katherine Van Dusen eds., 1983); Lyle Shannon, *A Longitudinal Study of Delinquency and Crime*, in QUANTITATIVE STUDIES IN CRIMINOLOGY 121, 121-46 (Charles Wellford ed., 1978).

¹²⁷ See WOLFGANG ET AL., *supra* note 96.

¹²⁸ *Id.* at 247-48.

¹²⁹ TRACY ET AL., *supra* note 126.

¹³⁰ *Id.* at 83.

¹³¹ See James J. Collins, *The Disposition of Adult Arrests: Legal and Extralegal Determinants of Outcomes*, in FROM BOY TO MAN, FROM DELINQUENCY TO CRIME 68 (Marvin E. Wolfgang et al. eds., 1987); Farrington, *supra* note 126, at 25.

¹³² Mednick et al., *supra* note 15, at 3.

these individuals, or what may be the basis for these distinctions.

The following sections examine data on crime and violence in the Biosocial Study sample to determine the nature and extent of gender differences. Distributions of delinquency are outlined first, followed by distributions of crime during young adulthood. The discussion and illustrations for Figures 1-4 (Appendix C) pertain to the distributions of data provided in Table 1 (Appendix C).

1. *Juvenile Delinquency*

Nearly 22% of the 987 youths had at least one police contact prior to age eighteen. Thirty-three percent of the males had a police contact, while only 14% of the females had one.¹³³

As Figure 1 shows for both genders, the less serious nonindex offenders predominate. More than 40% of the males, and nearly one half of the females, were nonindex offenders. However, more females (39%) were property offenders than males (34%).¹³⁴ As expected, gender disparities were greater for crimes of violence. Of the 151 males who became offenders by age eighteen, 36 (nearly 1/4) had a police contact for at least one offense that involved violence or injury to one or more persons. In contrast, only 8 (12%) of the 69 female offenders had been involved in a violent or injury-related offense.¹³⁵ Overall, most of the delinquent behavior of both males and females was nonviolent, although the amount of violent behavior was sizable—especially among males.

a. Repeat and Chronic Delinquent Offenders

The number of offenses committed by these juveniles reflects their repeat or chronic patterns of delinquency. The number ranged

¹³³ See DENNO, *BIOLOGY AND VIOLENCE*, *supra* note 10, at 40. The proportion of police contacts, particularly for males, was somewhat lower in comparison to the proportion found for other nonwhites raised in Philadelphia at a similar time. In a study of a cohort of males and females who were born in 1958 and lived in Philadelphia, see TRACY ET AL., *supra* note 126, 41% of the nonwhite males and 18% of the nonwhite females experienced a police contact prior to age 18. The generally lower prevalence of offense behavior among the Perinatal Project youths may be due to several factors: (1) Perinatal Project youths participated in a medical study for the first seven years of their lives and therefore may have received certain physical and psychological benefits; (2) mothers of the Perinatal Project youths, who were interested enough to participate in a study for seven years, may have had a greater concern about the welfare of their offspring; (3) participation in the Perinatal Project itself may have had a positive effect on youths; and (4) the sample of nonwhites in the study in TRACY ET AL. may have comprised ethnic groups with higher crime rates than blacks and thus rates for the group as a whole were inflated. See DENNO, *BIOLOGY AND VIOLENCE*, *supra* note 10, at 40-41.

¹³⁴ See DENNO, *BIOLOGY AND VIOLENCE*, *supra* note 10, at 41-42.

¹³⁵ See *id.* at 41.

from 1 to a maximum of 27 offenses across ages seven to seventeen. Consistent with past research, Figure 2 (Appendix C) shows that considerably more females than males were one-time offenders: nearly two-thirds of the female offenders, but less than one-half (45%) of the male offenders, had only one police contact. Further, 38% of the males and 25% of the females were nonchronic repeat offenders.¹³⁶

As mentioned, one of the most important results reported in delinquency research is the finding that chronic offenders are responsible for a highly disproportionate share of the total number of offenses.¹³⁷ The domination of chronic offenders in the amount of crime, particularly serious crime, was striking in the present study.¹³⁸

The 25 male chronic offenders represented 5% of the total male sample, and 17% of all male delinquents. These chronic offenders, however, accounted for 51% of the offenses committed by males. Chronic female offenders represented only 1% of the female sample, and 10% of the female delinquents. However, they accounted for 41% of the offenses committed by females.¹³⁹

Chronic offenders also committed a highly disproportionate share of violent crimes. Among males the results were striking: chronic offenders were responsible for 61% of the violent offenses committed by males, 55% of the property offenses, and 46% of the nonindex offenses. Chronic female offenders accounted for 40% of the violent offenses committed by females, 30% of the property offenses, and 48% of the nonindex offenses. Thus, although both male and female chronic offenders dominated the amount of offense behavior, female chronics committed fewer and less severe crimes than their male counterparts.

b. Incidence and Seriousness of Delinquency

Gender differences in the incidence and seriousness of delinquency are also important considerations. Altogether, the sample of 987 youths committed 588 offenses between the ages of seven and seventeen. Males were responsible for 443, or three quarters of those offenses; females were responsible for 145, or one quarter.¹⁴⁰

Males committed relatively more violent offenses: 64 (14%) involved violence or injury; 155 (35%) involved property theft or damage; and 224 (51%) were nonindex offenses. In contrast, among females, 10 (7%) of the offenses involved violence; 51 (35%) involved

¹³⁶ See *id.* at 42-43.

¹³⁷ See TRACY ET AL., *supra* note 126; WOLFGANG ET AL., *supra* note 127.

¹³⁸ See DENNO, BIOLOGY AND VIOLENCE, *supra* note 10, at 43.

¹³⁹ See *id.* at 43-44.

¹⁴⁰ See *id.* at 43.

property theft or damage; and 84 (58%) were nonindex offenses.¹⁴¹

Gender differences were even more significant for offense seriousness. For male offenders, seriousness scores ranged from .3 to 158, with a mean score of 17. For females, they ranged from .3 to 58, with a mean score of 7. Thus, the mean level for males was nearly 2.5 times greater than the mean level for females.¹⁴²

Seriousness levels also differed according to groups of offenders. Among males, the mean seriousness score for one-time offenders was 3, for nonchronic repeat offenders it was 15, and for chronic offenders, 58. Among females, one-time offenders had a mean score of 2, nonchronic repeat offenders a score of 11, and chronic offenders a score of 30. Clearly, chronic offenders deviated from the other groups in terms of the severity of their offenses.¹⁴³

c. Age

The age at which a juvenile begins a delinquent career is strongly related to future offense behavior. In general, juveniles who commit offenses at a young age tend to commit more offenses overall.¹⁴⁴

Percentages of the age at which juveniles commit their first offense are shown in Figure 3 (Appendix C) and Table 1. The highest percentage of juveniles had a police contact by age thirteen (17%) or fourteen (19%). The lowest percentages occurred at both ends of the distribution, ages eleven (6%) and seventeen (7%).¹⁴⁵

Gender differences exist with these percentages. For instance, the highest percentage of females became offenders at age thirteen (23%); the highest percentage of males became offenders at age fourteen (20%). Cumulatively, nearly half of the juveniles (46%) became offenders before age fourteen. More than three quarters of both the males (79%) and the females (81%) became offenders before age sixteen. Although the peak age of offending occurred one year earlier for females than it did for males, cumulative percentages are similar

¹⁴¹ See *id.*

¹⁴² See *id.*

¹⁴³ See *id.*

¹⁴⁴ See WOLFGANG ET AL., *supra* note 127. Moreover, age of onset of violent crime among females may determine a female offender's pattern of criminal activity. One study of violent female offenders, for example, found that

[e]arly initiation into violent crime was accompanied by participation in a wide variety of other offending behaviors and deviant lifestyles. In contrast, those women who began their violent offending later in life did so in the context of a criminal career which, until the beginning of substance abuse, was more specialized and focused on typically nonviolent, gender-congruent activities such as prostitution and shoplifting.
See Baskin & Sommers, *supra* note 2, at 577.

¹⁴⁵ See DENNO, BIOLOGY AND VIOLENCE, *supra* note 10, at 44.

for both genders at ages fourteen and sixteen.¹⁴⁶ This result also confirms prior research indicating minor gender differences in the peak ages of criminal activity.¹⁴⁷

An examination of the mean ages of the onset of delinquency for different offender groups confirms that both nonchronic offenders and chronic repeat offenders start younger. The Biosocial Study examined offender group differences using analysis of variance, a statistical test which determines whether differences are statistically significant at the .05 level.¹⁴⁸

Mean ages for nonchronic and chronic male offenders (13.5 and 12.9 years, respectively) were significantly lower than the mean age for male one-time offenders (14.6 years) ($F[2,148] = 7.51; p < .001$). Similarly, mean ages for property and violent male offenders (13.6 and 13.3 years, respectively) were significantly lower than the mean age for male nonindex offenders (14.6 years) ($F[2,148] = 5.72; p < .005$). Also, female offenders with two or more offenses were significantly younger (12.8 years) than female one-time offenders (14.9 years) ($F[1,67] = 24.31; p < .001$). No significant differences appeared among the mean ages for types of female offenders.¹⁴⁹

2. *Young Adult Crime*

Four categories of individuals are used to compare offense behavior between the juvenile and young adult years: (1) those who never experience either a juvenile or an adult police contact; (2) those who experience at least one juvenile contact but no adult contact; (3) those who experience at least one adult contact but no juvenile contact; and (4) those who experience at least one adult and one juvenile contact. The Biosocial Study focused mainly on the last two groups, which were combined in analyses of young adult crime.¹⁵⁰

Distributions for males and females according to the four groups of possible juvenile or adult offense combinations are presented in Figure 4 (Appendix C) and Table 1. Altogether, 109 (22%) male offenders experienced an adult arrest. Of these, 53 had experienced a juvenile arrest. Of the total sample of 500 female offenders, 24 (5%) experienced an adult arrest. Of these, 8 had previously experienced a

¹⁴⁶ See *id.* at 44.

¹⁴⁷ See Kruttschnitt, *supra* note 2, at 300.

¹⁴⁸ "Statistical significance" refers to the probability that a particular result occurred by chance. The standard significance level for social science research is .05. Therefore, 5 times out of 100, a factor that appeared to be significant would really not be; the apparent significance would only occur by chance. See MONAHAN & WALKER, *supra* note 9, at 80-81.

¹⁴⁹ See DENNO, BIOLOGY AND VIOLENCE, *supra* note 10, at 45.

¹⁵⁰ See *id.* at 46.

juvenile arrest.¹⁵¹

Of the 109 males who had an adult arrest, 55 had one offense, and 15 were chronic offenders. Of the 24 adult females in this group, 15 had only one offense and 2 were chronic offenders. Altogether, then, the data show that males are considerably more likely than females to: engage in crimes during adulthood, continue crimes into adulthood if they had been delinquents, and commit more than one crime as an adult.¹⁵²

This section is consistent with prior research showing gender differences in the prevalence of crime. Males commit more violent crime; and more offenses, during both the juvenile and the adult years. Contrary to a suggestion in past research,¹⁵³ the greater number of offenses for males is a reflection of both their greater participation in crime, and their more frequent offending once they do participate.

The next section considers whether or not comparable differences exist in the prediction of crime by examining three main theories: (1) the biological, psychological, and sociological factors predicting crime among males and females are similar and they interrelate; (2) biological factors are relatively stronger predictors of crime among females, given the greater social and familial constraints on female behavior; and (3) environmental factors are relatively stronger predictors of crime among males, as research indicates that males are somewhat more vulnerable to environmental stressors throughout their lives.

C. GENDER DIFFERENCES IN THE PREDICTION OF CRIME

Most researchers have limited their studies of gender differences to the examination of only one or a few factors. The Biosocial Study, however, determined interrelated associations among many factors at different stages of an individual's development.

This required several steps. The first step involved a statistical screening of several hundred variables to obtain the select predictors of violent and chronic delinquent behavior listed in Appendix A. Variable screening was conducted with three types of regression equations,¹⁵⁴ using two dependent variables: number of offenses and

¹⁵¹ See *id.*

¹⁵² See *id.*

¹⁵³ See 1 CRIMINAL CAREERS AND "CAREER CRIMINALS," *supra* note 80. See also, *supra* notes 87 to 88 and accompanying text.

¹⁵⁴ The three types of regression equations were: the forward selection technique, the backward elimination technique, and the stepwise regression—forward and backward.

seriousness of offenses.¹⁵⁵

Those variables found to be significant predictors at the $p \leq .05$ level for either gender with either of the two dependent variables are listed in Appendix B. Appendix B also contains six variables that were not significant predictors in the regression screening but were included in analyses for theoretical reasons, and because they were significant predictors in past delinquency research.¹⁵⁶ Altogether, then, the Biosocial Study examined a total of eight "dependent" variables, designated by the letter "Y," and twenty-two "independent" variables, designated by the letter "X," that predicted the dependent variables.¹⁵⁷

The Study analyzed these variables in two ways. First, it constructed structural equation models to assess the direct and indirect effects of the twenty-two independent variables across different time periods to determine their simultaneous impact on the eight dependent variables. Second, it examined these structural equation models in their "reduced form," which combines the total impact of direct and indirect effects.

1. Direct and Indirect Effects on Number of Adult Offenses

Structural equation models, which combine features of factor analysis and regression analysis, are useful in many areas of the social and behavioral sciences.¹⁵⁸ Unlike other techniques, such as ordinary least squares regression, where each equation represents an empirical association, the models are appropriate for analyzing longitudinal panel data because each equation represents a "causal link."¹⁵⁹ Thus,

¹⁵⁵ See DENNO, *BIOLOGY AND VIOLENCE*, *supra* note 10, at 70.

¹⁵⁶ These variables were: Stanford-Binet, WISC Verbal and Performance IQ, pregnancy and delivery complications, and family income at birth and at age 7. One variable, "otoscopic (hearing) exam," was eventually not included in analyses. Although it demonstrated a highly significant effect on delinquency, the statistical association was unreliably inflated because only two serious delinquents had an abnormal hearing exam. See *id.*

¹⁵⁷ See *id.* at 71. A dependent variable "is that quantity or aspect of nature whose change or different states the researcher wants to understand or explain or predict. In cause-and-effect investigations, the effect variable is the dependent variable." MONAHAN & WALKER, *supra* note 9, at 38. The Biosocial Study was unusual because it had more than one dependent variable. An independent variable "is a variable whose effect upon the dependent variable you are trying to understand." *Id.*

¹⁵⁸ See generally Karl G. Jöreskog, *A General Method for Estimating A Linear Structural Equation System*, in *STRUCTURAL EQUATION MODELS IN THE SOCIAL SCIENCES* 85 (Arthur S. Goldberger & Otis Dudley Duncan eds., 1973); *ADVANCES IN FACTOR ANALYSIS AND STRUCTURAL EQUATION MODELS* (Karl G. Jöreskog & Däg Sorbom eds., 1979).

¹⁵⁹ See Arthur S. Goldberger, *Structural Equation Models in the Social Sciences*, 40 *ECONOMETRICA* 979, 979-1001 (1972); Arthur S. Goldberger, *Structural Equation Models: An Overview*, in *STRUCTURAL EQUATION MODELS IN THE SOCIAL SCIENCES* 2 (Arthur S. Goldberg & Otis Dudley Duncan eds., 1973).

"causal terminology" such as "effect on" is appropriate in an analysis of structural equation models, even though it is not intended to suggest that direct or perfect causation exists.

In general, models tested direct and indirect relationships among variables across five different points in time: birth, age four, age seven, ages thirteen through fourteen, and ages seven through twenty-two. Results of model testing for both males and females for number of adult offenses, the final dependent variable, are shown in Tables 2 and 3 (Appendix C), and illustrated in Figures 5 and 6 (Appendix C).¹⁶⁰ Table 4 (Appendix C) isolates those predictors that were statistically significant for the four primary behavioral problem variables: number of adult offenses, number of juvenile offenses, disciplinary problem in school, and language achievement.

In the tables, coefficients can be interpreted in the same way as ordinary least squares regression. The letter "X" represents the effects of independent variables upon dependent variables. The letter "Y" represents the effects of dependent variables upon other dependent variables.

2. *Effects on Male Offenders*

Five factors showed significant effects on the number of adult offenses for males. The strongest factors were the number of juvenile offenses, mother's low educational level, and seriousness of juvenile offenses. The other two factors were father's high educational level and subject's low language achievement. The relationship between the number and seriousness of juvenile offenses and crime at adulthood was predictable, because past criminality is a strong predictor of future behavior. The finding of an expected negative effect of mother's educational level, but an unexpected positive effect of father's educational level, may simply be an artifact because father's educational level was highly related to mother's educational level. These results indicate that parental characteristics have an important effect on adult male crime, perhaps suggesting that lesser educated parents may not provide the kind of social control that is needed in early years to prevent crime in later years. The effect of low language achievement was also predictable in light of past research demonstrating associations between low verbal ability and crime.¹⁶¹ Indeed, there is

¹⁶⁰ Although in the initial model, number of offenses and seriousness of offenses were used as separate, dependent measures for delinquency, only those findings for number of offenses are reported for the final models in Figures 5 and 6 because the results were similar for both measures. Likewise, only number of offenses was used as the dependent measure for young adult crime.

¹⁶¹ See DENNO, BIOLOGY AND VIOLENCE, *supra* note 10, at 10-12.

substantial research indicating evidence of reading or learning disabilities among delinquents and violent offenders.¹⁶²

The effects on juvenile crime are important because of their indirect effects on adult crime, and because they may have a large influence on initiating and perpetuating a youth's involvement in crime. Altogether, in decreasing order of significance, six factors showed significant effects on the number of juvenile offenses for males: number of disciplinary problems in school; amount of time the father was unemployed; evidence of lead intoxication; low language achievement; number of household moves; and abnormal speech.

Evidence of disciplinary problems in school shows the most highly significant association with juvenile offenses for males. This association demonstrates that, not unexpectedly, school-related aggression and behavioral disturbance are strong predictors of future behavioral disorders. Moreover, it appears that delinquents evidence fewer attachments and commitments to conforming and normative behavior, at least in the school setting.

The amount of time the father was unemployed, in addition to number of household moves, are indicators of familial and environmental instability. When combined with lead intoxication, a precursor of physiological and neurological instability,¹⁶³ these factors can create the kind of internal and external vulnerability that increases the likelihood of criminal behavior. Evidence of abnormal speech and low language achievement are additional factors that can lead to further instability in school. They also support research suggesting that delinquents have poor communication skills and rely on physical aggression to compensate for what they lack verbally.

Five factors significantly predicted whether males evidenced a disciplinary problem in school: evidence of lead intoxication; anemia; number of household moves; left hand preference; and lack of foster parents. These findings suggest that behavioral problems reflect disorders of the central nervous system and an unstable environment,

¹⁶² See *id.* at 12.

¹⁶³ The key source of lead intoxication is lead-based paint, which children ingest by eating paint chips or by swallowing dust derived from the lead paint which settles on walls, windows, and floors. Other sources of lead toxicity are drinking water, soil, food, gasoline, and industry. See Deborah W. Denno, *Considering Lead Poisoning As A Criminal Defense*, 22 FORDHAM U.L. J. 377, 392 (1993). Lead exposure can produce devastating physiological and neurobehavioral disorders among young children, including: learning disabilities, delayed nervous system development, deficits in visual motor function, hyperactivity, hypoactivity, and abnormal social and aggressive behavior. See *id.* at 392-93. Although children of all socioeconomic classes are vulnerable to the effects of lead, urban-dwelling black children appear to be most vulnerable. Furthermore, race appears to be a stronger risk factor for lead intoxication than poverty. See *id.* at 390-91.

both of which are precursors of attention deficit disorder and hyperactivity. For example, number of household moves, and lack of foster parents are two of a number of indicators of family instability.¹⁶⁴ Presumably, foster parents provided a relatively more intact, problem-free home than a number of the biological parents with whom children lived.

Placement in a disciplinary program is strongly linked to three variables which, even though they are environmentally created, are typically associated with biological effects: lead intoxication; anemia (which allows for greater lead absorption); and left hand preference. Previous research has shown that left hand preference is one indicator of dominance of the right cerebral hemisphere. It has been associated with a number of behavioral and intellectual disorders, including impulsivity and lack of control.¹⁶⁵ Also, researchers have found considerable evidence of high lead levels among hyperactive and behaviorally disordered children.¹⁶⁶

Although lead intoxication is generally ignored in crime research, the Biosocial Study showed a significant association between lead intoxication and the number of delinquent offenses committed by males. Similarly, researchers have ignored the effect of iron deficiency anemia on behavioral problems, although the Biosocial Study found that anemia was related to disciplinary problems. Moreover, iron deficiency anemia is one of several factors that increases susceptibility to lead intoxication.¹⁶⁷

Surprisingly, disciplinary problems in school were not highly correlated with school achievement in language, which showed a significant, direct effect on delinquency. Thus, it appears that behavioral disturbance has a direct effect on delinquency, rather than an indirect or impeding effect through school achievement.

Not surprisingly, prior intelligence test scores were associated with language achievement. Both WISC Verbal IQ and WISC Performance IQ have highly significant direct effects. However, contrary to some past research, early intelligence scores showed no direct effect on delinquency. Thus, the link between intelligence and delinquency is indirect, and mediated through language achievement. In addition, the more dominant effect of Verbal IQ on achievement among males confirms past evidence that poor verbal ability (one indicator of a left hemisphere deficit) is an important factor in aca-

¹⁶⁴ See *supra* note 110 and accompanying text.

¹⁶⁵ See *supra* note 114 and accompanying text; DENNO, BIOLOGY AND VIOLENCE, *supra* note 10, at 12-14.

¹⁶⁶ See Denno, *supra* note 163.

¹⁶⁷ See *id.* at 392.

demic underachievement.¹⁶⁸

Early predictors of Verbal and Performance IQ point to other indirect links to delinquency. Not surprisingly, Stanford-Binet at age four had a strong impact on Verbal IQ, Performance IQ, and placement in a program for the mentally retarded during adolescence. The status of having foster parents directly impacted on Performance IQ, indicating that some familial factors contribute to early test scores. Physicians' clinical impressions of the intellectual status of the Biosocial Study children at age seven also predicted Verbal IQ and Performance IQ at age seven, as well as evidence of mental retardation during adolescence. These associations validate physicians' capabilities to determine intellectual performance independent of intelligence tests and to predict intellectual capacity later in life. However, evidence of an abnormal intellectual status at age seven, or of mental retardation during adolescence, does not have a significant direct effect on delinquency.¹⁶⁹

Importantly, a physician's clinical assessment that a child had abnormal speech at age seven had a significant effect on delinquency. The impact of speech is particularly telling in light of the finding that, of all the tests of adolescent achievement examined as predictors of delinquency at ages thirteen and fourteen, only language ability was significantly associated. In turn, evidence of abnormal speech early in life, in addition to abnormal intellectual status and low Stanford-Binet, predicted placement in a program for the mentally retarded during adolescence.¹⁷⁰

Contrary to past research, the Biosocial Study did not find a direct link between delinquency and total family income either at the time of the child's birth, or at age seven. It appears, however, that the associations between socioeconomic status and delinquency found in prior research reflected an underlying relationship between factors that were tied to low income, but which have not been examined intensively in delinquency research (*e.g.*, lead intoxication, or detailed familial and parental characteristics). In the Biosocial Study, the number of times the family household moved between the child's birth and seventh birthday demonstrated a significant direct effect on delinquency. The length of time the father was unemployed showed the most highly significant impact, second only to disciplinary problems in school. Thus, patterns of familial instability and disorganization appear to be more important than the amount of income a

¹⁶⁸ See DENNO, *BIOLOGY AND VIOLENCE*, *supra* note 10, at 85.

¹⁶⁹ See *id.*

¹⁷⁰ See *id.* at 85-86.

family earns.

Overall, both biological and environmental factors predict crime and violence among males, although environmental factors, such as lead poisoning, appeared to have more impact. The next section discusses the relatively stronger biological effects on crime and violence among females.

3. *Effects on Female Offenders*

Four factors showed direct effects on the number of adult offenses among females: seriousness of juvenile offenses; number of disciplinary problems in school; low number of juvenile offenses; and father's low educational level. As with males, the seriousness of delinquent offenses was significant; however, unlike males, those most apt to continue to commit crime during adulthood were not always those who committed the most crime during their youth. This result is not surprising, however, since females commit a relatively larger number of petty or status offenses, like shoplifting. Therefore, unlike males, chronic female offenders were not always the most serious offenders—an association that has important distinguishing consequences in terms of social policy. Yet, disciplinary problems in school did show an effect, demonstrating that early problem behavior is predictive of problems in adulthood.¹⁷¹

Altogether, nine factors showed direct effects on the number of juvenile offenses among females: disciplinary problems in school; lack of foster parents; abnormal movement; neurological abnormalities; left foot preference; father absence; low language achievement; normal intellectual status; and right eye preference. The strong effect of a disciplinary status is not surprising, given its importance in predicting number of adult offenses. Moreover, the link between delinquency and low language achievement could be expected in light of a comparable link among males. However, the status of not being placed in foster care was a more surprising finding, because it suggested that foster care had a more positive effect on behavior than keeping a child with her own family.¹⁷²

Many of the children who were placed in foster care in the Biosocial Study came from disruptive and abusive homes where at least one parent was absent. Although the children were placed in foster care at any time between infancy and age seven, it appears that their early family experiences had a significant effect on their later delinquency. This conclusion is confirmed by the significant association

¹⁷¹ See *id.* at 86-87.

¹⁷² See *id.* at 87.

found between father absence and delinquency.

Other indicators of number of juvenile offenses—abnormal movements, number of neurological abnormalities, right eye preference, and left foot preference—confirmed prior research indicating that female delinquents have a greater degree of neurological dysfunction than male delinquents.¹⁷³ The Biosocial Study assessed abnormal movements during standard tests of coordination, or while observing the child's spontaneous activity. For example, the researchers would ask a test child to hold out both arms horizontally for thirty seconds to ease the detection of abnormal posture, chorea (rapid involuntary jerks), and athetosis (slow, spasmodic repetitions). They recorded many different types of abnormal movements, including fasciculation, tremors, tics, and mirror movements.¹⁷⁴ Also, they asked medical examiners to report, as neurological abnormalities, "conditions, which may not in themselves be neurological but are often related to [central nervous system] disorders, such as abnormalities of skull size and shape, spinal anomalies, and primary muscle disease."¹⁷⁵

Two factors predicted number of disciplinary problems in school: abnormal movements, which was highly significant, and abnormal vision. Physicians assessed whether a child's vision was abnormal by conducting a visual screening examination. Visual acuity was determined to be abnormal if any one of the following three conditions existed: (1) visual acuity was less than 20:30 (with or without glasses); (2) there was hyperopia test failure; or (3) there was muscle balance test failure.

Eight factors predicted language achievement. Similar to males, WISC Verbal IQ and Performance IQ were the strongest positive predictors. However, in contrast to males, whose language achievement was predicted only by these two factors, six other factors also showed significant effects: lesser number of persons supported; left foot preference; Stanford-Binet; father presence; family income; and mother's education. Thus, socioeconomic factors, such as income, a smaller number of persons in the household to support, father's presence, and mother's education, appeared to have a strong effect on achievement, in addition to indicators of past intellectual ability as measured by the standardized WISC and Stanford-Binet tests. Notably, however, left foot preference was the second strongest predictor.

Other factors showed highly significant effects on both Verbal

¹⁷³ See *supra* note 94 and accompanying text.

¹⁷⁴ DENNO, BIOLOGY AND VIOLENCE, *supra* note 10, at 87.

¹⁷⁵ *Id.* at 88.

IQ and Performance IQ, most particularly the Stanford-Binet, a lack of neurological abnormalities, and mother's education. Although mother's education had no effect on ability and behavior among juvenile delinquent males, it showed significant effects on Verbal IQ and Performance IQ among females.

The number of times a child entered a program for the mentally retarded showed three effects. Similar to males, a clinician's assessment of abnormal intellectual status had the strongest effect, followed by the amount of time the father was unemployed and number of pregnancy and delivery complications, which are considered to be early predictors of central nervous system dysfunction.

It appears, then, that for both males and females, delinquency and violence are associated with learning difficulties and low achievement, but not with the more debilitating types of mental impairment characteristic of mental retardation or abnormal intellectual status. This finding is consistent with other analyses of these offenders' classifications, which indicated generally that the more violent and chronic delinquents had lower achievement test scores, but that they were not significantly represented in programs for the mentally retarded.¹⁷⁶

Predictors of female delinquency and violence comprised both biological and environmental effects. Biological factors, however, played a considerably greater role in the delinquency of females than they did in males. Although disciplinary problems and the lack of foster care showed the most highly significant effects on delinquency, neurological abnormalities and factors associated with attention deficit disorder were also important. Those factors—number of neurological abnormalities, mixed cerebral dominance as indicated by left-footedness and right-eyedness, and abnormal movements—influenced language achievement, which had a direct negative impact on delinquency.

Overall, there were two significant effects on delinquency for both genders: disciplinary problems in school—the strongest predictor for males and among the strongest predictors for females—and low language achievement. This finding accords with research¹⁷⁷ which found problems with conduct and academic achievement to be among the principal predictors of delinquency. Apart from academic achievement, however, other factors showed a highly significant impact on delinquency for both genders.

¹⁷⁶ See *id.*

¹⁷⁷ See R. Loeber & T. Dishion, *Early Predictors of Male Delinquency: A Review*, 94 PSYCH. BULLETIN 68, 68-99 (1983). See also DENNO, BIOLOGY AND VIOLENCE, *supra* note 10, for a review of the research.

4. *Total Impact of Effects on Number of Adult Offenses*

An examination of the total impact of independent and dependent variables through the summation of direct and indirect effects provides another way of predicting juvenile and adult offenses, as seen in Tables 5 and 6 (Appendix C). This approach can answer questions relating to the combination of independent effects on intervening variables as they influence crime. For example, this method can determine the total effect of lead intoxication on adult male crime, given that lead has a direct effect on delinquency as well as an indirect effect through disciplinary problems. It can also determine the total effect of left hand preference, given that it has only an indirect effect on delinquency through its impact on disciplinary problems.

In both equations, the strength of the coefficients for reduced form equations is determined by comparisons with other coefficients in the equations. For males in Table 5, the number of adult offenses is most strongly influenced by four factors: mother's high and father's low educational levels; lead intoxication; the amount of time the father was unemployed; and the number of household moves. Number of juvenile offenses was most strongly associated with three factors: the amount of time the father was unemployed; lead intoxication; and number of household moves.

For females in Table 6, the number of adult offenses is most strongly influenced by five factors: father's low educational level; lower number of neurological abnormalities; lack of foster parents; number of abnormal movements; and abnormal vision. Number of juvenile offenses was most strongly associated with lack of foster parents, abnormal movements, left foot preference, father absence, number of neurological abnormalities, and right eye preference.

In general, then, factors found to be important in the direct and indirect effects were also important in the reduced form models, although the relative strength of their impact shifted somewhat. Yet, the results of the reduced form equations still support the proposition that biological factors (such as abnormal movements, left-foot and right-eye preference, and neurological abnormalities) are more significant predictors of crime among females; whereas environmental factors (such as lead intoxication, father's employment status, and number of household moves) are more significant predictors of crime among males. Indicators of family stability were important for both males and females—the lack of foster parents and father absence were important for females, and father's employment and household moves were important for males.

5. *Summary of Results*

Overall, the results of the Biosocial Study showed that direct, indirect, and total biological, psychological, and sociological influences on juvenile and adult crime were significant for both genders. Similar to past research, regression models demonstrated that some of the same factors that influenced crime among males also influenced crime among females. For example, seriousness of delinquent offenses was a key predictor of adult crime for both males and females, whereas the number of a child's disciplinary problems and low language achievement in school were key shared predictors of juvenile crime. Not surprisingly, WISC Verbal IQ and WISC Performance IQ were the primary predictors of language achievement for both genders. These results confirm prior research that highlighted the importance of past behavior and verbal ability in predicting future crime.

Most significant, however, were the numbers and kinds of predictors that the genders did not share. In general, the Biosocial Study confirmed past proposals suggesting that biological factors have relatively more impact among females, and environmental factors have relatively more impact among males. For example, a comparison among disciplinary problems, juvenile crime, and adult crime shows an interesting gender difference. Among females, the only two factors predicting disciplinary problems—abnormal movements and neurological abnormalities—were also strong predictors of their crime as juveniles, and, in the reduced form equations, their crime as adults. Among males, lead intoxication, the strongest predictor of disciplinary problems, was also a strong predictor of their crime as juveniles, and, in the reduced form equation, their crime as adults. Although lead intoxication results in neurological and physiological impairment,¹⁷⁸ its origins are environmental. The fact that females appeared to be unaffected by lead, even though they were raised in the same or similar environment as males, suggests that males may be relatively more vulnerable to certain kinds of environmental stressors. Similarly, abnormal movements or neurological abnormalities had no effect on ability or behavior among males.

This conclusion warrants some qualification. First, as Figures 5 and 6 illustrate, more factors appeared to influence crime and behavior among females than among males. Moreover, the interrelationships among these factors were more complex. Second, certain biological factors, such as left-handedness, contributed indirectly to crime among males by contributing to disciplinary problems. More-

¹⁷⁸ See *supra* note 163 and accompanying text.

over, some environmental factors, such as lack of foster parents, or father absence, contributed directly to juvenile crime among females. Noticeably, however, the few biological predictors of disciplinary problems or crime for males (*e.g.*, left-handedness and perhaps abnormal speech) were not predictors for females, and only one family factor—lack of foster parents—that was significant in predicting juvenile crime for females was also significant in predicting disciplinary problems for males. Thus, more often than not, the genders do not share the same predictors of crime and behavior. This result suggests that researchers must assess different kinds of factors to determine the correlates of gender differences in crime.

Results of the Biosocial Study did not confirm past findings of direct relationships between delinquency and early intelligence, mental retardation, socioeconomic status, or early central nervous system dysfunction as measured by the number of pregnancy complications. The lack of strong, significant associations among these variables may be due to the cultural and demographic characteristics and homogeneity of the sample; the infrequent occurrence of some of the independent variables (for example, particular types of pregnancy and delivery complications), which could mask true associations; or the simultaneous analyses of both biological and environmental variables, which could negate more “traditional” findings. Because much of the research analyzing biological factors and crime has not controlled adequately for social, demographic, and environmental influences, some past findings of biological links to intelligence or to crime may be artifacts of environmental effects. Further, longstanding associations between environmental factors and crime may disguise the significance of biological effects, because researchers rarely incorporate them into delinquency research. Other variables, such as disciplinary problems, may be an outcome of both biological and environmental precursors, although most delinquency research offers only sociological explanations.

Overall, however, the Biosocial Study suggests that delinquency is related to family instability and, most importantly, to a lack of behavioral control associated with neurological and later central nervous system disorders. It appears that attention deficit disorder and hyperactivity, which are part of disciplinary problems, are associated with the learning and behavioral disorders evidenced in some members of the Biosocial Study sample. These disorders would considerably inhibit the ability of young children to create social bonds even before the school experience. Academic failure would perpetuate misconduct and impede attempts at future social bonding. Indeed, a sizable amount of research shows that children who evidence attention deficit

disorder and hyperactivity are significantly more likely to retain antisocial tendencies during adulthood, a time when most individuals start to show commitments to socially desirable behavior.¹⁷⁹

In determining whether gender differences in crime justify a gender-based standard for punishment, the next section first discusses briefly the different theories of punishment. It then examines how the criminal law has applied gender-based defenses. Although such defenses are generally viewed unfavorably by the courts, their popularity is growing. Moreover, defenses for women are somewhat more acceptable than those for men. Next, the section considers whether this gender distinction is based on factors other than gender. It concludes by discussing whether attempts to use gender-based defenses are legitimate, or whether those defenses that are more culturally constructed merely reinforce the gender-related stereotypes of crime that were espoused historically.

IV. GENDER DIFFERENCES AND PREDICTION

A. THEORIES OF PUNISHMENT AND DEFENSES

Commentators have discussed the different theories of punishment and criminal law defenses in great detail,¹⁸⁰ and they are presented only briefly here. Apart from some exceptions, the general presumption in the criminal law is that individuals are responsible actors and that their behavior results from free will.¹⁸¹ The principles of retributivism and utilitarianism, which differ considerably from one another, provide the theoretical basis for the punishment of criminal behavior. According to retribution theory, offenders deserve to be punished in proportion to the crimes they commit, because they made the choice to engage in social harm.¹⁸² In contrast, utilitarian theory does not view punishment as an end in itself, but instead considers whether it would provide any future social benefit, most particularly in terms of crime prevention. The theory presumes that human actors behave rationally; they will avoid engaging in crime if they be-

¹⁷⁹ See DENNO, *BIOLOGY AND VIOLENCE*, *supra* note 10, at 94.

¹⁸⁰ See JOSHUA DRESSLER, *UNDERSTANDING CRIMINAL LAW* (1987); GEORGE P. FLETCHER, *RETHINKING CRIMINAL LAW* (1978); H.L.A. HART, *PUNISHMENT AND RESPONSIBILITY* (1968); C.L. TEN, *CRIME, GUILT, AND PUNISHMENT: A PHILOSOPHICAL INTRODUCTION* (1987); Paul Robinson, *Criminal Law Defenses: A Systematic Analysis*, 82 COLUM. L. REV. 199 (1982); Lloyd L. Weinreb, *Desert, Punishment, and Criminal Responsibility*, 49 LAW & CONTEMP. PROBS. 47 (1986).

¹⁸¹ See HERBERT L. PACKER, *THE LIMITS OF THE CRIMINAL SANCTION* 74-75 (1968); Richard C. Boldt, *The Construction of Responsibility in the Criminal Law*, 140 U. PA. L. REV. 2245, 2246 (1992); Sanford H. Kadish, *Excusing Crime*, 75 CAL. L. REV. 257, 282 (1987); Stephen J. Morse, *Culpability and Control*, 142 U. PA. L. REV. 1587, 1592-1605 (1994).

¹⁸² See Weinreb, *supra* note 180, at 47.

lieve that the potential pain of punishment is greater than the potential pleasure reaped from the crime.¹⁸³

Major types of utilitarian theory include general deterrence, specific deterrence, and rehabilitation. General deterrence presumes that the punishment of a particular defendant will prevent others from engaging in similar conduct because they will be aware of, and fear, the consequences.¹⁸⁴ Specific deterrence purports to deter the future misconduct of the particular defendant being punished, irrespective of the effect such punishment may have on the misconduct engaged in by others.¹⁸⁵ Lastly, rehabilitation attempts to diminish crime by reforming the defendant's behavior.¹⁸⁶

Despite the conflict between the principles of retributivism and utilitarianism, criminal law scholars generally agree that not all individuals should be subject to criminal punishment.¹⁸⁷ Thus, the available defenses¹⁸⁸ serve two functions: (1) they allow defendants who lack the capacity for rational self control to avoid punishment; and (2) they help clarify the dimensions of the responsible actor by reinforcing the assumption that culpability is based on an actor's ability to control current mental states and physical conduct.¹⁸⁹ Although Robinson has pinpointed five categories of available defenses,¹⁹⁰ for the purposes of evaluating possible gender differences in punishment, this section focuses on two—justifications and excuses.

Typically, justifications and excuses apply to any offense, even though every element of the offense at issue has been satisfied.¹⁹¹ A justification defense, such as self defense, claims that conduct that would otherwise be criminal is, under the circumstances, socially acceptable or, at least, not wrong. The defense emphasizes the ac-

¹⁸³ DRESSLER, *supra* note 180, § 2.03 at 4.

¹⁸⁴ *See id.* § 2.05 at 5.

¹⁸⁵ *See id.*

¹⁸⁶ *See id.*

¹⁸⁷ *See, e.g.,* Weinreb, *supra* note 180, at 50 (noting that the result is about the same irrespective of the theory because criminal law focuses on intentional conduct: "[s]ince desert attaches most easily to such conduct, which also can be deterred by the threat of punishment, desert and utility coincide"); Stephen Morse, *Failed Explanations and Criminal Responsibility: Experts and the Unconscious*, 68 VA. L. REV. 971, 974 (1982) (arguing that the law must accept some notion of subjective mental states when considering appropriate punishment despite the overall presumption of free will in the criminal justice system).

¹⁸⁸ *See* Robinson, *supra* note 180, at 203. The term "defense" has been defined as "any set of identifiable conditions or circumstances which may prevent a conviction for an offense." *Id.*

¹⁸⁹ *See* Coughlin, *supra* note 19, at 12-13.

¹⁹⁰ *See* Robinson, *supra* note 180, at 203. Robinson terms these defenses: failure of proof defenses, offense modification defenses, justifications, excuses, and nonexculpatory public policy defenses. *Id.*

¹⁹¹ *Id.* at 221.

cused's act or conduct. For example, even though killing a human being constitutes criminal conduct, that conduct is justified if the accused killed in self defense (*i.e.*, because the victim was about to use deadly force against the accused for no lawful reason). Thus, even though the accused satisfied all the elements of the crime of homicide, the act was permissible under the circumstances.¹⁹²

An excuse defense, such as insanity or duress, admits that the conduct may be wrong, but claims that the accused should not be responsible because of certain "excusing conditions."¹⁹³ The defense emphasizes the accused's personal characteristics to determine the evidence for responsibility.¹⁹⁴ For example, if a woman strikes another person with a deadly weapon, thinking that person wants to control her body by surgically implanting a radio receiver into it, she will have satisfied all of the elements of aggravated assault. She may be excused for this unjustified act, however, if she has a condition (*e.g.*, paranoid delusion) which suggests that she is morally blameless because she had not acted as a result of free will.¹⁹⁵

¹⁹² See DRESSLER, *supra* note 180, § 16.03 at 176-77; FLETCHER, *supra* note 180, at § 10.1; HART, *supra* note 180, at 13-14; George Fletcher, *The Right Deed for the Wrong Reason: A Reply to Mr. Robinson*, 23 U.C.L.A. L. REV. 293 (1975); Kent Greenawalt, *The Perplexing Borders of Justification and Excuse*, 84 COLUM. L. REV. 1897 (1984); Paul Robinson, *A Theory of Justification: Social Harm as a Prerequisite for Criminal Liability*, 23 U.C.L.A. L. REV. 266 (1975).

¹⁹³ LLOYD L. WEINREB, OEDIPUS AT FENWAY PARK: WHAT RIGHTS ARE AND WHY THERE ARE ANY 50 (1994) ("For the most part, we regard as excuses conditions that have a recognized, identifiable etiology and place a person outside the endless variety of the normal."). See also DRESSLER, *supra* note 180, § 16.03 at 177; FLETCHER, *supra* note 180, at § 10.03; HART, *supra* note 180, at 28-53; Kadish, *supra* note 181; Robinson, *supra* note 180, at 221. There are five major tests for determining whether a defendant is insane so as to excuse the conduct. The first is the M'Naghten test, announced by the British House of Lords in M'Naghten's Case, 8 Eng. Rep. 718 (1843). Under this test, defendants are insane if, at the time of their criminal act, they suffered from a disease of the mind that caused them not to know either the nature and quality of their act or that their act was wrong. The second test is the "irresistible impulse test," under which defendants are insane if, as a result of a mental disease or defect, they acted unlawfully due to an irresistible and uncontrollable impulse. The third test is the "product" or Durham test brought to national attention by Durham v. United States, 214 F.2d 862 (D.C. Cir. 1954). This test, which is no longer valid, states that defendants are not guilty if their unlawful act was the result or product of a mental disease or defect. The fourth test is § 4.01 of the Model Penal Code. It states that defendants are not responsible for their conduct if, at the time of the criminal act, as the result of a mental disease or defect, they lacked the substantial capacity either to appreciate the criminality (or wrongfulness) of their actions or to conform their conduct to the law. The fifth and most recent test is the Federal insanity test, 18 U.S.C. § 20(a). Adopted by Congress in 1984, this test excuses defendants only if they prove that, at the time of the crime, as the result of a "severe mental disease or defect," they were unable to appreciate the nature and quality or the wrongfulness of their conduct.

¹⁹⁴ See generally DRESSLER, *supra* note 180, § 16.03 at 177; FLETCHER, *supra* note 180, at § 10.03; HART, *supra* note 180, at 28-30; Kadish, *supra* note 181; Robinson, *supra* note 180, at 221.

¹⁹⁵ Robinson, *supra* note 180, at 221.

The law allows excuses for actors who demonstrate a "disability" that causes an excusing condition. The disability (an abnormal condition when the offense occurred) may be: (1) permanent, such as brain damage, or temporary, such as intoxication or automatism; (2) internally-caused, such as insanity, or externally-caused, such as duress; (3) a defect in cognition, because the actor does not realize she is violating the law, or a defect in volition, because the actor cannot stop herself from violating the law.¹⁹⁶

Similar sorts of conditions may contribute to "failure of proof" defenses, which differ from excuses because the State cannot prove all the elements of an offense, most particularly the element of intent. For example, mental illness can negate the element of intent in a particular crime without constituting the defense of insanity. The "failure of proof" defense for a mentally ill defendant may be called "diminished capacity" or "partial responsibility" in those cases where the defendant was still guilty of a lesser included offense. In turn, the mental illness may prevent conviction altogether if there is no lesser included offense, or if the mental illness also negates the elements of the lesser included offenses.¹⁹⁷

The next section considers whether these defenses could or should vary according to a gender-based standard. The next section also notes how such differences are explicable in terms of the different theories of punishment.

B. GENDER DIFFERENCES IN PREDICTION AND GENDER-BASED DEFENSES

A gender-based standard for punishment or defenses would most likely incorporate gender differences in the prevalence or prediction of crime. The results of the Biosocial Study presented in this Article help illustrate this point.

First, even though some of the same factors in the Biosocial Study predicted crime among both males and females, most predictors were

¹⁹⁶ *Id.* at 221-24, 229-30.

¹⁹⁷ *See id.*, at 204-06. The defense of "diminished capacity" is an alternative to the insanity defense. With it, defendants claim that even though they suffer from a mental disability that does not constitute insanity, that disability still prevents them from forming the requisite *mens rea* for the offense. Logically, defendants should be excused for any crime for which they lack the requisite *mens rea* (this is the approach taken by Model Penal Code § 4.02(1)), but commonly judges only allow evidence of diminished capacity, if at all, to negate the specific intent of a specific-intent offense. A modified version of this defense is "partial responsibility," a defense based on the premise that mental health is a matter of gradations and thus defendants should be held culpable only to the extent that they are mentally healthy. The Model Penal Code § 210.3(1)(b) provides, for example, that a homicide that would be murder only constitutes manslaughter if the defendant can prove that the actions were the result of "extreme mental or emotional disturbance for which there is a reasonable explanation or excuse." MODEL PENAL CODE § 210.3(1)(b).

different. Yet, similar components to the differences did exist. For example, even though the sources of disciplinary problems varied between the genders, the results were comparable. Both neurological deviations (such as abnormal movements and neurological abnormalities), which were important predictors for females, and lead intoxication, an important predictor for males, resulted in difficulties with impulse control, hyperactivity, and attention deficit disorder—all of which were strong predictors of crime for both genders. Whether some of these predictors are more amenable to an individual's control appears impossible to determine scientifically.¹⁹⁸

Notably, the Biosocial Study examined only factors that, theoretically, could influence the behaviors of both genders. For example, although lead intoxication did not appear to affect females, it could have. Furthermore, there is no evidence to suggest that females were raised in relatively more lead-free environments, because all subjects were raised in the same types of neighborhoods. Either female children are not as attracted to ingesting lead particles, or such ingestion does not have as strong of an effect on their behavior. In turn, neurological abnormalities among males appeared to have no effect on their behavior. Either the delinquent or criminal behavior of males is predominately influenced by environmental factors, or they are not as affected by certain biological disorders. Thus, the question is whether such "gender-variant" differences in choice or physiology should make a difference in punishment or the use of defenses.¹⁹⁹

One way of attempting to answer this question is to examine it in the context of how the law has dealt with (albeit inadvertently) a related, but perhaps more problematic, issue—the weighing of potential influences that are gender-based either due to biological or culturally-created conditions. This section discusses four overlapping types of gender-based defenses that represent a continuum ranging from those that are more biologically-based and those that are more culturally-created: (1) gender-specific; (2) gender-dominant; (3) gender-variant; and (4) gender-cultural.

"Gender-specific" defenses rely on conditions that are biologically

¹⁹⁸ See Denno, *supra* note 10, at 669.

¹⁹⁹ See generally Rochelle Cooper Dreyfuss & Dorothy Nelkin, *The Jurisprudence of Genetics*, 45 VAND. L. REV. 313 (1992) (analyzing the impact of genetic research on traditional legal doctrine and our culture's perception of personhood); Lisabeth Fisher DiLalla & Irving I. Gottesman, *Biological and Genetic Contributors to Violence—Widom's Untold Tale*, 109 PSYCH. BULLETIN 125 (1991) (emphasizing the need to examine the relevant biological and genetic literature on the intergenerational transmission of violent behavior); Sandra Scarr, *Three Cheers for Behavior Genetics: Winning the War and Losing Our Identity*, 17 BEHAV. GENETICS 219 (1987) (discussing psychology's current acceptance and former rejection of theories of genetic diversity in behavior).

or genetically applicable to only one gender. These defenses recognize that gender is one of the few distinguishing characteristics in the criminal law that allows some individuals to have defenses that others could never have.²⁰⁰ No female could attempt the XYY chromosome defense and no male could claim a defense based on premenstrual syndrome (PMS) or postpartum depression.²⁰¹

"Gender-dominant" defenses predominantly apply to one gender for biological reasons, but theoretically could also apply to the other. For example, only males have relied on high testosterone level defenses, such as the use of anabolic steroids, yet in theory, females could also use these defenses since they too have varying levels of testosterone that appear to be related to aggression.²⁰² For females, however, defense attorneys typically apply a gender-specific defense for hormonal disorders, such as PMS.

"Gender-variant" defenses are similar to gender-dominant defenses except that, for reasons of biology or culture, the conditions at issue are more applicable to either gender. The results of the Biosocial Study illustrate how a defendant may use a gender-variant defense. For instance, an attorney could defend a male client using a lead intoxication defense by arguing that males are particularly susceptible to lead and its effects on behavior. Similarly, the attorney could defend a female client by relying on her history of neurological disorders.²⁰³

Lastly, "gender-cultural" defenses primarily pertain to one gender rather than another for psychological, sociological, or cultural reasons. For example, although males have used the battered spouse syndrome,²⁰⁴ it is typically used by females under the better-known rubric, "battered woman syndrome."²⁰⁵

Although courts have begun to accept gender-based defenses for females, they have been largely unsuccessful for both males²⁰⁶ and females,²⁰⁷ in the United States.²⁰⁸ The reasons for the greater flexibility for females are unclear, particularly since the criminal law has

²⁰⁰ Although because of their youth, juveniles are also allowed differential treatment or defenses relative to adults, every one at some point is entitled to rely on a juvenile defense.

²⁰¹ See *infra* notes 211 to 310 and accompanying text.

²⁰² See *infra* note 269 and accompanying text.

²⁰³ See *infra* note 354 and accompanying notes.

²⁰⁴ See Suzanne K. Steinmetz, *The Battered Husband Syndrome*, 2 VICTIMOLOGY 499, 499-509 (1977-78).

²⁰⁵ See *infra* notes 355 to 377 and accompanying text.

²⁰⁶ See *infra* notes 211 to 268 and accompanying text.

²⁰⁷ See *infra* notes 279 to 328 and accompanying text.

²⁰⁸ Defenses based on PMS, postpartum depression, and battered woman syndrome, are examples. See *infra* notes 279 to 328 and accompanying text.

dabbled with a broad range of new defenses.²⁰⁹ Some scholars fear that a different standard for females may reinforce the historical, biologically-driven stereotypes of women and their criminal counterparts²¹⁰ without providing comparable excuses for men.

The following sections examine a selected number of these defenses to determine how attorneys have used them, why some have had greater success than others, and whether the application of any of these defenses is justified. Because these defenses are still seldomly used, the discussion is primarily theoretical due to the narrow pool of cases available for analysis.

1. *Gender-Specific Defenses for Males: XYY Chromosome Syndrome*

The XYY chromosome syndrome is perhaps the most widely known attempt at a gender-specific defense for males. Genetically normal individuals have one pair of sex chromosomes, typed XX for the normal female, and XY for the normal male.²¹¹ Although a number of different chromosomal deviations can occur,²¹² researchers have examined the XYY chromosomal abnormality most extensively in relation to crime because the extra Y chromosome "suggested the possibility of exaggerated maleness, aggressiveness, and violence."²¹³ Initially, there was some evidence for this conclusion. Although the first discovered XYY male was not a criminal nor abnormally aggressive,²¹⁴ subsequent research reported a disproportionate number of XYY males in maximum security institutions in the United States and other countries.²¹⁵

Regardless of these early results, the XYY defense was not successful in the four major XYY cases in the United States in the 1970s.²¹⁶

²⁰⁹ See DERSHOWITZ, *supra* note 19; Denno, *supra* note 10; Goldberg, *supra* note 20, at 40; Margot Slade, *At the Bar*, N.Y. TIMES, May 20, 1994, at B20.

²¹⁰ With respect to views on the battered woman syndrome, see Coughlin, *supra* note 19; Stephen J. Schulhofer, *supra* note 7, at 116.

²¹¹ HOYENGA & HOYENGA, *supra* note 5, at 53.

²¹² See Michael Craft, *The Current Status of XYY and XXY Syndromes: A Review of Treatment Implications*, in BIOLOGY, CRIME, AND ETHICS: A STUDY OF BIOLOGICAL EXPLANATIONS FOR CRIMINAL BEHAVIOR 113, 113-15 (Frank H. Marsh & Janet Katz eds., 1985) (discussing the frequency and characteristics of a variety of chromosomal abnormalities, including XXY, YXX, XO, XXX, and XYY).

²¹³ Sarnoff Mednick, *Biological Factors in Crime Causation: The Reactions of Social Scientists*, *Introduction to THE CAUSES OF CRIME: NEW BIOLOGICAL APPROACHES* 1, 2 (Sarnoff Mednick et al. eds., 1987).

²¹⁴ See A.A. Sandberg et al., *An XYY Human Male*, [1961] 2 LANCET 488, 488-89.

²¹⁵ See Susan Horan, Comment, *The XYY Supermale and the Criminal Justice System: A Square Peg in a Round Hole*, 25 LOY. L.A. L. REV. 1343, 1347-53 (1992); Herman A. Witkin et al., *Criminality in XYY and XXY Men*, 193 SCIENCE 547, 547-55 (1976); Note, *The XYY Chromosome Defense*, 57 GEO. L.J. 892, 892-93 (1969).

²¹⁶ See *People v. Tanner*, 91 Cal. Rptr. 656, 657-59 (Cal. Ct. App. 1970) (discussing the

Primarily, the courts rejected the defense because there was insufficient evidence to show a causal link between the XYY chromosome disorder and criminal conduct.²¹⁷ In *People v. Yukl*,²¹⁸ for example, the trial court denied Yukl's request that a chromosome test be conducted and offered at trial, noting that previous cases had held that XYY evidence failed to meet reasonable standards of a "medical certainty."²¹⁹ The trial court set forth a new standard, clarifying that an insanity defense relying on chromosome abnormality "should be possible only if one establishes with a high degree of medical certainty an etiological relationship between the defendant's mental capacity and the genetic syndrome."²²⁰ Moreover, the syndrome's effect on the defendant's thought processes must be so significant that it interferes "substantially with the defendant's cognitive capacity or with his ability to understand or appreciate the basic moral code of his society."²²¹

A number of factors complicate arguments suggesting a direct link between the XYY chromosome abnormality and crime.²²² First, evidence that some XYY individuals have impaired intellectual and physiological functioning,²²³ or developmental difficulties, such as

court's rejection of a causal link between the XYY chromosome disorder and aggressive behavior, or any argument that the extra Y chromosome contributes to legal insanity, despite the testimony of two expert witness geneticists stating that their research and that of others demonstrated a causal link); *Millard v. State*, 261 A.2d 227, 231-32 (Md. Ct. Spec. App. 1970) (upholding the trial court's refusal to submit the issue of the XYY defendant's insanity to the jury because the expert witness's failed to relate the chromosomal deficiency to a lack of substantial capacity to appreciate the criminality of his conduct); *People v. Yukl*, 372 N.Y.S.2d 313, 315-20 (N.Y. Sup. Ct. 1975) (denying defendant's request that a chromosome test be conducted and offered as evidence at trial noting that XYY evidence failed to meet reasonable standards of a "medical certainty"); *State v. Roberts*, 544 P.2d 754, 758 (Wash. Ct. App. 1976) (discussing the appellate court's affirmance of a lower court's denial of the defendant's request for a chromosome test by concluding that the "available medical evidence is unable to establish a reasonably certain causal connection between the XYY defect and criminal conduct"); see also Note, *The XYY Syndrome: A Challenge to Our System of Criminal Responsibility*, 16 N.Y.L.F. 232, 246 (1970) (discussing the trial of John Farley, who unsuccessfully attempted to defend himself in New York on charges of committing a brutal murder and rape based upon an XYY genetic defense).

²¹⁷ See *supra* note 216.

²¹⁸ 372 N.Y.S.2d 313 (N.Y. Sup. Ct. 1975).

²¹⁹ See *id.* at 318-20 (citing *People v. Tanner*, 91 Cal. Rptr. 656 (Cal. Ct. App. 1970) and *Millard v. State*, 261 A.2d 227 (Md. Ct. Spec. App. 1970)).

²²⁰ *Yukl*, 372 N.Y.S.2d at 319.

²²¹ *Id.*

²²² See, e.g., LAWRENCE TAYLOR, BORN TO CRIME: THE GENETIC CAUSES OF CRIMINAL BEHAVIOR 79 (1984) (arguing that "the evidence seems to point very clearly to the simple fact that the criminal behavior of the super males was genetically caused, with relatively little effect from social or familial influences").

²²³ See WILSON & HERRNSTEIN, *supra* note 1, at 100-02; Witkin et al., *supra* note 215, at 547-55; Horan, *supra* note 215, at 1351-53; Note, *Chromosome Defense*, *supra* note 215, at 899-901.

speech, learning, or attention disorders,²²⁴ suggests that these intervening factors, and not "supermaleness" alone, may be associated with crime.²²⁵ Second, severe sample size and methodological limitations may lead to inconsistent results in many XYY studies.²²⁶ Third, a large and methodologically sophisticated study conducted on the relationship between the XYY disorder and crime reported that XYY males did exhibit a higher rate of criminality that was not explained by their subnormal intelligence; however, these males showed no disproportionate tendency toward violence.²²⁷ In light of the extremely low incidence of the XYY syndrome²²⁸ and other kinds of genetic abnormalities²²⁹ in the general population, as well as the inconsistent links between these conditions and crime, it is questionable whether there is a true association between the XYY chromosome abnormality and crime. Moreover, the legal community has dismissed consideration of the XYY syndrome as a criminal law defense, including the insanity defense.²³⁰

2. Gender-Dominant Defenses for Males: High Testosterone Level

The gender-dominant defenses relying on high testosterone levels, while not entirely successful, have been influential in some cases. Moreover, unlike the XYY syndrome, the courts have not totally dismissed them.

²²⁴ See Arthur Robinson et al., *Summary of Clinical Findings in Children and Young Adults with Sex Chromosome Abnormalities*, 26 BIRTH DEFECTS: ORIGINAL ARTICLE SERIES 225, 227 (1991).

²²⁵ See WILSON & HERRNSTEIN, *supra* note 1, at 100-02; Witkin et al., *supra* note 215, at 547-55; Horan, *supra* note 215, at 1351-53; Note, *Chromosome Defense*, *supra* note 215, at 899-901.

²²⁶ See Seymour Kessler & Rudolf H. Moos, *The XYY Karyotype and Criminality: A Review*, 7 J. PSYCHIATRIC RES. 153, 160-67 (1970) (identifying several methodological problems associated with XYY studies, including the limited number of XYY males tested so far); Theodore R. Sarbin & Jeffrey E. Miller, *Demonism Revisited: The XYY Chromosomal Anomaly*, 5 ISSUES IN CRIMINOLOGY 195, 198-200 (1970) (noting, for example, the heavy reliance on single case reports, which could create a sampling bias in most of the studies of the relationship between XYY karyotype and criminal behavior).

²²⁷ See Witkin et al., *supra* note 215, at 553-54.

²²⁸ See *id.* at 550; Note, *Chromosome Defense*, *supra* note 215, at 898-99.

²²⁹ See Craft, *supra* note 212, at 115-18.

²³⁰ See WAYNE R. LAFAVE & AUSTIN W. SCOTT JR., 1 CRIMINAL LAW 379-82 (2d student ed. 1986) (reviewing cases and literature on the XYY as a criminal law defense). Some scholars nonetheless maintain that the XYY disorder should be considered relevant as a defense to criminal conduct. See Peter T. Farrell, *The XYY Syndrome in Criminal Law: An Introduction*, 44 ST. JOHN'S L. REV. 217, 218 (1969) (arguing that the relevance of the XYY "as part of an insanity defense should not be opened to serious dispute"); David Skeen, *The Genetically Defective Offender*, 9 WM. MITCHELL L. REV. 217, 263-65 (1983) (concluding that the courts should be more open to genetic defenses in the future if trial attorneys are more knowledgeable and prepared).

High testosterone level defenses focus on the association between circulating hormones and aggression. Evidence of an association between androgen levels and aggression in human males is complex and inconclusive.²³¹ Some research suggests that hormone levels influence behavior indirectly, through their effect on cognitive structure during prenatal and early adolescent development, such as the degree of lateralization of the cerebral cortex.²³² Other research points to a more direct effect on behavior. For example, researchers have associated the behavioral traits of dominance and aggression in the human male with levels or rates of testosterone production.²³³

Research on more direct associations between androgen levels, primarily testosterone, and criminality shows somewhat conflicting results, possibly because of the different types of hormone measures used, the effect of the prison environment on those subjects who are tested, or the differences among the types of offenders examined.²³⁴ In one study of aggression in a sample of young males, researchers found no differences in plasma testosterone levels between groups of nonoffenders and prisoners.²³⁵ However, they found that prisoners with histories of more violent crimes in adolescence had significantly higher levels of testosterone than prisoners without violent histories.²³⁶ Another study showed that imprisoned rapists and child molesters did not have significantly different testosterone levels than normal men. However, the most violent rapists had significantly higher levels than the other subjects.²³⁷ Moreover, recent research on a sample of fifteen- to seventeen-year-old boys showed a "substantial correlation" between testosterone level and self-reports of both verbal

²³¹ See Kingsley R. Browne, *Biology, Equality, and the Law: The Legal Significance of Biological Sex Differences*, 38 Sw. L.J. 617, 645 (1984).

²³² See June Machover Reinisch, *Prenatal Exposure to Synthetic Progestins Increases Potential for Aggression in Humans*, 211 SCIENCE 1171, 1171-73 (1981).

²³³ See Moyer, *supra* note 1, at 335; Alan Booth & D. Wayne Osgood, *The Influence of Testosterone on Deviance in Adulthood: Assessing and Explaining the Relationship*, 31 CRIMINOLOGY 93 (1993); Dan Olweus et al., *Testosterone, Aggression, Physical, and Personality Dimensions in Normal Adolescent Males*, 42 PSYCHOSOM. MED. 253 (1980). Evidence also suggests that these rates are linked to age. For example, in one study, the average testosterone production rate of older men (31-66 years old) was half that of younger men (17-28 years old). See Harold Persky et al., *Relation of Psychologic Measures of Aggression and Hostility to Testosterone Production in Man*, 33 PSYCHOSOM. MED. 265, 267 (1971).

²³⁴ See DENNO, BIOLOGY AND VIOLENCE, *supra* note 10, at 627.

²³⁵ See Leo E. Kreuz & Robert M. Rose, *Assessment of Aggressive Behavior and Plasma Testosterone in a Young Criminal Population*, 34 PSYCHOSOM. MED. 321, 327-28 (1972).

²³⁶ See *id.* at 327.

²³⁷ See Richard T. Rada et al., *Plasma Testosterone Levels in the Rapist*, 38 PSYCHOSOM. MED. 257, 263, 265 (1976); see also Jerald Bain et al., *Sex Hormones in Murderers and Assaulters*, 5 BEHAVIORAL SCI. & L. 95, 98-100 (1987) (failing to find any demonstrable differences in hormone levels among murderers, assaulters, and a control group, but noting that the study was not definitive).

and physical aggression.²³⁸ Additional research reporting a significant relationship between testosterone level and adult deviance emphasizes that this link is mediated by the effect of testosterone on social integration and history of juvenile delinquency.²³⁹

Attempts to use testosterone level as a defense or mitigating factor have either been limited, or discouraged. In *People v. Moore*,²⁴⁰ for example, a prisoner unsuccessfully claimed ineffective assistance of counsel after his attorney pursued a "testosterone defense" rather than the traditional insanity defense.²⁴¹ The attorney claimed that the psychiatrists he approached to use as expert witnesses were not willing to testify about a testosterone defense, and employees of the circuit court's Psychiatric Institute also "did not favor" the defense.²⁴²

Although some courts have acknowledged a link between testosterone and criminal behavior,²⁴³ there is a range in opinion concerning the association's strength. In *People v. Rennert*,²⁴⁴ for example, the court noted, with respect to the defendant's pursuit of an insanity defense, that other characteristics of the defendant may have contributed to his sexual attack, irrespective of the evidence of defendant's "slightly higher than normal" testosterone levels.²⁴⁵ Doctors testified that the defendant still suffered from a mental disease or defect even after his treatment with progesterone lowered his level of testosterone to that of a female.²⁴⁶ According to the court, "[t]he function of testosterone is to immediate sexual and aggressive drives in the body, but there is no clear evidence that the level of testosterone affects individual personalities."²⁴⁷

Other courts have not found testosterone evidence to be persuasive,²⁴⁸ suggesting, as one court concluded, that the "testosterone the-

²³⁸ See Dan Olweus, *Testosterone and Adrenaline: Aggressive Antisocial Behavior in Normal Adolescent Males*, in *THE CAUSES OF CRIME: NEW BIOLOGICAL APPROACHES* 263, 264-65 (Sarnoff Mednick et al. eds., 1987).

²³⁹ See Booth & Osgood, *supra* note 233, at 93.

²⁴⁰ 498 N.E.2d 701 (Ill. App. Ct. 1986).

²⁴¹ See *id.* at 706.

²⁴² See *id.*

²⁴³ See, e.g., *Parr v. Secretary of the Dep't of Health and Human Serv.*, No. 90-1324V, 1993 U.S. Claims LEXIS 37, at *8 (Cl. Ct. Apr. 26, 1993) (noting that "[m]ales with organic personality disorder are more likely to become violent than females because of the production of testosterone").

²⁴⁴ 364 N.E.2d 506 (Ill. App. Ct. 1977).

²⁴⁵ See *id.* at 508-09.

²⁴⁶ See *id.* at 508.

²⁴⁷ *Id.*

²⁴⁸ See e.g., *In re Maricopa County Juvenile Action*, 838 P.2d 1365, 1369 (Ariz. Ct. App. 1992). In this case, a 13-year-old boy was found to have sexually molested a 3-year-old girl. *Id.* at 1366. Testimony during his trial noted that "pubescent males undergo a biological change, including a surge in the production of testosterone, and become very interested in

ory" has failed to gain "general acceptance in the relevant scientific community."²⁴⁹ Yet, courts have recognized the beneficial effects of Depo-Provera on the behavior of those using it to lower their testosterone level.²⁵⁰ Thus, although courts do not accept testosterone level as a defense to criminal culpability, they may recognize its rehabilitative qualities.

A somewhat different issue concerns courts' perspectives on the culpability of those individuals who inject or ingest anabolic steroids.²⁵¹ Anabolic steroids are the synthetic analogues of testosterone that mimic the effects of testosterone on the body.²⁵² Initially, steroids were expected to treat a variety of medical conditions. However, their primary use today is to enhance athletic performance.²⁵³ Steroids have a number of well known side effects, including increased aggression. When used in large doses, however, they can create severe toxic psychosis, a condition that some attorneys have attempted to use to negate criminal responsibility.²⁵⁴

sexual matters." *Id.* at 1369. The court stated that it did "not believe such expert testimony is necessary to the adjudication of delinquency in this case." *Id.*

²⁴⁹ *State v. Brand*, 842 P.2d 470, 472 (Wash. 1992) (denying a convicted murderer's request for a new trial based upon his discovery of evidence concerning the psychiatric effect of the testosterone treatment he had been receiving prior to the murder); *cf.* *State v. Krieger*, 471 N.W.2d 599 (Wis. Ct. App. 1991). In *Krieger*, the defendant had entered a plea of no contest to eleven counts of sexual exploitation of children. *Id.* at 600. After conviction he sought to withdraw this plea based on the testimony of Fred S. Berlin, Co-Director of the Sexual Disorders Clinic at the John Hopkins Hospital. Berlin testified that Krieger suffered "from pedophilia, which made it impossible for Krieger to be responsible for his criminal conduct Krieger satisfied both the cognitive component (he did not appreciate the wrongful nature of his acts) and the volitional component (his pedophilia significantly impaired his capacity to conform his behavior to statutory requirements)." *Id.* at 601. Krieger was seeking Depo-Provera treatment to lower his testosterone level and claimed that failure of the trial court to allow him to modify his plea constituted manifest injustice. *Id.* The court rejected these arguments, saying that prior to the plea there had been voluminous evidence of Krieger's mental state available to his counsel, and thus the testimony of Berlin did not constitute new evidence so as to warrant the plea modification. *Id.* at 604.

²⁵⁰ *See, e.g., Paoli v. Lally*, 812 F.2d 1489, 1491 (4th Cir. 1987) (commenting on the "beneficial effect" of Depo-Provera treatment and how the prisoner's appearance and behavior have improved dramatically as a result of using it); *Commonwealth v. DiVincenzo*, 523 A.2d 758, 765 (Pa. Super. 1987) (noting that Depo-Provera "resulted in reductions in erotic fantasies, sexual urges, and related sexual behaviors in all cases. In addition to the sexual inhibitory effects, the drug also had an unmistakable general tranquilizing action.").

²⁵¹ *See* Martin T. Bidwill & David L. Katz, *Injecting New Life into an Old Defense: Anabolic Steroid-Induced Psychosis as a Paradigm of Involuntary Intoxication*, 7 ENT. & SPORTS L. REV. 1 (1989).

²⁵² *See* Herbert A. Haupt & George G. Rovere, *Anabolic Steroids: A Review of the Literature*, 12 AM. J. SPORTS MED. 469, 469 (1984).

²⁵³ *See* Bidwill & Katz, *supra* note 251, at 6-7.

²⁵⁴ *Id.* at 5; Harrison G. Pope & David L. Katz, *Homicide and Near-Homicide by Anabolic Steroid Users*, 51 J. CLIN. PSYCHIATRY 28, 28 (1990).

In general, courts have not accepted the use of steroids as a defense, either to sexual molestation,²⁵⁵ violent attacks,²⁵⁶ or in the context of an insanity defense to first-degree murder.²⁵⁷ However, steroid use appears to have had some mitigating effect at sentencing in some cases, including cases for attempted murder,²⁵⁸ and aggravated assault.²⁵⁹ Moreover, a medical doctor testifying in a major first-degree murder trial stated that the defendant presenting a steroid defense may have been spared the death penalty because of the testimony on the effects of steroids, even though the jury rejected this evidence as a basis for acquittal.²⁶⁰ A steroid defense may also have more influence in cases where no physical injury occurred. For example, an accused, charged with three counts of arson not involving personal injury, successfully used a defense of steroid-induced insanity.²⁶¹

Others have attempted to use, with mixed results, a variation on the "testosterone theory" in what has been termed the "boys will be boys" defense.²⁶² The general thesis of this defense is that because of

²⁵⁵ See, e.g., *United States v. Seymour*, ACM No. 28331, 1991 CMR LEXIS 741 (A.F.C.M.R. Apr. 19, 1991). In this case, an airman claimed that his molestation of his 12-year-old foster daughter was a result of his treatment with methyl testosterone, an anabolic steroid he was taking to increase his fertility. *Id.* The United States Air Force Court of Military Review noted that a psychiatrist had "testified that the appellant's methyl testosterone therapy may have resulted in a toxic psychosis which would limit his ability to conform his conduct to the requirements of the law." *Id.* Two sanity boards disagreed, and the trial judge denied any further pursuit of that defense.

²⁵⁶ See Bidwill & Katz, *supra* note 251, at 4 n.10; Pope & Katz, *supra* note 254, at 28.

²⁵⁷ See *Judgment, State v. Horace Williams*, No. 86-9257 CF (Fla. 15th Cir. Ct. June 7, 1988), *aff'd*, 573 So.2d 875 (1990). The defendant Williams was convicted of first-degree murder despite his contention that he was insane on the night he brutally killed the victim because of his excessive use of anabolic steroids. See Bidwell & Katz, *supra* note 251, at 3-4 & nn.7-8 and accompanying text; *Defense in Slaying Case Cites Steroid Addiction*, N.Y. TIMES, May 30, 1988, at 20. At trial, the defense attempted to introduce a jury instruction maintaining that Williams was insane on the night of the killing due to his use of steroids. The trial judge rejected such an instruction. However, even though the judge did not mention anabolic steroids or the potential influence of any drugs, he did provide an instruction to the jury regarding the defense of voluntary intoxication. See Bidwell & Katz, *supra* note 251, at 4-5 & n.11.

²⁵⁸ See Debra Cassens Moss, *And Now the Steroid Defense?*, 74 A.B.A. J. 22, 22 (Oct. 1988).

²⁵⁹ See Slade, *supra* note 209, at B20.

²⁶⁰ See Bidwill & Katz, *supra* note 251, at 5 n.12.

²⁶¹ See *State v. Williams*, No. C-5630/5631/5634 (Circuit Court for St. Mary's County, Md. filed April 3, 1986). In this case, the defendant Williams had been engaging in the excessive use of steroids as part of his regimen for bodybuilding. The court found Williams guilty, but not criminally responsible, concluding that he "was indeed suffering from an organic personality syndrome caused by the toxic levels of anabolic steroids . . . and that this disorder substantially impaired his ability to appreciate the criminality of his acts and to conform his conduct to the requirements of the law." See Opinion and Order, *State v. Williams*.

²⁶² See MYRIAM MIEDZIAN, *BOYS WILL BE BOYS: BREAKING THE LINK BETWEEN MASCULINITY AND VIOLENCE* 39 (1991); ELIZABETH A. STANKO, *INTIMATE INTRUSIONS* 9-11 (1985).

the effects of testosterone, males have "developed highly aggressive and territorial drives that are unalterable."²⁶³ This defense was perhaps most vividly illustrated in the Glen Ridge, New Jersey, rape case, which involved the sexual assault of a mentally defective seventeen-year-old girl by four neighborhood acquaintances.²⁶⁴ In that case, defense attorneys contended that the victim, who had engaged in sexual intercourse at an early age, was an aggressive temptress who "craved" sex and "had and still has emotional and physical needs."²⁶⁵ As a result, the defendants would respond in the way that "any boy would." As one attorney contended, "Boys . . . have the same emotional and physical needs . . . Boys will be boys. Pranksters. Fool-arounds. Do crazy things. Experiment with life, and disregard their parents."²⁶⁶ The "boys will be boys" tactic in the Glen Ridge rape case, which was ridiculed and eventually backfired,²⁶⁷ relied solely on the "hormonal

²⁶³ See MIEDZIAN, *supra* note 262, at 39.

²⁶⁴ See *In re B.G.*, 589 A.2d 637, 640 (N.J. Super. Ct. Law Div. 1991); see also PETER LAUFER, A QUESTION OF CONSENT: INNOCENCE AND COMPLICITY IN THE GLEN RIDGE RAPE CASE (1994). In the Glen Ridge case, the victim, considered to be mentally defective, (she had an IQ of 64 and the social capacity of an eight-year-old), was lead by one of the defendants to a basement with the promise that she could have a date with one of the other defendants, who would be there. *In re B.G.*, 589 A.2d at 640-41. He was there, along with approximately twelve other boys. *Id.* at 646. The girl was asked to lay down on a couch and disrobe. *Id.* at 641. At this point several of the boys started to leave. *Id.* The girl was then asked to masturbate one boy. Thereafter, others proceeded to insert into her vagina a fungo bat, broomstick, and stick, all of which were wrapped in plastic bags and coated with vaseline (except for the stick). *Id.* There was also mention of a drumstick being inserted into her rectum, but it appears that this evidence was hearsay and thus inadmissible. *Id.* at 640. The victim testified that she was told that, if she failed to cooperate or if she told anyone what was happening, her mother would be told and she would have to leave school. *Id.* at 644. She later discussed the incident with her swimming teacher. *Id.* at 640-41. At this time she sought advice on how to say 'no' in the event of a reoccurrence. See Robert Hanley, *Woman in Sex-Abuse Trial Sought Advice On How to Say 'No'*, N.Y. TIMES, January 7, 1993, at A11. After talking to her teacher but before a criminal investigation began, the victim refused a subsequent request to go back to the basement for a similar performance, which would be videotaped. See *In re B.G.*, 589 A.2d at 645. At the trial, defense attorneys (especially Michael Querques) placed reliance on the "boys will be boys" and "Lolita" defenses. See LAUFER, *supra*, at 51-72.

²⁶⁵ LAUFER, *supra* note 264, at 67.

²⁶⁶ *Id.* at 69. As the attorney emphasized,

You think people are going to forget about the girls they knew in high school who were loose and the boys who took? Are men going to forget, Hey, I got a girl who is loose, do you want to join me? Go ahead, forget about it if you want, and then, when you go to bed at night, ask your conscience, Am I being fair to this kid?

Id. at 70.

²⁶⁷ See *id.* at 183-85; Tracy Schroth, "Lolita" Defense Risky in Glen Ridge Sex Trial, N.J.L.J., Nov. 2, 1992, at 1. Four defendants (Bryant Grober, Christopher Archer, and Kevin and Kyle Scherzer) were found guilty by a jury, which also found that the victim was legally mentally defective. LAUFER, *supra* note 264, at 149-50. Bryant Grober was convicted only of conspiracy (in the third-degree) to commit aggravated sexual assault and aggravated sexual contact. *Id.* at 150. Christopher Archer and Kevin and Kyle Scherzer were each convicted of first-degree aggravated sexual assault due to the use of force or coercion, and

stereotypes" of men. Yet, it has been used in other cases, such as the "Spur Posse" incident, with varying degrees of success.²⁶⁸

In general, then, the viability of the gender-dominant "testosterone theory" defense for males appears to depend on how, and in what context, it is used. Notably, the outcome of such a defense seems most risky when it relies on extreme gender stereotyping, rather than a depiction of a biological transformation gone astray. As the next section shows, such defenses have been slightly more successful for females in the gender-specific context, although this disparity may be the result of circumstances other than gender.

of conspiracy (in the second-degree) to commit aggravated sexual assault and aggravated sexual contact. *Id.* Christopher Archer and Kevin Scherzer were also convicted of first-degree aggravated sexual assault due to penetration of a mentally defective person with foreign objects, while Kyle Scherzer's guilt on this charge was gauged by the jury to be a second-degree offense. *Id.* All four defendants were acquitted on the charges of forced fellatio, fellatio performed by a mentally defective person, improper touching of the victim's breasts, and forced masturbation, by the victim, of the defendants. *Id.* All four defendants were also allowed to remain free on no more than \$2,500 bail pending their appeal. *Id.* at 151.

²⁶⁸ For example, in Lakewood, California, a group of nine high-schoolers calling themselves the "Spur Posse," were charged with molesting and raping neighborhood girls as young as ten years old. See LAUFER, *supra* note 264, at 186. The leader of the group claimed 66 conquests, and was called a "virile specimen" by his father. *Id.* Only one of the boys was prosecuted, and he was sent to a juvenile facility for less than a year for molesting a 10-year-old. *Id.* at 187. Charges against the rest of the boys were dropped because the prosecutors believed that the evidence was insufficient to establish lack of consent or forcible rape. See Veronica T. Jennings & Stephen Buckley, *Montgomery Teens Accused of Rape: School Superintendent's Son Is Among Five Facing Charges*, WASH. POST, Oct. 30, 1993, at A1; Judy Mann, *Lessons From the Montgomery Seven*, WASH. POST, Dec. 1, 1993, at E19. A similar incident occurred in Maryland, where two 14-year-old girls were allegedly gang-raped by a group of youths calling themselves the "Chronics." The group's objective was to have sex with as many girls as possible. Jennings and Buckley, *supra*. Five boys were charged, as adults, with first-degree rape in two separate attacks. *Id.* The charges were dropped, however, when the defense produced sworn affidavits from 14 people who provided details that suggested the sex was consensual. Mann, *supra*. Also in Maryland, 16- and 17-year-old brothers were prosecuted for raping an unconscious party-goer. Their father expressed shock at the prosecution and explained that he thought it was "a mutual thing." LAUFER, *supra* note 264, at 187. Yet again in Maryland, a judge handed out a sentence of probation to a middle-aged man who raped his unconscious former employee, a teenage girl. *Id.* at 188. The judge explained that the girl was "contributorily negligent" in the incident, and noted that intercourse with an unconscious partner was "the dream of quite a lot of males, quite honestly." *Id.* at 188-89. In Montclair, New Jersey, which is immediately adjacent to Glen Ridge, members of a gang calling itself the "Hardhedz Posse" were arrested for molesting a seventh-grade girl on three separate occasions, the incidents spanning a period of several weeks. *Id.* at 190-91. In North Carolina, five teenagers were charged with rape and violation with a foreign object of a mentally handicapped woman whom one of the five had previously dated. *Id.* at 191. The woman was raped and penetrated with a broomstick on New Year's Eve, and raped on videotape at a construction site the following day. *Id.* The defendants in all of these cases appeared to rely heavily on a "boys will be boys" theory for explaining their behavior.

3. Gender-Specific or Gender-Dominant Defenses for Females

A considerable amount of research has been conducted on fluctuating hormonal levels and their relationship to crime among females. Research on the association between testosterone level and human female behavior, however, is scarce. In one study, significantly higher testosterone levels were found among violent female outpatients than among the nonviolent ones, whose levels were similar to those reported for normal females.²⁶⁹ This study also reported increased irritability among violent patients during menstruation,²⁷⁰ a finding consistent with other research showing associations between criminality and symptoms of both premenstrual and menstrual periods.²⁷¹

According to Katharina Dalton, who has conducted much of the initial research in this area,²⁷² the symptoms of PMS²⁷³ vary considerably, although they can include increased aggression, irritability, headaches, edema, psychiatric symptoms, and suicide attempts.²⁷⁴ These symptoms may be due to a decrease in the level of progesterone, and a relatively greater increase of estrogen in the estrogen-progesterone ratio,²⁷⁵ although recent research suggests that these fluctuations are

²⁶⁹ See C. L. Ehlers et al., *A Possible Relationship Between Plasma Testosterone and Aggressive Behavior in a Female Outpatient Population*, in LIMBIC EPILEPSY AND THE DYSCONTROL SYNDROME 183, 190-93 (M. Girgis & L. Kiloh eds., 1980); see also James Dabbs et al., *Saliva Testosterone and Criminal Violence Among Women*, 9 PERSONALITY AND INDIVIDUAL DIFFERENCES 269, 269-75 (1988) (reporting a link between testosterone and violent criminal acts).

²⁷⁰ See Ehlers et al., *supra* note 269, at 190-91.

²⁷¹ See Browne, *supra* note 231, at 646-49 (reviewing studies showing that a disproportionate number of violent crimes are committed by women who were menstruating or during the premenstrual week).

²⁷² Some of Dalton's key publications include: KATHARINA DALTON, *THE PREMENSTRUAL SYNDROME* (1964); Katharina Dalton, *Menstruation and Crime*, 2 BRIT. MED. J. 1752 (1961); Katharina Dalton, *Menstruation and Examinations*, [1968] 2 LANCET 1386; Katharina Dalton, *Cyclical Criminal Acts in Premenstrual Syndrome*, [1980] 2 LANCET 1070.

²⁷³ PMS has been defined as "the recurrence of symptoms in the premenstruum [premenstruation period] with absence of symptoms in the postmenstruum." KATHARINA DALTON, *THE PREMENSTRUAL SYNDROME AND PROGESTERONE THERAPY* 3 (2d ed. 1984). The premenstrual syndrome should be distinguished from incidences of "menstrual distress," which Dalton defines as "the presence of intermittent or continuous symptoms present throughout the menstrual cycle which increase in severity during the premenstruum or menstruation." *Id.* at 6.

²⁷⁴ See Katharina Dalton, *Premenstrual Syndrome*, 9 HAMLINE L. REV. 143, 148-51 (1986). Dalton examines nine risk factors to diagnose PMS: time of onset, time of increased severity, painless menstruation, increased libido in the premenstruum, intolerance of the pill, adult weight swings beyond twenty-eight pounds, inability to go for long periods without food, impact of pregnancy, and varying inability to tolerate alcohol. See *id.*; see also HOYENGA & HOYENGA, *supra* note 5, at 193-95; KENNETH MOYER, *VIOLENCE AND AGGRESSION* 49-50 (1987); William R. Keye, Jr. & Eric Trunnell, *Premenstrual Syndrome: A Medical Perspective*, 9 HAMLINE L. REV. 165, 165-67 & n.6 (1986).

²⁷⁵ See MOYER, *supra* note 274, at 49-53.

more complex.²⁷⁶ Reviews of PMS-crime research indicate, however, that "there is an extremely limited and somewhat inconsistent understanding of the relationship between menstrual symptoms, behavior, and endocrine fluctuations."²⁷⁷ Moreover, PMS-crime research is fraught with serious methodological difficulties. These include variations in measures of cycle duration, post-hoc correlations that incorrectly imply causation, use of retrospective self-report data, anecdotal methods, small samples, and lack of appropriate control samples or controls for external influences, such as stress.²⁷⁸

Whether or not hormonal disorders should provide a criminal defense is a different issue. Although PMS distress has been used successfully as a defense in England,²⁷⁹ with one recent exception,²⁸⁰ it has not been accepted as a defense in the United States. In 1982, *People v. Santos*²⁸¹ marked the first criminal case in the United States to attempt the defense.²⁸² Shirley Santos, who faced a charge of first-degree assault against her four-year-old daughter, admitted that she beat her child.²⁸³ At a pre-trial hearing on the defense's motion to dismiss, Santos' lawyer raised the claim that, because of her premenstrual syndrome, Santos was not responsible for her actions.²⁸⁴ Yet, the defense provided no evidence that Santos had PMS at the time of

²⁷⁶ See HOYENGA & HOYENGA, *supra* note 5 at 193-95.

²⁷⁷ Bruce Harry & Charlotte M. Balcer, *Menstruation and Crime: A Critical Review of the Literature from the Clinical Criminology Perspective*, 5 BEHAVIORAL SCI. & L. 307, 317 (1987) (arguing that there is insufficient evidence to know whether there is a link between any phase of the menstrual cycle and crime); see also MOYER, *supra* note 274, at 49-53 (reviewing evidence of the link between crime and premenstrual syndrome, but noting that the underlying physiology is obscure); STANN, *supra* note 5, at 38 (noting that "[w]hether or not this syndrome is directly associated with hormonal changes has not been established"); Julie Horney, *Menstrual Cycles and Criminal Responsibility*, 2 L. & HUM. BEHAV. 25, 29-33 (1978) (raising several critical questions regarding interpretations of research on menstruation and crime).

²⁷⁸ See Harry & Balcer, *supra* note 277.

²⁷⁹ See Candy Pahl-Smith, Comment, *Premenstrual Syndrome as a Criminal Defense: The Need for a Medico-Legal Understanding*, 15 N.C. CENT. L.J. 246, 246 (1985).

²⁸⁰ See *infra* note 295 and accompanying text.

²⁸¹ No. 1KO46299 (Kings County, N.Y. Crim. Ct. Nov. 3, 1982).

²⁸² Prior to *Santos*, the symptoms of PMS had been discussed in a few civil cases. See, e.g., *Hoffman-LaRoche v. Kleindiest*, 478 F.2d 1, 9 (3d Cir. 1973); *Crockett v. Cohen*, 299 F. Supp. 739, 741 (W.D. Va. 1969); *Tingen v. Tingen*, 446 P.2d 185, 186 (Or. 1968); *Reid v. Florida Real Estate Comm'n*, 188 So.2d 846, 849 (Fla. Dist. Ct. App. 1966).

²⁸³ See Christina L. Hosp, Note, *Has the PMS Defense Gained a Legitimate Toehold in Virginia Criminal Law?*, 14 GEO. MASON U.L. REV. 427 (1991); Pahl-Smith, *supra* note 279, at 256.

²⁸⁴ See Robert Mark Carney & Brian D. Williams, Note, *Criminal Law—Premenstrual Syndrome: A Criminal Defense*, 59 NOTRE DAME L. REV. 253, 262 (1983); Joann D'Emilio, Note, *Battered Woman's Syndrome and Premenstrual Syndrome: A Comparison of Their Possible Use as Defenses to Criminal Liability*, 59 ST. JOHN'S L. REV. 558, 570 (1985) (citing defense press release); Elizabeth Holtzman, Letter to the Editor, *Premenstrual Symptoms: No Legal Defense*, 60 ST. JOHN'S L. REV. 712, 713-14 (1986); Nora Mulligan, Note, *Premenstrual Syndrome*, 6 HARV. WOMEN'S L.J. 219, 222-23 (1983); Pahl-Smith, *supra*, note 279, at 256.

the act or that she had previously experienced PMS.²⁸⁵ Because a plea bargain allowed Santos to plead guilty to the lesser included charge of harassment, a misdemeanor, the court never officially ruled on the admissibility of PMS testimony.²⁸⁶ The court did, however, rhetorically question why such evidence should not be admissible when courts regularly admitted similar kinds of psychological evidence.²⁸⁷

Santos lost custody of her child, and was required to participate in a counselling program.²⁸⁸ The claim made by Santos' attorney and others that the PMS defense was valid because the felony charges were dropped,²⁸⁹ was countered in a strong rebuttal by the prosecutor who claimed that PMS had no influence in prompting a plea bargain.²⁹⁰ Indeed, Santos herself later stated in a television interview that premenstrual syndrome was never the reason why she hit her child.²⁹¹

The PMS defense was rejected in a subsequent case where the court concluded that the defense lacked scientific support.²⁹² Thereafter, courts accepted PMS evidence, but not as a defense. Courts continued to deny its legitimacy as a defense either because they considered that the defendant knew right from wrong irrespective of her PMS experiences,²⁹³ or because the defendant lacked a sufficient medical diagnosis.²⁹⁴ Yet in *Commonwealth v. Richter*,²⁹⁵ the first case to accept the PMS defense, the court's conclusion that the defendant was not guilty of driving while intoxicated, was based in part on her

²⁸⁵ See Pahl-Smith, *supra* at 279.

²⁸⁶ See Carney & Williams, *supra* note 284, at 262; D'Emilio, *supra* note 284, at 570; Holtzman, *supra* note 284, at 714 (citing the minutes of the pre-trial hearing); Mulligan, *supra* note 284, at 222; Pahl-Smith, *supra* note 279, at 257.

²⁸⁷ See Carney & Williams, *supra* note 284, at 262; D'Emilio, *supra* note 284, at 570; Holtzman, *supra* note 284, at 714 (citing the minutes of the pre-trial hearing); Mulligan, *supra* note 284, at 222; Pahl-Smith, *supra* note 279, at 257.

²⁸⁸ See Hosp, *supra* note 283, at 430.

²⁸⁹ *Id.* at 430-31; D'Emilio, *supra* note 284; Mulligan, *supra* note 284.

²⁹⁰ See Holtzman, *supra* note 284.

²⁹¹ See *id.* at 713 (citing television broadcast); Pahl-Smith, *supra* note 279, at 257.

²⁹² See *In re Irvin*, 31 B.R. 251, 260 (Bankr. D. Colo. 1983) (victim of aggravated assault seeking civil suit against defendant for personal injuries in which the court denied defendant's claim that her conduct was uncontrollable because of PMS).

²⁹³ See *State v. Lashwood*, 384 N.W.2d 319, 321 (S.D. 1986) (affirming defendant's conviction for three counts of forgery and concluding that although the defendant suffered from premenstrual syndrome and "significant memory loss," she "knew right from wrong and had the ability to help in her own defense").

²⁹⁴ See *Commonwealth v. Grass*, 141 Pa. Cmwlth. 455 (Pa. Commw. Ct. 1991). In *Grass*, the court considered insufficient the defendant's medical evidence supporting her claim that PMS rendered her incapable of making a knowing and conscious decision to take a breathalyzer test following her arrest for driving while intoxicated. See *id.* at 457. Because the defendant offered PMS evidence based only on her own statements and those of her gynecologist and husband, see *id.* at 459, she failed to show a "necessary causal nexus" between her PMS and her conduct. *Id.* at 460.

²⁹⁵ No. T90-215256 (Fairfax County Gen. Dist. Ct. June 4, 1991) (unreported case).

use of PMS to explain her assaultive and abusive behavior toward police.²⁹⁶ Police had pulled the defendant off the road for weaving across both lanes of a two-lane highway while driving her three young children.²⁹⁷ At trial, the defendant stated that the results of her breathalyzer test, which indicated she was intoxicated, were skewed, and that her PMS, which was moderate, made her abusive when she learned that her children would be put in protective services for the night after her arrest.²⁹⁸ Considering the "totality of the evidence,"²⁹⁹ the court concluded that either intoxication or PMS could have caused the defendant's behavior—raising a "reasonable doubt" concerning her guilt.³⁰⁰

It is unclear whether *Richter* is an isolated case, or important as precedent. No other court has cited it. Moreover, the court applied the PMS defense in an odd way. Because Virginia has rejected the diminished capacity defense,³⁰¹ the most common vehicle for introducing PMS, the court used PMS in an effort to explain why the defendant's behavior occurred, rather than to demonstrate the absence of specific intent.³⁰² Also, the court applied the defense to a well educated, middle class defendant, accused of committing a nonviolent offense, who, as the judge noted, was able to garner "sufficient resources" unavailable to "[y]our average man in the street."³⁰³ Because *Richter* may be an anomaly, this section also examines the postpartum depression defense. Cases relying on that defense provide a broader range of circumstances from which to draw conclusions about the importance of gender-related defenses.

Postpartum psychosis is a temporary condition that occurs to women in about one out of 1000 births.³⁰⁴ The most severe of the three

²⁹⁶ Hosp, *supra* note 283, at 427.

²⁹⁷ See *id.* at 430-33. State troopers reported that the defendant smelled strongly of alcohol, that she freely used profanity toward them, that she refused various field sobriety tests, and that she tried to kick one of the troopers in the groin when he asked her to put her hand on top of her head. She was eventually placed in leg restraints so that she could take the breathalyzer test. See *id.* at 433-34. The defendant showed 0.13% blood alcohol level, more than the legal limit, and admitted to drinking four glasses of wine over a six hour period. See *id.* at 434-36.

²⁹⁸ *Id.* at 435. The expert gynecologist's testimony suggested that the defendant was not being treated for PMS at the time of her arrest, nor that the defendant even knew that she had PMS prior to her examination by the expert. See *id.*

²⁹⁹ *Id.* at 427.

³⁰⁰ *Id.* at 436-37.

³⁰¹ See *Stamper v. Commonwealth*, 324 S.E.2d 682 (Va. 1985).

³⁰² Hosp, *supra* note 283, at 439.

³⁰³ *Id.* at 436-37.

³⁰⁴ See Terra Ziporyn, "Rip van Winkle Period" Ends for Puerperal Psychiatric Problems, 251 J.A.M.A 2061, 2061-62 (1984); Amy L. Nelson, Comment, *Postpartum Psychosis: A New Defense?*, 95 DICK. L. REV. 625, 625 (1991).

types of postpartum disorders,³⁰⁵ it can involve loss of sense of reality, delusions, extreme agitation, feelings of persecution, or hallucinations.³⁰⁶ Typically, it affects women who have no prior criminal record or history of serious mental illness.³⁰⁷

Some researchers consider postpartum disorders to be caused by a number of different factors, both internal and external to the individual, which result from the hormonal, psychological, and social changes linked to childbirth.³⁰⁸ Other researchers believe that nonpsychotic postpartum depression results from social factors, whereas postpartum psychosis is more closely linked to a genetic predisposition.³⁰⁹

Women who have attempted to use postpartum psychosis as a criminal defense to infanticide have had varying degrees of success.³¹⁰ This section examines thirteen major cases that have relied on postpartum psychosis evidence; seven resulted in an acquittal,³¹¹ and six in

³⁰⁵ In general, experts posit three types of postpartum disorders: postpartum blues, postpartum depression, and postpartum psychosis. The postpartum blues is a temporary period of depression, usually evidenced by crying, which lasts 24 to 48 hours; it occurs in 50% to 60% of new mothers. Postpartum depression, which shares symptoms similar to other kinds of depression, lasts 6-to-8 weeks and occurs in 20% of postpartum women. It is most strongly associated with a previous psychiatric history, as well as self-reported stressful life events and degree of social support. Postpartum psychosis is clinically comparable to nonpospartum depressive psychosis and occurs in only one or two mothers per thousand. See Dyanne D. Affonso & George Domino, *Postpartum Depression: A Review*, 11 BIRTH 231, 232-35 (1984); Barry S. Zuckerman & William R. Beardslee, *Maternal Depression: A Concern for Pediatricians*, 79 PEDIATRICS 110 (1987); see also CAROL DIX, *THE NEW MOTHER SYNDROME: COPING WITH POSTPARTUM STRESS AND DEPRESSION* 9-11 (1985) (offering advice with symptoms).

³⁰⁶ See Affonso & Domino, *supra* note 305; Ziporyn, *supra* note 304, at 2061; Jennifer L. Grossman, Note, *Postpartum Psychosis—A Defense to Criminal Responsibility or Just Another Gimick?*, 67 U. DET. L. REV. 311, 325 (1990).

³⁰⁷ See Nelson, *supra* note 304, at 625.

³⁰⁸ For example, there are vast hormonal changes that a woman experiences following birth. Although directly prior to delivery, a woman's estrogen and progesterone levels are 50 times higher than they are before pregnancy, hours after birth these levels drop to what they were prior to pregnancy. Other internal changes, such as those required to prepare for milk production, in addition to the external pressures resulting from child birth, such as loss of sleep, can create severe depression or psychosis. See *id.* at 628 n.36; see also Ziporyn, *supra* note 304; Grossman, *supra* note 306, at 325-26.

³⁰⁹ Nelson, *supra* note 304, at 628-29.

³¹⁰ See *id.* at 629-33.

³¹¹ See *People v. Massip*, 271 Cal. Rptr. 868 (Cal. Ct. App. 1992) (trial judge substituted his own finding of insanity for the jury's finding of sanity, entered a reduced verdict of voluntary manslaughter, and ordered the defendant, who had placed her infant son under the tire of her car and driven over him, to participate in outpatient treatment program); *State v. White*, 456 P.2d 797 (Idaho 1969) (a woman who threw her three-month-old daughter on the floor and then placed her in the crib, where she died of blood clotting caused by a skull fracture, was found not guilty of voluntary manslaughter by reason of insanity); *People v. Skeoch*, 96 N.E.2d 473 (Ill. 1951) (conviction for murder of a woman who asphyxiated her infant son was reversed due to the prosecution's failure to rebut the

a conviction.³¹²

The defense was first used in 1951 in *People v. Skeoch*,³¹³ where the Illinois Supreme Court reversed the defendant's conviction for the murder of her six-day-old child.³¹⁴ The court held that a psychiatrist's expert testimony that the defendant was suffering from postpartum psychosis, in addition to the defendant's husband's testimony concerning stressful external circumstances that the defendant was experiencing (such as a theft and his job loss), were sufficient to raise a reasonable doubt of the defendant's insanity at the time she asphyxiated her baby.³¹⁵ Although the Idaho Supreme Court allowed a comparable use of the defense nearly twenty years later,³¹⁶ another decade passed before the Nevada Supreme Court rejected the defense in affirming the attempted murder conviction of the defendant's daughter.³¹⁷

presumption of insanity that the defense established at trial); *People v. Thompson* (a woman who drowned her nine-month-old son in a bathtub and was charged with manslaughter and felony child abuse was found not guilty by reason of insanity) (described in Ann Japenga, *Ordeal of Postpartum Psychosis, Illness Can Have Tragic Consequences for New Mothers*, L.A. TIMES, Feb. 1, 1987, Part VI, at 1); *State v. Bartek* (a woman who drowned her eight-day-old daughter in the kitchen sink was acquitted of first-degree murder, spending four days in jail and one month in a mental hospital) (described in Anastasia Toufexis, *Why Mothers Kill Their Babies*, TIME, June 20, 1988, at 81); *People v. Green* (N.Y. Sup. Ct. 1988) (a woman who killed her first two children and attempted to kill her third was acquitted of murder because the prosecution could not convince the jury that she was sane) (described in Nancy Zeldis, *Post-Partum Psychosis—A Rare Insanity Defense*, N.Y.L.J., Sept. 19, 1988, at 1, and in Laura Masnerus, *Postpartum Puzzle; When Do New Mom's 'Blues' Become Serious Illness?*, CHI. TRIB., February 19, 1989, Section 6, at 9).

³¹² See *Clark v. State*, 588 P.2d 1027 (Nevada 1979) (a woman who wrapped her two-week-old baby in a blanket and left it on the side of a desert road for three days was convicted of attempted murder); *State v. Householder* (a woman who pleaded guilty to involuntary manslaughter after she killed her infant daughter by throwing a rock at her, was sentenced to 22 months in jail) (described in Dan Trigoboff, *Postpartum Blues: Cases Test Use as Murder Defense*, L.A. DAILY J., Dec. 16, 1987, at 1); *Commonwealth v. Dacri* (a woman who left her infant son in a bathtub that was filling was convicted of first-degree murder and sentenced to life imprisonment) (described in Susan Caba, *Dacri is Sentenced to Life Term*, PHILA. INQUIRER, July 14, 1989, at 1A); *Commonwealth v. Weisensale* (a woman who drowned her two-month-old daughter was found guilty but mentally ill of third-degree murder, given a suspended five year sentence, and ordered to undergo psychiatric treatment) (described in Judy Pehrson, *The Darkest Side of Postpartum Depression*, YORK (PA) SUN-DAY NEWS, May 31, 1987, at E3); *Commonwealth v. Comitz*, 530 A.2d 473 (Pa. Super. Ct. 1987) (a woman who pleaded guilty but mentally ill to third-degree murder after dropping her one-month-old son into a stream was sentenced to eight to 20 years in prison); *Commonwealth v. Smith*, No. 1775 Crim. Action 1984 (C.P. York County Ct. May 17, 1985) (a woman who drowned her three-week-old daughter was convicted of third-degree murder and sentenced to probation).

³¹³ 96 N.E.2d 473 (Ill. 1951).

³¹⁴ See *id.* at 475-76.

³¹⁵ See *id.* at 474-76.

³¹⁶ *State v. White*, 456 P.2d 797 (Idaho 1969).

³¹⁷ See *Clark v. State*, 588 P.2d 1027 (Nevada 1979).

The defense has been used more frequently in the last fifteen years, and with varying results, perhaps attributable in part to the kind of insanity defense that is applied,³¹⁸ or evidence of the extent of the psychosis. For example, in one insanity acquittal, the defendant claimed that she thought her nine-month-old son, whom she drowned, was the devil, adding that her postpartum psychosis in an earlier pregnancy ended with a suicide attempt.³¹⁹ In another acquittal, the court declared that the defendant, who experienced serious disorders after her child's birth, was insane when she drove her car over her son after unsuccessfully attempting to throw him in front of a moving car.³²⁰ Ann Green's case was perhaps the most controversial. A former pediatric nurse, she was found not guilty by reason of insanity for the murder of her first two children, whom she suffocated soon after their birth, and the attempted murder of a third.³²¹ One year later she was an outpatient receiving psychiatric treatment.³²²

For convictions, however, there was a wide span of charges, ranging from involuntary manslaughter³²³ to first-degree murder,³²⁴ and a

³¹⁸ See Nelson, *supra* note 304.

³¹⁹ See Japenga, *supra* note 311.

³²⁰ People v. Massip, 271 Cal. Rptr. 868 (Cal. Ct. App. 1992). The People's appeal of the court's overturning of the jury decision in *Massip* was unsuccessful. Even though the trial court abused its discretion and authority in substituting its own finding of insanity for the jury's finding of sanity, the Court of Appeals, Fourth District, Division 3, found that a new trial on the sanity issue would subject the defendant to the danger of a finding of sanity and, therefore, a jail sentence. *Id.* at 872. This result would impermissibly conflict with the rule of People v. Superior Court of Marin County, 446 P.2d 138 (Cal. 1968), which "prohibits review by mandate at the request of the People where . . . there is a danger of further trial or retrial." *Id.* at 147. Furthermore, the court held that the trial court could properly enter a reduced verdict of voluntary manslaughter, rather than the jury's verdict of second-degree murder, based on its finding that "malice actually did not exist." *Massip*, 271 Cal. Rptr. at 874.

This decision, however, was ordered vacated and reconsidered in light of People v. Saille, 820 P.2d 588 (Cal. 1991) (setting forth new guidelines in light of legislative abolition of diminished capacity defense). See People v. Massip, 824 P.2d 568 (Cal. 1992) (*en banc*). Even when it is reconsidered in light of *Saille*, the People's appeal will most likely be only partially successful. *Saille* makes clear that the change in California law abolishes the defense of diminished capacity, and thus evidence concerning a defendant's capacity to form a requisite mental state is no longer admissible. *Saille*, 820 P.2d at 593. However, *Saille* also states that a defendant remains "free to show that because of his mental illness or voluntary intoxication, he did not in fact form the intent unlawfully to kill . . . if this evidence is believed, the only supportable verdict would be involuntary manslaughter or an acquittal." *Id.* On reconsideration of *Massip* in light of *Saille*, the Court of Appeals most likely will still find it probative that the trial court found that "malice actually did not exist." *Massip*, 271 Cal. Rptr. at 873.

³²¹ People v. Green, N.Y.L.J., Sept. 19, 1988, at 1 (N.Y. Sup. Ct. 1988); *Mother Wins Acquittal in 2 Postpartum Killings*, MIAMI HERALD, Oct. 2, 1988, at 18A.

³²² Grossman, *supra* note 306 at 328.

³²³ See Trigoboff, *supra* note 312, at 24.

³²⁴ See Caba, *supra* note 312, at 1A.

gap in sentences, spanning from a suspended sentence³²⁵ to life imprisonment.³²⁶ Yet, apart from the reasons mentioned, such as the reliance on different tests of insanity, there is no clear indication of how these cases differ from acquittals, or how harsher charges and sentences differ from lighter ones. The court in *Commonwealth v. Dacri*³²⁷ conceded that the young defendant, with no prior criminal record, was psychotic when she drowned her son, yet charged her with first-degree murder and sentenced her to life imprisonment.³²⁸

In general, then, although gender-specific defenses for women have been slightly more successful than those for men, their use and effect are variable. Of all the defenses, courts have viewed postpartum psychosis as the most acceptable. Yet, it is unclear whether the influential factor is gender, particularly with the limited number of defenses available to analyze. The following sections attempt to identify factors that may be most significant.

C. IS GENDER THE CRITICAL FACTOR IN GENDER-BASED DEFENSES?

1. *Gender-specific and Gender-dominant Defenses*

A number of factors other than gender may be driving the apparent differences in courts' willingness to accept certain defenses over others. Three factors seem particularly critical: (1) the permanence of the disorder evidenced, (2) the degree of dangerousness associated with it, and (3) the causal link between the disorder and the crime. A comparison between attempts to argue insanity by applying the XYY chromosome syndrome defense for men, and the postpartum psychosis defense for women, is illustrative:

(1) The XYY syndrome is a life-long genetic condition. In contrast, postpartum psychosis occurs only after childbirth, and even then it is unusual. Most cases last less than a few months, although the more serious cases can last longer.

(2) If XYY is indeed a criminogenic condition, presumably it can be influential at any time. This circumstance raises an awkward predicament for the defendant. He has to contend that the condition caused the crime while, at the same time, concede that he is perpetually dangerous to others. In contrast, women who have evidenced postpartum psychosis are not considered to be dangerous people when they do not have the condition. It is only pregnancy-related.³²⁹

³²⁵ See Pehrson, *supra* note 312, at E3.

³²⁶ See Caba, *supra* note 312, at 1A.

³²⁷ See *id.*

³²⁸ See *id.*

³²⁹ See e.g., Ziporyn, *supra* note 304.

Moreover, even when they do have it, they are potentially dangerous only to themselves or their children. Most likely, the court considered that Ann Green, who killed two of her children and attempted to kill a third,³³⁰ was not a danger to anyone after her decision to undergo voluntary sterilization, because she was a psychiatric outpatient one year later.³³¹

(3) Because a condition like XYY is permanent, it is more difficult to prove that it is causally linked to criminal conduct. Once again, a defendant would need to argue that he is either continually dangerous, that he commits a crime only when he has an opportunity, or he engages in crime when other circumstances in addition to XYY are present. In contrast, women who experience postpartum psychosis typically evidence symptoms that can be more directly linked to their criminal conduct. Furthermore, witnesses routinely report behavioral changes in postpartum psychosis defendants soon or immediately after the birth of their child.³³²

The postpartum psychosis defense is unique. The only defendants are women; the only victims are infants. The defendant's period of dangerousness is temporary, and the disorder is initiated by only one condition—pregnancy, which is often exacerbated by other personal or situational factors. Even though the exact cause of the psychosis remains unclear,³³³ the condition initiating it is not.

In light of this comparison, it is more understandable why PMS and testosterone defenses have achieved relatively little success in the United States. It is beyond the scope of this Article to discuss the evidentiary problems associated with these disorders,³³⁴ but it appears that their sources and symptoms are relatively more amorphous than those detected for a disorder such as postpartum psychosis. Yet, even if these conditions were clearly detectable and scientifically reliable, there would also be other differences to consider. Defendants with PMS and high testosterone evidence potentially recurring disorders and their victims can, and have, included anyone. Likewise, defendants can be a recurring danger to society. Thus, it is not surprising that these defenses have been primarily successful for conduct where

³³⁰ See *supra* notes 321 to 322 and accompanying text.

³³¹ See Zeldis, *supra* note 311, at 1.

³³² See *supra* notes 304 to 312.

³³³ See *supra* notes 308 to 309 and accompanying text.

³³⁴ Presumably, the Federal Rules of Evidence standard affirmed in *Daubert v. Merrill Dow Pharmaceuticals*, 113 S. Ct. 2786 (1993), would make the admissibility of such evidence more likely compared to the relatively stricter standard espoused in *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923). See, e.g., *In re Irvin*, 31 B.R. 251 (Bankr. D. Colo. 1983) (rejecting the admissibility of PMS evidence under the *Frye* test).

no individual was harmed.³³⁵

An alternative approach is to compare postpartum psychosis with steroid-induced disorder. First, steroid-induced disorder, like postpartum psychosis, is a temporary condition that ceases when the individual stops using steroids. Second, many of the individuals who have introduced a steroid defense are not considered to be dangerous people either before or after their use of steroids. For example, Pope and Katz, in their case study of three men who committed violent crimes with steroids, reported that the men had no prior history of psychiatric disorder, antisocial personality, or violence, yet their behavior changed dramatically when they started using steroids.³³⁶ Unlike women with postpartum psychosis, however, those with steroid-induced disorder show indiscriminant violence that can last as long as the "rage." Third, similar to postpartum psychosis, a causal link between steroid use and crime can often be substantiated, yet perhaps not as clearly. Homicides induced by postpartum psychosis show characteristics not shared by those induced by steroids.

Foreseeability and sympathy may also be factors. Most individuals who use steroids know that one of the potential consequences will be increased aggression. In contrast, it can be presumed that more sympathy will be invoked for a woman who chooses to have a child, without knowing or even realizing that one of the consequences may be the child's death related to her psychosis. Repeat postpartum psychosis offenders contend that the condition and its consequences may not be clearly foreseeable. Ann Green stated that she did not realize that she had a disorder until a month after the death of her first child and, even then, she "shielded herself from the reality" of this death after a medical examiner attributed it to a narrowing of the aorta.³³⁷

Yet a disparity in success between these two defenses may simply be a matter of time and sophistication. For example, the first defense of steroid-induced insanity was used in 1988, several decades later than the first case involving postpartum psychosis.³³⁸ In a 1985 trial in which the use of steroids was simply submitted as evidence, it appeared to have little effect on judgment or sentencing, because at that time "virtually no scientific reports on the psychiatric effects of steroids were available."³³⁹ In contrast, in *Commonwealth v. Richter*³⁴⁰ the court seemed particularly swayed by the extent of the evidence the

³³⁵ See *supra* note 329 and accompanying text.

³³⁶ Pope & Katz, *supra* note 254.

³³⁷ See Zeldis, *supra* note 311, at 2.

³³⁸ See Moss, *supra* note 258, at 22.

³³⁹ Pope & Katz, *supra* note 254, at 29.

³⁴⁰ No. T90-215256 (Fairfax County Gen. Dist. Ct. June 4, 1991) (unreported case).

defendant submitted on PMS, a defense that had not yet been successful.³⁴¹

Overall, then, an apparent asymmetry in the acceptance of gender-specific or gender-dominant defenses by the courts may be attributable to factors associated with the gender-related condition, or degree of evidence available, rather than a "societal glossing" or favoring of the genetic or biological conditions of one gender over the other. With some exceptions, courts and attorneys also did not appear to emphasize gender per se, or cultural constructs of gender stereotypes, in their introduction or analyses of these defenses. Indeed, the Glen Ridge rape case exemplifies how a defense strategy can backfire when attorneys rely too heavily on extreme gender-stereotyping to give a defense "jury appeal." In light of this conclusion, the next section considers whether there are comparably justified asymmetries for gender-variant or gender-cultural defenses.

2. *Gender-variant and Gender-cultural Defenses*

A question of asymmetry prompts arguments that may apply to any of the four gender-based defenses. This Article uses these arguments to support its conclusion that asymmetries should be avoided if they rely on culturally-created, gender-based, stereotypes. Two tendencies fuel this perspective: (1) a tendency to impose culturally-created stereotypes on gender-specific, gender-dominant, and at times, gender-variant defenses, which rely on genetic or biological differences between the genders; and (2) a tendency to amplify supposed biological or psychological gender differences in gender-cultural, and at times, gender-variant defenses, which focus on sociological and cultural disparities between males and females. Defense attorneys use these tactics to make these defenses more appealing to the jury. Because the criminal law presumes that behavior is a consequence of free will,³⁴² attorneys attempt to emphasize biological conditions so that their clients' behavior seems less controllable. They also provide cultural explanations for biological conditions, either to elicit sympathy or to convince a jury that their client's environment triggered their internal disorder.

These tactics have a cost. Typically, they rely on a scientifically unfounded social construction, which can perpetuate past or existing gender stereotypes. Also, they may be ineffectual in a particular case or create a backlash for future cases. If these circumstances exist, courts should render them irrelevant and inadmissible.

³⁴¹ See *supra* notes 279 to 280 and accompanying text.

³⁴² See *supra* notes 180 to 197 and accompanying text.

a. Arguments Against Using Gender-Specific Defenses

Such drawbacks can be more fully understood in light of the arguments raised against using selected defenses. The first argument concerns the stereotyping of gender-specific defenses. According to some commentators, the PMS or postpartum defenses are degrading or prejudicial to women.³⁴³ These commentators contend that recognizing a link between PMS and violence, for example, would also prevent women from making further progress in their work because employers would expect monthly cycles of irritability or misconduct.³⁴⁴ But to consider a defense "degrading" because its underlying condition occurs only to women, and therefore puts them in a weak or "flawed" light, misses the point. If a condition truly negates responsibility, either totally or impartially as PMS may, the fact that it applies only to women is irrelevant. Discounting gender-specific conditions in the name of "equality" operates on the pretense that there are no gender differences whatsoever in biology or behavior.³⁴⁵ This argument unnecessarily imputes cultural or social stereotypes on a biological condition that would otherwise be compared, favorably or not, with the numerous other biological conditions (including hormonal deficiencies, such as hypoglycemia or diabetes) that courts consider with respect to any defendant's responsibility. The focus should not be on the gender to which this condition pertains, but whether it truly negates responsibility.

Curiously, critics of gender-specific defenses for men emphasize their concerns with causality and dangerousness, and not the fear that men will be "degraded" or stereotyped. Even the "boys-will-be-boys" defense used in the Glen Ridge rape case pertained more to the so-called "Lolita-like" behavior of the victim, rather than the gender-stereotyped behavior of the defendants.³⁴⁶ Attorneys may find ways to avoid potential stereotyping with gender-specific conditions by includ-

³⁴³ See, Dershowitz, *supra* note 19, at 53-55; Marcia Chambers, *Menstrual Stresses as a Legal Defense*, N.Y. TIMES, May 29, 1982, at 46 (reporting Prof. H. Richard Uviller's criticism of the defense as "degrading"); see also Nelson, *supra* note 304, at 649 (noting a district attorney's comment that the postpartum psychosis defense was "demeaning to women, since it implied that they, as a class, were not 'responsible, accountable, equal human beings because of hormonal differences from men'").

³⁴⁴ See DERSHOWITZ, *supra* note 19, at 54; Grossman, *supra* note 306, at 343.

³⁴⁵ As one commentator explained with respect to the legal system's displeasure with the postpartum psychosis defense:

We are dealing with a type of mental illness that men can't get, and you come into a legal system that's sort of dominated by men and they don't quite see that this could be a sort of mental illness. They don't empathize with it. They can't imagine themselves in this situation.

Nelson, *supra* note 304, at 635 (citation omitted).

³⁴⁶ See LAUFER, *supra* note 264.

ing them within existing defenses, rather than creating specialized, gender-based defenses. For example, one attorney recommends treating postpartum psychosis as simply a "controversial diagnosis" rather than a "new defense."³⁴⁷

Others contend that attorneys can use these defenses to inculpate, rather than exculpate.³⁴⁸ In *Tingen v. Tingen*,³⁴⁹ for example, the claimant unsuccessfully argued that the court should consider his ex-wife's PMS as a factor for allowing him to receive custody of their children.³⁵⁰ Likewise, some commentators have suggested that courts will ultimately view PMS as an aggravating condition, rather than a mitigating one. They even believe it will justify a husband's murder of his PMS-afflicted wife, or a court's conclusion that a PMS-afflicted woman should be able to foresee, and thus prevent, the consequences of her monthly condition.³⁵¹

But these risks are inherent in any defense based upon a biological condition. If society viewed PMS as an aggravating condition, it could also view a brain tumor or high testosterone level as one. If society expects an epileptic to foresee the consequences associated with driving a car,³⁵² it could also expect an individual who theoretically may have a dangerous gender-related disorder to foresee them. Although Ann Green was successful with her insanity defense, a court could have applied a high standard of foreseeability given that, shortly after the murder of her first child, she had some realization that she had done something wrong.³⁵³ The criminal law cannot be expected to provide a one-sided perspective on any particular condition, even if it is gender-related, and even if it can also be used as a defense.

b. Gender-variant Defenses

A more difficult issue concerns defenses that do not rely on gender-specific or gender-dominant conditions, but rather on the way that gender interacts with other biological or environmental factors. For example, a gender-variant defense based on the results of the Biosocial Project discussed in this Article would raise the finding that: (1) lead poisoning is a strong and consistent predictor of crime and behavioral disorders; but that (2) lead poisoning is a significant predictor only among males. Theoretically, a defense attorney could ar-

³⁴⁷ See, e.g., Nelson, *supra* note 304, at 635-36.

³⁴⁸ See, e.g., Hosp, *supra* note 283, at 445.

³⁴⁹ 446 P.2d 185 (Or. 1968).

³⁵⁰ *Id.*

³⁵¹ Hosp, *supra* note 283, at 445.

³⁵² *People v. Decina*, 138 N.E.2d 799, 803-04 (N.Y. 1956).

³⁵³ See Zeldis, *supra* note 311.

gue that males are relatively more vulnerable to environmental influences, such as lead poisoning, which render them more impulsive. Therefore, they are less responsible for their actions. Likewise, females are less responsible if they evidence certain types of neurological disorders that render them more impulsive and biologically less capable of deciding between right and wrong.

These arguments, however, share the same difficulties evidenced by the less successful gender-specific defenses:³⁵⁴ (1) lead poisoning and neurological disorders are steady, not temporary conditions; (2) for this reason, it is likely that other factors in conjunction with these conditions trigger criminal conduct; and (3) therefore, the causal connection to crime is uncertain. Moreover, a gender-based standard for gender-variant conditions would be misleading. Females are also affected by lead poisoning, but to a lesser degree; males are also affected by neurological disorders. The gender differences described in the Biosocial Study, for example, indicate average, not absolute, variations. A gender-variant defense, therefore, would be both over and under inclusive. The defense could also be open to gender-stereotyping. Recall that historically, female offenders were characterized as biologically deficient and therefore not capable of controlling their behavior.

c. Gender-cultural Defenses

Gender-cultural defenses are somewhat different. A classic example is the battered woman syndrome defense.³⁵⁵ According to Lenore Walker, a battered woman is one "in an intimate relationship with a man who repeatedly subjects . . . her to forceful physical and/or psychological abuse."³⁵⁶ Walker defines "repeatedly" as more than once, and "abuse" as any one of six behaviors, ranging from life-threatening violence to "extreme verbal harassment and expressing comments of a derogatory nature with negative value judgments" and "restriction of her activity through physical or psychological means."³⁵⁷

The primary purpose of the defense is not to explain why the

³⁵⁴ See *supra* notes 198 to 210 and accompanying text.

³⁵⁵ See generally Holly Maguigan, *Battered Women and Self-Defense: Myths and Misconceptions in Current Reform Proposals*, 140 U. PA. L. REV. 379 (1991). For a discussion of the constitutional issues pertaining to cases of domestic violence, see Maria L. Marcus, *Conjugal Violence: The Law of Force and the Force of Law*, 69 CAL. L. REV. 1657 (1981).

³⁵⁶ LENORE E. WALKER, *THE BATTERED WOMAN SYNDROME* 203 (1984).

³⁵⁷ *Id.* As Schulhofer notes, however,

[t]his approach includes as battered women the wife whose husband subjects her to derogatory comments twice in two years, the spouse who is slapped across the face six times in six months, and the woman who suffers severe bruises, internal injuries, or broken bones from severe beatings inflicted every week throughout her marriage. Schulhofer, *supra* note 7, at 117.

woman killed her batterer, but why she did not leave him.³⁵⁸ Although the defense includes situational factors to explain why a woman did not leave, such as inadequate finances or the failure of police intervention, it focuses on a psychological diagnosis of "learned helplessness."³⁵⁹ This condition is created when abused women experience a cycle of violence and "loving contrition" which, when combined with low self-esteem, passivity, and fear, makes escape seem impossible.³⁶⁰ Thus, Walker views the battered woman syndrome as a "mental health disorder"³⁶¹ whose sufferers evidence a variety of "cognitive disturbances"³⁶² that prevent them from seeking avenues of escape, and "motivational" impairments that impede their ability to use such an avenue when they do find one.³⁶³ Even though the empirical basis for Walker's depictions has been severely critiqued,³⁶⁴ they are widely used in battered women cases.

This Article considers the battered woman syndrome defense to be gender-cultural because individuals concerned with providing a feminist approach to domestic violence created it.³⁶⁵ Certain commentators believe the defense was constructed from the "patriarchal assumptions" stemming from law and psychology.³⁶⁶ They contend that the defense does more than simply reinforce negative stereotypes of women; it presumes that women are incapable of choosing a lawful way to avoid the unlawful conduct of their partners. Therefore, the defense reaffirms historical stereotypes that women are incapable of the same kind of rational self-control and self-governance that is expected from men.³⁶⁷

Anne Coughlin appropriately recognizes that the provocation defense similarly rests on a gender-cultural stereotype of the uncontrollable male who kills his wife in sight-of-adultery cases. Yet, she notes that the provocation defense also reinforces the hierarchical nature of male-female relationships because the wife is still construed to be an

³⁵⁸ Coughlin, *supra* note 19, at 51.

³⁵⁹ See Lenore E. Walker, *Battered Woman Syndrome and Self-Defense*, 6 NOTRE DAME L.J. ETHICS & PUB. POL'Y 321, 330-32 (1992).

³⁶⁰ WALKER, *supra* note 356, at 86.

³⁶¹ See Walker, *supra* note 359, at 331.

³⁶² See *id.* at 327-28.

³⁶³ See LENORE E. WALKER, *TERRIFYING LOVE* 10-11 (1989).

³⁶⁴ See DERSHOWITZ, *supra* note 19, at 33-37; Schulhofer, *supra* note 7, at 118-22.

³⁶⁵ See Coughlin, *supra* note 19, at 82; Schulhofer, *supra* note 7, at 116.

³⁶⁶ Coughlin, *supra* note 19, at 7; see also Elizabeth M. Schneider, *Describing and Changing: Women's Self-Defense Work and the Problem of Expert Testimony on Battering*, 9 WOMEN'S RTS. L. REP. 200 (1983) (emphasizing the fear that the defense will promote negative and inaccurate stereotypes about women).

³⁶⁷ See Coughlin, *supra* note 19, at 4-8.

object under her husband's control.³⁶⁸ Furthermore, the defense often succeeds in domestic abuse situations because of the gender-stereotyping applied to the wife's provoking behavior, rather than her husband's reaction to it.³⁶⁹

Commentators have critiqued the battered woman syndrome on various grounds that reinforce this Article's concern with the hazards of treating as biological, defenses that are culturally-constructed. "By proving that women suffer from special psychological deficits that make them incapable of resisting illegal pressures exerted by men, [the defense] explicitly locates the source of women's subjugation, not within legal or cultural convention, but within women themselves."³⁷⁰ Given that the defense views women as passive and irrational, Stephen Schulhofer explains that it is not surprising that the defense has been relatively quickly adopted.³⁷¹

The defense is further scorned by those who claim that it masks "the other side" of statistics on domestic violence that oftentimes get lost in highly publicized spouse killings, such as the O.J. Simpson incident.³⁷² For example, large scale statistical studies show considerable symmetry in the gender of perpetrators in spouse killings in the United States.³⁷³ For every one hundred men accused of killing their wives, about seventy-five women are accused of killing their husbands. This is an equivalency peculiar to the United States, and does not appear to be related to the availability of guns or increasing "women's liberation."³⁷⁴ Yet, critics do not recognize a crucial factor—the gender differences in the motives for killing. A large proportion of women kill in self-defense, but men almost never do. Also, women rarely kill in response to the motives that appear to provoke men, such as a failed relationship, infidelity, or long periods of abuse and assaults.³⁷⁵

In considering the theoretical acceptability of gender-based de-

³⁶⁸ See *id.* at 5 n.12.

³⁶⁹ See Laurie Taylor, *Provoked Reason: Heat of Passion Manslaughter and Imperfect Self Defense*, 33 U.C.L.A. L. REV. 1679, 1696-97 (1986).

³⁷⁰ Coughlin, *supra* note 19, at 57.

³⁷¹ Schulhofer, *supra* note 7, at 122.

³⁷² See, e.g., DERSHSOWITZ, *supra* note 19, at 311-12 (noting that "women kill almost as often as men do in the context of *all* family murders"); Katherine Dunn, *Truth Abuse*, 211 NEW REPUBLIC, 16 (Aug. 1, 1994) (claiming that the events surrounding the O.J. Simpson case "are the latest pretext for spreading the anti-male propaganda that passes as socially responsible concern over domestic violence").

³⁷³ See generally MURRAY A. STRAUS & RICHARD J. GELLES, *PHYSICAL VIOLENCE IN AMERICAN FAMILIES* (1990); Margo I. Wilson & Martin Daly, *Who Kills Whom in Spouse Killings? On the Exceptional Sex Ratio of Spousal Homicides in the United States*, 30 CRIMINOLOGY 189 (1992).

³⁷⁴ See Wilson & Daly, *supra* note 373.

³⁷⁵ See *id.* at 206-07 (noting that this conclusion is countered by other research based on self report evidence, which has been criticized).

fenses, then, the four that this Article discusses provide a continuum based on the degree of their reliance on differences in biology or culture. Even though gender-specific conditions, such as postpartum psychosis, are also influenced by psychological, sociological, and cultural factors, such as familial or economic instability,³⁷⁶ they are primarily defined by biology. Further, even though gender-cultural conditions, such as the battered woman syndrome, also allege certain "cognitive," motivational, or psychological disorders,³⁷⁷ they are primarily defined by cultural constructs. The concern here is that the criminal law support scientifically-based efforts to excuse or mitigate conduct, not socially-constructed conditions that may merely pander to a jury's stereotypes.

D. DEFENSES AND THE PROBLEM OF PREDICTION

Irrespective of issues of gender or stereotyping, however, it is not clear whether any of the conditions underlying these defenses actually "cause" crime or mitigate responsibility. It is beyond the scope of this Article to examine the precise causal bases for defenses. Instead, this Article relies on the Biosocial Study's results to question whether there are grounds for assuming that any one condition is considerably more causal or mitigating than another. A "perfect" causal model would be achieved by predicting 100% of an individual's future behavior. Such a high level of prediction has never been accomplished, however, and it is unlikely that it will ever be accomplished. In the Biosocial Study, fairly comprehensive models of biological and environmental variables predicted twenty-five percent of future adult criminality among males, and nineteen percent of future adult criminality among females.³⁷⁸ These percentages, which were statistically significant, provide acceptable levels of prediction, particularly for social science research. However, seventy-five to eighty percent of behavior is left unexplained, suggesting that most of what predicts crime has not been detected. Furthermore, a higher percentage of female criminal behavior is left unexplained relative to male criminal behavior.³⁷⁹

These results give some perspective on evaluating the gender-specific, gender-dominant, or gender-cultural defenses. First, none of the conditions underlying these defenses has any greater predictive link to criminal behavior than the factors examined in the Biosocial

³⁷⁶ See *supra* notes 269 to 328 and accompanying text.

³⁷⁷ See Coughlin, *supra* note 19, at 55-58.

³⁷⁸ See Tables 2 and 3.

³⁷⁹ Clinicians are also less able to predict violence in women relative to men. See Charles W. Lidz et al., *The Accuracy of Predictions of Violence to Others*, 269 JAMA 1007, 1007-11 (1993).

Study. A prior section of this Article³⁸⁰ discussed how courts could hypothetically view one condition to be more "causal" than another (*e.g.*, postpartum depression relative to XYY chromosome syndrome), but there is no empirical evidence to support their assumptions. Temporal proximity (a condition that is close in time to the criminal act) and impermanence (a condition that is periodic, but not inherent), could be either necessary but insufficient requirements for causality, or, they could simply be unnecessary. Currently, researchers cannot draw firm conclusions.

Second, the Biosocial Study indicated strong biological, sociological, and environmental interactions among predictors of crime for both genders, despite the additional finding of gender differences. This result comports with research or individual reports indicating that the conditions underlying the other gender-based defenses also showed multifactorial effects. For example, postpartum depression was most apt to have a link to an infant's death when other stressful conditions, such as marital or financial conflicts, were present.³⁸¹ Therefore, it is unclear whether any defendant could accurately claim that postpartum depression "caused" her behavior, or made her less culpable. Most likely, a constellation of events, biological and sociological or environmental, contributed to her infant's death. Thus, it may not be proper for courts to accept postpartum depression as a defense when it may not have a causal effect without the presence of particular environmental stressors. Similarly, it may not be proper for courts to accept postpartum depression as a defense, and then reject a defense based on the use of anabolic steroids.

If a roomful of experts in the area of biology and violence examined these issues, they would agree that these are philosophical, not legal or factual, inquiries.³⁸² This view reflects their recognition that science has yet to show anything more than mere propensities toward criminality. In turn, a philosophical determination of what should or should not be causal or mitigating depends upon whatever sentencing philosophy is controlling.

An overriding, oftentimes less visible, influence on courts' amenability to certain defenses could be their recognition of individual differences in the prevalence of crime. In determining future dangerousness, for example, courts will most likely consider whether or not defendants will commit another crime, irrespective of the reasons given for why they may have committed the last crime. The next sec-

³⁸⁰ See *supra* part IV.C.1.

³⁸¹ See *supra* notes 304 to 309.

³⁸² Denno, *supra* note 10, at 669.

tion considers whether there should be a gender-based standard reflecting the vast gender difference in number of offenses, particularly in light of the recent "three-strikes-and-you're-out" legislation concerned with repeat offenders.

V. GENDER DIFFERENCES AND PREVALENCE

The Biosocial Study demonstrated large gender differences in the nature and frequency of offenses. Consistent with prior research, males commit more violent crime.³⁸³ Even though the Biosocial Study relied only on official statistics, which tend to exaggerate gender differences relative to self report studies, the gender differences were substantial. Because official statistics indicate that agents of social control, such as families and the courts, intervene more often in the behavior of girls than boys,³⁸⁴ the Biosocial Study may exaggerate the level of girls' criminality for less serious crimes.³⁸⁵

A. POLICY IMPLICATIONS

In light of the gender differences in prevalence, an argument could be made that the recent "three-strikes-and-you're-out" legislation should not apply to females. Females are far less apt than males to be chronic offenders, and their crimes are less serious. Such deterrence policies are unnecessary for a group which, on the average, is not dangerous. Indeed, Myrna Raeder contends that the United States Sentencing Commission's Sentencing Guidelines, which are gender-neutral,³⁸⁶ inappropriately ignore evidence demonstrating that females have less serious patterns of offending and more family responsibilities.³⁸⁷ As a result, gender-neutral sentencing, which is geared toward violent male offenders and drug dealers, dispropor-

³⁸³ See *supra* notes 133 to 153 and accompanying text.

³⁸⁴ See Susan K. Datesman & Mikel Aickin, *Offense Specialization and Escalation Among Status Offenders*, 75 J. CRIM. L. & CRIMINOLOGY 1246, 1246-75 (1984).

³⁸⁵ In general, research indicates that sentencing for girls in juvenile court is more severe than is sentencing for boys. Girls referred to court for having committed status offenses are detained and institutionalized more frequently, and for longer time periods, than males who have committed delinquencies. See *id.* Although, over time, smaller percentages of status offenders than delinquent offenders have been incarcerated, data in 1987 indicated still that substantially more females (10.95%) than males (1.1%) were incarcerated for status offenses. See Ira M. Schwartz et al., *Federal Juvenile Justice Policy and the Incarceration of Girls*, 36 CRIME AND DELINQ. 503, 503-20 (1990). However, evidence that patterns of offending for status offenses and minor delinquencies are similar for boys and girls indicates that prosecutions for such crimes vary by gender. See Datesman & Aickin, *supra* note 384.

³⁸⁶ 28 U.S.C. § 994(d) (1992). The Guidelines state that sex is not a relevant factor in how a sentence is to be determined. UNITED STATES SENTENCING GUIDELINES MANUAL § 5H1.10 (1992).

³⁸⁷ See Raeder, *supra* note 18.

tionately harms nonviolent females who have primary parenting responsibilities, or who are involved in drugs because of family relationships.³⁸⁸

However, certain factors support gender-neutrality. First, a policy of specific deterrence based on generalizations about immutable individual characteristics, such as gender, offends society's notions of justice. It offends in this proposed context because it would continue to be overinclusive for males (include those nonviolent males who may never repeat again), but would be underinclusive for females (exclude those females who would repeat again and who do not have family responsibilities). Second, because most female offenders are not dangerous or repeat offenders, the "three-strikes-and-you're-out," or similar kinds of "get tough" legislation, will apply less often. Third, there is conflicting evidence on the nature and extent of gender differences in the treatment of violent offenders in the criminal justice system. Some research suggests that the system treats violent female offenders less severely than their male counterparts for pretrial detention and final conviction decisions; other research shows no gender differences or suggests that the system treats females more severely.³⁸⁹ These disparities reflect conflicts between how judges view their task. Some judges are chivalrous and paternalistic toward females, while others are harsh, punishing females for defying their traditional gender role.³⁹⁰ Studies of sentencing severity, however, "repeatedly find" that females are less likely than males to receive prison sentences, and more likely to receive shorter terms when they are sentenced.³⁹¹ If females are treated more leniently, they are less vulnerable to the "get tough" sanctions.

Some evidence also suggests that such sanctions are less war-

³⁸⁸ See *id.* at 923.

³⁸⁹ See Kruttschnitt, *supra* note 2, at 55-57.

³⁹⁰ See *id.*; Raeder, *supra* note 18, at 917-18.

³⁹¹ See Kruttschnitt, *supra* note 2, at 58; see also Ilene H. Nagel & John Hagan, *Gender and Crime: Offense Patterns and Criminal Court Sanctions*, in 4 CRIME AND JUSTICE 91, 91-144 (Michael Tonry & Norval Morris eds., 1983). Other research qualifies these results. For example, one recent study concluded that gender shows "a small-to-moderate effect" on incarceration decisions, and that females are jailed less frequently because of legally relevant factors (such as a prior record that is nonviolent). Judges' reasons for enforcing less jail time for females in other cases were based on criteria that, although not strictly "legal," could be justified for other reasons (*e.g.*, childcare responsibilities or signs of remorse). In light of its preview of prior research, this study also concluded that studies with the fewest controls were more likely to show large gender effects, whereas studies with the most controls were most likely to show slight, or nonexistent, gender effects. See Darrell Steffensmeier et al., *Gender and Imprisonment Decisions*, 31 CRIMINOLOGY 411, 435-36 (1993). Another study on juvenile offenders reported that although female offenders evidenced greater leniency than their male counterparts overall, they experienced greater punishment when they were repeat offenders committing more serious offenses.

ranted for females given their lower likelihood of repeat offending. For example, research has found that males on probation are more likely than females to be charged with committing new crimes, and that the new crimes for which females are charged are primarily for technical violations of probation.³⁹² Moreover, the nature and extent of involvement in prison violence is considerably lower for females than for males,³⁹³ perhaps providing one explanation for why females have a relatively greater probability of success when released on parole.³⁹⁴ Thus, although research suggests that both violent and non-violent females are treated more leniently than males at the sentencing phase, there is no evidence to suggest that this differential treatment enhances subsequent violence among females.³⁹⁵ "Both during and after periods of incarceration, women exhibit less violence and subsequent criminality than men."³⁹⁶

B. CONCERNS WITH GENDER NEUTRALITY

According to Raeder, the gender-neutral stance of the Sentencing Guidelines has eliminated the prior leniency toward females that existed before the implementation of the Guidelines. Although the trend toward sentencing females more harshly began before the Guidelines, primarily because of mandatory minimums in drug cases, the sentences of females have increased more than those for males.³⁹⁷ Thus, the Guidelines have increased both the rates and the length of incarceration for female offenders.³⁹⁸

Raeder's own analysis, however, points out counterarguments to her ultimate recommendation for a "rational sentencing policy concerning women" that would be integrated into the Guidelines.³⁹⁹ First, as she notes, all defendants receive relatively longer sentences under the Sentencing Guidelines. The difference is that, prior to the Guidelines, females received more lenient sentences than males, and now they receive sentences that are more comparable.⁴⁰⁰ Raeder's argument that the Guidelines treat females more harshly could also

³⁹² See S. Norland & Pricilla J. Mann, *Being Troublesome—Women on Probation*, 11 CRIM. JUSTICE & BEHAV. 115, 115-35 (1984).

³⁹³ See Kruttschnitt, *supra* note 2, at 344-45; see also Candace Kruttschnitt & Sharon Krompotich, *Aggressive Behavior Among Female Inmates: An Exploratory Study*, 7 CRIMINOLOGY 371, 371-85 (1990) (finding that female aggression in prison is most strongly associated with race and childhood family structure).

³⁹⁴ See Kruttschnitt, *supra* note 2, at 346.

³⁹⁵ See *id.*

³⁹⁶ See *id.* at 345-46.

³⁹⁷ See Raeder, *supra* note 18, at 925-26.

³⁹⁸ See *id.* at 929.

³⁹⁹ See *id.* at 909.

⁴⁰⁰ See *id.* at 926.

mean that equity has eliminated the favorable treatment they received.

Second, irrespective of its gender-neutral stance, the Sentencing Commission has reported that females still receive more lenient sentences than males overall, and within the Guideline's intervals. It appears that the relationship between gender and sentencing no longer exists when certain offense characteristics are controlled, such as the presence of a weapon, the amount of drugs used, or the offender's role in a conspiracy.⁴⁰¹ Ignoring Raeder's other concerns, including the effect of sole or primary parenting,⁴⁰² this finding supports the argument that females will receive more lenient sentences under the Sentencing Guidelines because they commit less frequent and less serious offenses than males.

Indeed, Raeder's recommendation for a "sentencing policy concerning women" evokes the same themes of paternalism and passivity used to support a battered woman syndrome defense. According to Raeder, female offenders who are themselves the victims of sexual or physical abuse, and who "tend to have low self-esteem and view the world pessimistically," may be "*propelled*" into criminal behavior by "poverty, racism, and sexual discrimination."⁴⁰³ Wives or girlfriends of male defendants who have fathered their children, "may *find themselves involved* in criminal activity because of social and cultural pressures."⁴⁰⁴

Such characterizations depict women as passive objects under the dominion and control of men, rather than as free thinking agents. Indeed, it appears that Raeder believes this. In arguing for downward departures in the Sentencing Guidelines based on circumstances related to dominance and psychological abuse, Raeder notes that "[w]hile it may be stereotypical to assume that men lead women astray, and therefore women are not fully responsible for their criminal offenses, one federal prison warden has observed, 'Females who make their way to prison have been socialized more toward dependent relationships, as opposed to life activities that promote independence.'"⁴⁰⁵ Consequently, Raeder advocates judicial recognition of the "gendered nature of some female crime" in which a woman who is dominated by a male, but who does not meet the criteria required for physical coercion, may be entitled to a departure in culpability for her

⁴⁰¹ See *id.* at 931.

⁴⁰² See *id.* at 930-31.

⁴⁰³ See *id.* at 914 (emphasis added).

⁴⁰⁴ See *id.* at 906 (emphasis added).

⁴⁰⁵ See *id.* at 972-73.

criminal acts.⁴⁰⁶

Raeder's recommendations, however, would perpetuate what appears to be an unfortunate gender hierarchy in the criminal justice system. Moreover, such characterizations ignore the fact that male defendants are also the victims of physical and sexual abuse, poverty, racism, and dominance. It is difficult to contend that a sentencing structure should incorporate the socialization and victimization of women, while ignoring comparable burdens on the lives and behavior of men.

However, this Article recognizes situations where females may be unfairly punished because of their unsterotypical roles in particular crimes. For example, there is considerable evidence that women oftentimes receive more severe penalties than their male counterparts for like crimes, such as the murdering of a mate.⁴⁰⁷ As noted, research also indicates that judges may treat females more severely for pretrial detention and final conviction decisions, perhaps because they view women criminals as defying their traditional gender role.⁴⁰⁸ A gender neutral sentencing structure should eliminate these kinds of inequities.

A recommendation for gender neutrality is also not intended to ignore the seriously neglected issues pertaining to pregnant women, and sole or primary parents. Although this issue is beyond the scope of this Article, Raeder correctly critiques the disturbing consequences of particular Guideline's decisions on the children of the incarcerated. She also provides sound critiques of other aspects of the Sentencing Guidelines that are too punitive for any actor, irrespective of gender. Yet, not only would a focus on what Raeder calls the "gendered nature of some female crime" reinforce negative stereotypes, it would create an unwarranted gender asymmetry.

⁴⁰⁶ See *id.*

⁴⁰⁷ See Coughlin, *supra* note 19, at 3 & n.4; Kit Kinports, *Defending Battered Women's Self-Defense Claims*, 67 OR. L. REV. 393, 454-55 (1988); Victoria M. Mather, *The Skeleton in the Closet: The Battered Woman Syndrome, Self-Defense, and Expert Testimony*, 39 MERCER L. REV. 545, 561 (1988). See also, ANN JONES, *WOMEN WHO KILL* 8-9 (1980) (noting that "for offenses traditionally considered to be 'masculine'—such as armed robbery and felony murder—women tend to receive heavier sentences than men"). This disparity was recently illustrated by Baltimore Judge Robert E. Cayhill's sentencing of Kenneth Peacock to 18 months in prison for pleading guilty to killing his wife four hours after finding her in bed, naked, with another man. See State's Attorney for Baltimore County, Press Release, Oct. 20, 1994; Tamar Lewin, *What Penalty for a Killing in Passion?*, N.Y. TIMES, Oct. 21, 1994, at A18. A day later, another Baltimore judge gave a three-year sentence to a woman who had pleaded guilty to voluntary manslaughter for killing her husband following 11 years of his abuse. Lewin, *supra*.

⁴⁰⁸ See *supra* notes 389 to 390 and accompanying text.

C. WOMEN IN PRISON

Women's lesser involvement in crime does not reap rewards for women prisoners. In 1990, women constituted 5.5% of state prisoners and 7.6% of federal prisoners.⁴⁰⁹ Relative to male prisoners, however, they have less adequate physical facilities, health and medical care, psychological counseling, drug and alcohol counseling, and recreational services.⁴¹⁰ They also have fewer work assignments or vocational and educational programs, lower pay for the same job, and more frequent administration of tranquilizers and other medications for purposes of social control.⁴¹¹ Men are separated into different facilities according to the seriousness of their crimes (*e.g.*, minimum, medium, and maximum security); women are typically housed together regardless of their classification.⁴¹² Ironically, the reasons cited for such disparities return, once again, to the differences between male and female criminals: (1) because the number of female inmates is small, expenditures for them are relatively large; (2) because female inmates are less dangerous than their male counterparts, there is less need to spend money on rehabilitation; and (3) because female inmates are not as demanding, they are less likely to riot over inadequate conditions.⁴¹³

Therefore, gender differences have a further penalizing effect in prison; the women prisoners are neither "bad enough" nor "woman enough." As one study concluded, "the primary goal for female prisoners is often teaching 'femininity'—how to walk, talk, and carry themselves. This is related both to the view that female offenders have 'failed' as women and must be retrained for the role."⁴¹⁴ Yet, females who attempt to fulfill their "feminine" role are also penalized—particularly when that role is one of primary parenthood.⁴¹⁵

In general, then, the criminal justice system appears to recognize gender differences in the prevalence of crime. According to most research, it provides more lenient sentencing for females than for males. This disparity comports with data indicating that females are relatively less serious and less frequent offenders. Therefore, gender-neutral sentencing schemes reward females by virtue of their behav-

⁴⁰⁹ ROBYN L. COHEN, BUREAU OF JUSTICE STATISTICS BULLETIN, PRISONERS IN 1990 Table 6 at 4 (1991).

⁴¹⁰ Fletcher & Moon, *supra* note 25; Roslyn Muraskin, *Disparate Treatment in Correctional Facilities*, in *IT'S A CRIME: WOMEN AND JUSTICE* 211, 218 (Roslyn Muraskin & Ted Alleman eds., 1993).

⁴¹¹ Fletcher & Moon, *supra* note 25, at 12; Muraskin, *supra* note 410, at 218.

⁴¹² Muraskin, *supra* note 410, at 220.

⁴¹³ See Fletcher & Moon, *supra* note 25, at 12.

⁴¹⁴ See *id.* (citation omitted).

⁴¹⁵ See Raeder, *supra* note 18, at 906.

ior, rather than their gender. A departure from this structure can result in sentencing inequities for men, as well as dangerous stereotyping for both genders.

A recommendation for equity between the genders, however, should not result in penalties for those females who are incarcerated, or their offspring. For this reason, the criminal justice system may need to implement some exceptions to gender neutral sentencing structures, such as considerations for the status of sole or primary parent, until gender neutral family norms are more fully achieved.

VI. CONCLUSION

This Article's examination of gender differences and crime reaches three general conclusions. First, relying on the results of the Biosocial Study, this Article confirmed past research showing gender differences in the prevalence and prediction of crime and violence. With respect to prevalence, males commit more crime and violence than females during both their juvenile and adult years, and they are more frequent and chronic offenders once they do participate in crime. With respect to prediction, results confirmed some past research suggesting that biological factors are generally more predictive of crime among females, whereas environmental factors are generally more predictive of crime among males. At the same time, biological and environmental factors interact in predicting the crime and behaviors of both genders. This finding further reinforces the need for the simultaneous examination of many different indicators in multidisciplinary research.

Second, this Article used these results to propose a new "gender-variant" defense that recognizes the different biological and environmental predictors of male and female crime. It further incorporated these results into a discussion of whether gender differences in the prevalence and prediction of crime should affect the application of four gender-based criminal law defenses which represent a continuum ranging from the most biologically-oriented to the most culturally-constructed: gender-specific, gender-dominant, gender-variant, and gender-cultural. It then critiqued efforts to impose gender-stereotyped social constructions of the more biologically-oriented defenses, as well as tendencies to amplify supposed stereotyped biological and psychological differences in culturally-constructed defenses.

According to Catharine MacKinnon, "arousing the sexism of the judge and jury may appear [to be an accused woman's] only chance of acquittal. A prison term is a big price to pay for principle."⁴¹⁶ Yet, the

⁴¹⁶ Catherine A. MacKinnon, *Toward a Feminist Jurisprudence*, 34 STAN. L. REV. 703, 721

consequences of such sexism may be more complex and damaging than she recognizes. First, there is no evidence to suggest that the gender-stereotyped defenses that enhance such sexism have any scientific foundation. For this reason, courts should consider them irrelevant and inadmissible. As this Article discusses, a successful gender-based defense may rest on evidentiary issues or aspects of the particular crime or defendant that may have little or nothing to do with gender or the stereotypical way in which a defense is applied. Therefore, it is unclear whether gender-stereotyped defenses actually enhance an accused's chances of acquittal. Second, as the Glen Ridge rape case illustrated, a gender-stereotyped defense, if poorly applied, can actually enhance a defendant's likelihood of conviction. Third, a gender-stereotyped defense can jeopardize the outcomes of future cases which legitimately rely on a particular defense, because juries will consider the defense controversial and react negatively towards it.⁴¹⁷ Lastly, gender stereotyping can stigmatize individuals or groups, and thereby perpetuate or revive historical depictions of females as socially and biologically incapable of legal responsibility.

Erickson and Murray's recent study of gender differences in cocaine use illustrates the potential for this cyclical effect.⁴¹⁸ They found that, regardless of contradictory scientific evidence, media accounts have portrayed women as particularly susceptible to cocaine addiction and cocaine-related problems. They concluded that this perception reflected an earlier view that cocaine-using women were vulnerable to "sexual corruption." Currently, news media perpetuate this view in their accounts of the "modern woman's" promiscuity with sexual partners who provide cocaine. The media's account of the cocaine-using career woman created an alternative sex role theory that depicted these women as more highly stressed because they attempted to engage in "men's work." Because the successful career woman threatens the traditional female role, the media's message is that cocaine addiction is the penalty she pays for her deviant occupational choices. They conclude, then, that in the 1980s a "double standard has been revived"—cocaine-using women are subject to more negative stereotyping and social ramifications than men.⁴¹⁹ Gender-stereotyped defenses may unwittingly further such sex-based depictions.

Third, this Article recommended a gender-neutral criminal jus-

(1982) (reviewing ANN JONES, *WOMEN WHO KILL* (1980)).

⁴¹⁷ See Goldberg, *supra* note 20, at 42 (discussing the backlash created by the more controversially successful cases which rely on defenses such as the battered woman's syndrome).

⁴¹⁸ See Erickson & Murray, *supra* note 24, at 135.

⁴¹⁹ See *id.*

tice system. This recommendation, however, is not intended to ignore the potentially devastating consequences that such a stance may have on third parties, most particularly the children of sole or primary caretakers who are incarcerated. Some exceptions may have to be made for social or cultural conditions that are not yet amenable to gender neutrality. Also troubling are the more severe penalties females encounter for either "being bad" by defying an expected gender role, or by not being "bad enough," as is illustrated in the disadvantages they face in prison.

At the same time, there are drawbacks to focusing too much on the differences between males and females. This Article discussed the dangers of oversimplifying, overclaiming, masking, or confusing the relationships and outcomes that researchers try to understand, and of applying rigid, divisive, categories that have no clear scientific base.⁴²⁰ Gender neutrality should allow society to get beyond such concerns with difference.⁴²¹

⁴²⁰ See Rhode, *supra* note 17, at 3-7.

⁴²¹ *Id.*

APPENDIX A⁴²²

SELECTED BIOLOGICAL AND ENVIRONMENTAL MEASURES

MEASURES AT BIRTH

1. Prenatal maternal conditions

Number of prenatal examinations

Number of prenatal conditions (a count of 8 items: mother's heavy cigarette smoking, use of sedatives, single marital status, presence of diabetes, hypertension, number of venereal conditions, number of neurological or psychiatric conditions, number of infectious diseases)

Poor obstetrical history (number of prior abortions, still births, premature siblings, or neonatal death of siblings)

Mother's age

Number of prior pregnancies

2. Pregnancy and delivery conditions

Number of pregnancy and birth complications (a count of 17 items: placenta previa, abruptio placentae, marginal sinus rupture, uterine bleeding during the first, second, or third trimester, anesthetic shock, other anesthetic accident, cesarean or breech delivery, prolapsed cord, irregular fetal heart rate, meconium during labor, use of oxytocic during labor, loose cord around the neck, tight cord around the neck, forceps marks at delivery, multiple birth)

Duration of labor

Apgar at one and five minutes

Gestational age, birth weight

3. Family and social structure

Absence of the father

Amount of time the father is unemployed

Mother's employment status

Mother's marital status

Child's birth order

4. Socioeconomic status

Mother's education

Father's education

Total family income (adjusted to 1970 dollars)

Total family per capita income (adjusted to 1970 dollars)

⁴²² DENNO, BIOLOGY AND VIOLENCE, *supra* note 10, at 34-36.

MEASURES AT AGE 1

5. Neurological factors

- Hand preference (right, left, or variable)
- Abnormal behavioral control

MEASURES AT AGE 4

6. Intelligence

- Stanford-Binet Intelligence Scale

7. Cerebral Dominance

- Hand, eye, foot preference (right, left, or variable)
- Composite index of hand, eye, and foot preference

MEASURES AT AGE 7

8. Physical growth and development

- Height and weight
- Ponderal index (height/weight³)

9. General physical health

- Pica
- Lead intoxication
- Iron deficiency anemia, 5 to 8 gms.
- Systolic and diastolic blood pressure

10. Neurological factors

- Head shape, head circumference
- Ear size, shape, and position
- Otoscopic exam
- Eye structure
- Referral needed for glasses
- Abnormal visual acuity
- Mental status (clinical impression)
- Speech (clinical impression)
- Number of neurological abnormalities

11. Soft neurological signs

- Nystagmus
- Abnormal movements
- Gait abnormality
- Coordination, awkwardness
- Right and left identification
- Reflexes
- Abnormal EEG
- Mixed cerebral dominance
- Position sense
- Stereognosis

12. Cerebral dominance

Hand, eye, and foot preference (right, left, or variable)
Composite index of hand, eye, and foot preference

13. Intelligence

WISC Verbal IQ
WISC Verbal subscales (information, comprehension, vocabulary, digit span)
WISC Performance IQ
WISC Performance subscales (picture arrangement, block design, coding)
WISC Performance IQ-Verbal IQ difference
Bender Gestalt Test, Koppitz scoring
Bender Gestalt, time in seconds
Goodenough-Harris drawing test

14. Achievement

Wide Range Achievement Test (WRAT) Spelling, Reading, Arithmetic

15. Family and social structure

Absence of the father
Absence of the father at birth and at age 7
Amount of time the father is unemployed
Mother's religion
Number of changes in mother's marital status (from birth to age 7)
Mother's marital stability
Number of adults, relatives in household
Total family size
Presence of grandparents in the household
Use of childcare
Foster or adoptive parents, guardian
Number of household moves (from birth to age 7)

16. Socioeconomic status

Education, occupation of household head (Census Bureau Index)
Additional schooling of the mother since child's birth
Number of persons supported
Total family income (adjusted to 1970 dollars)
Total per capita income (adjusted to 1970 dollars)

MEASURES AT AGES 13-14

17. Achievement

California Achievement Tests (CAT):
total reading (vocabulary, comprehension)

total math (computation, concepts and problems)
total language (mechanics, usage, and structure)
spelling

18. *Disciplinary status*

Enrollment in a school program for youths with disciplinary problems at any time during adolescence

19. *Mental retardation*

Enrollment in a school program for youths with tested evidence of retardation at any time during adolescence

MEASURES AT AGES 7-17

20. *Delinquency and violence*

Total number of officially recorded offenses (police contacts and arrests)

Seriousness of offenses (based on weights derived from a national survey of crime severity)

Classification of delinquency offenders (nonindex, property, or violent)

MEASURES AT AGES 18-22

21. *Young adult crime and violence*

Total number of officially recorded offenses (police contacts and arrests)

Classification of criminal offenders (nonindex, property, or violent)

APPENDIX B
STATISTICALLY SCREENED INDEPENDENT AND DEPENDENT
MEASURES

AGES	VARIABLES AND SCALES OF MEASUREMENT	
7	Y ₁	WISC Verbal IQ (45-155)
7	Y ₂	WISC Performance IQ (44-156)
13-14	Y ₃	Disciplinary problem (0 = absent; > 1 = present)
13-14	Y ₄	Language achievement (1-99)
13-14	Y ₅	Mental retardation (0 = absent; > 1 = present)
7-17	Y ₆	Number of juvenile offenses
7-17	Y ₇	Seriousness of juvenile offenses
Birth	X ₁	Pregnancy and delivery conditions (1-17 items)
Birth	X ₂	Mother's education (number of years)
Birth	X ₃	Father's education (number of years)
Birth	X ₄	Family income (1970 dollars)
Birth	X ₅	Time father unemployed (number of months)
1	X ₆	Hand preference (0 = right; 1 = left or variable)
4	X ₇	Stanford-Binet (25-175)
4	X ₈	Hand preference (0 = right; 1 = left)
4	X ₉	Eye preference (0 = right; 1 = left)
4	X ₁₀	Foot preference (0 = right; 1 = left or variable)
7	X ₁₁	Neurological abnormalities (total number)
7	X ₁₂	Abnormal movements (0 = absent; 1 = present)
7	X ₁₃	Abnormal vision (0 = absent; 1 = present)
7	X ₁₄	Lead intoxication (0 = absent; 1 = present)
7	X ₁₅	Anemia (0 = absent; 1 = present)
7	X ₁₆	Intellectual status (0 = normal; 1 = abnormal)
7	X ₁₇	Speech (0 = normal; 1 = abnormal)
7	X ₁₈	Foster parents (0 = absent; 1 = present)
Birth-7	X ₁₉	Father in household (0 = present; 1 = absent)
Birth-7	X ₂₀	Household moves (total number)
7	X ₂₁	Persons supported (total number)
7	X ₂₂	Family income (1970 dollars)

APPENDIX C

TABLES AND FIGURES

TABLE 1: NUMBERS AND PERCENTAGES FOR FIGURES 1-4

FIGURE 1: TYPE OF OFFENDER BY GENDER

	NUMBER OF PERSONS		PERCENTAGE OF CATEGORY	
	Males	Females	Males	Females
Nonoffender	336	431	69.00	86.20
Nonindex offender	64	34	13.14	6.80
Property offender	51	27	10.47	5.40
Violent offender	36	8	7.39	1.60
Total	487	500	100.00	100.00

FIGURE 2: NUMBER OF OFFENSES BY GENDER

	NUMBER OF PERSONS		PERCENTAGE OF CATEGORY	
	Males	Females	Males	Females
1	69	45	45.69	65.22
2	35	12	23.19	17.38
3	10	4	6.62	5.79
4	12	1	7.95	1.45
5	5	0	3.31	0.00
6	7	1	4.64	1.45
7	4	0	2.65	0.00
8	1	3	0.66	4.35
9	2	2	1.32	2.91
10+	6	1	3.97	1.45
Total	151	69	100.00	100.00

FIGURE 3: AGE AT FIRST OFFENSE BY GENDER

Age	NUMBER OF PERSONS		PERCENTAGE OF CATEGORY	
	Males	Females	Males	Females
10 or less	18	5	11.93	7.25
11	11	3	7.28	4.35
12	19	8	12.58	11.59
13	21	16	13.91	23.19
14	30	12	19.87	17.39
15	20	12	13.24	17.39
16	20	9	13.24	13.04
17	12	4	7.95	5.80
Total	151	69	100.00	100.00

FIGURE 4: JUVENILE AND ADULT ARREST CATEGORIES BY GENDER

	NUMBER OF PERSONS		PERCENTAGE OF CATEGORY	
	Males	Females	Males	Females
No juvenile or adult arrest	280	415	57.50	83.00
Juvenile arrest only	98	61	20.12	12.20
Adult arrest only	56	16	11.50	3.20
Juvenile and adult arrest	53	8	10.88	1.60
Total	487	500	100.00	100.00

Figure 1: Type of Offender by Gender

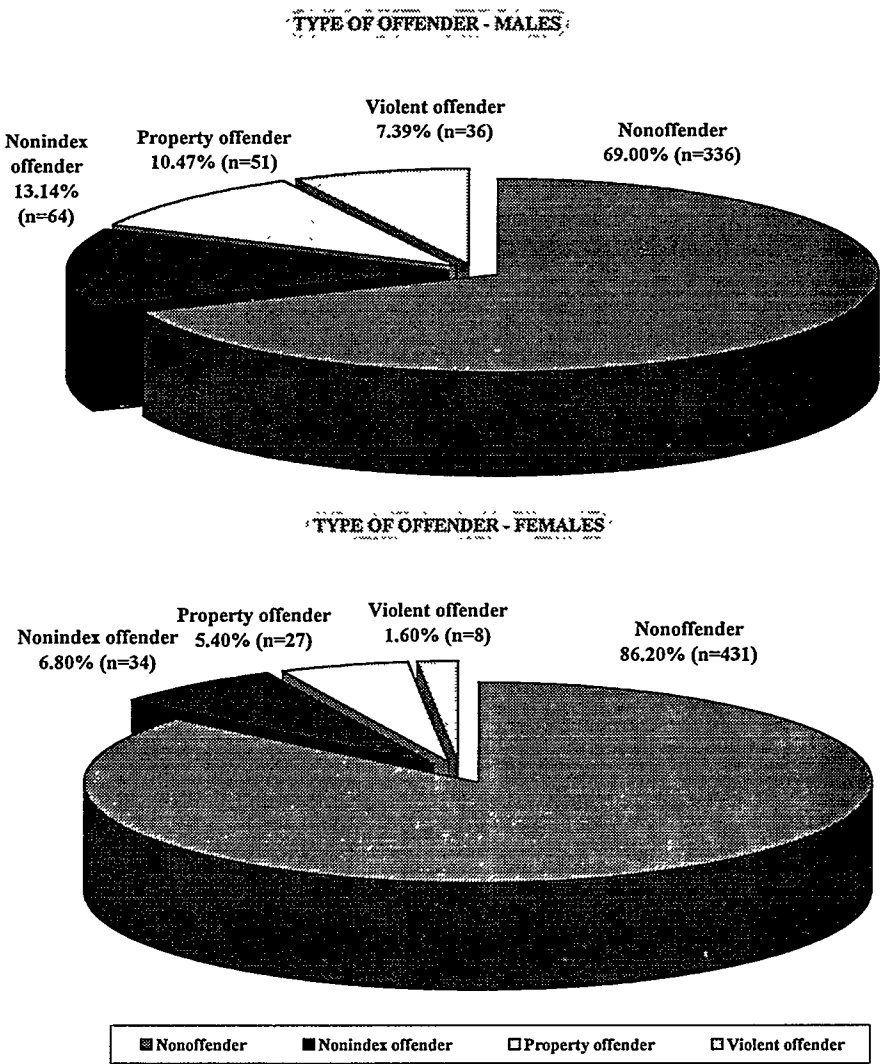


Figure 2: Number of Offenses by Gender

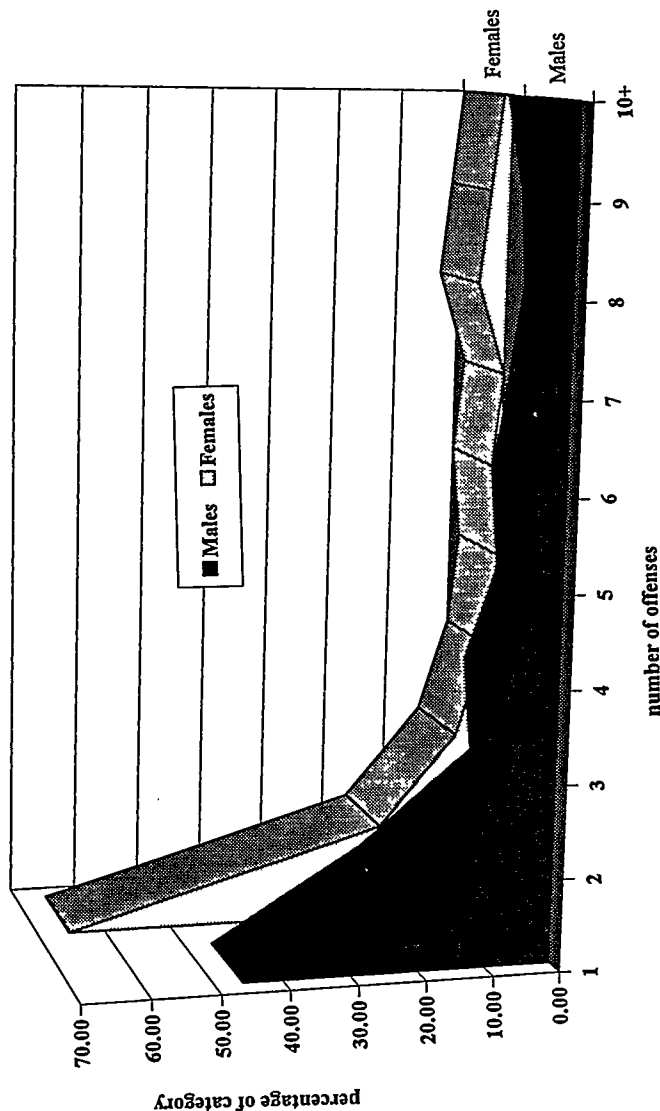


Figure 3: Age at First Offense by Gender

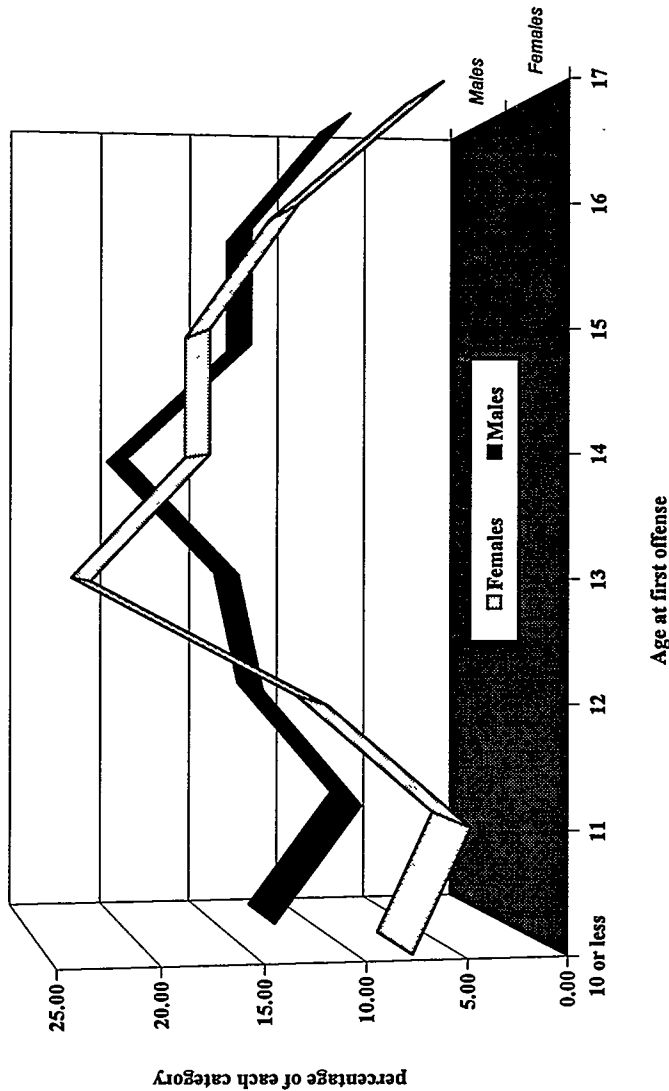


Figure 4: Juvenile and Adult Arrest Categories by Gender

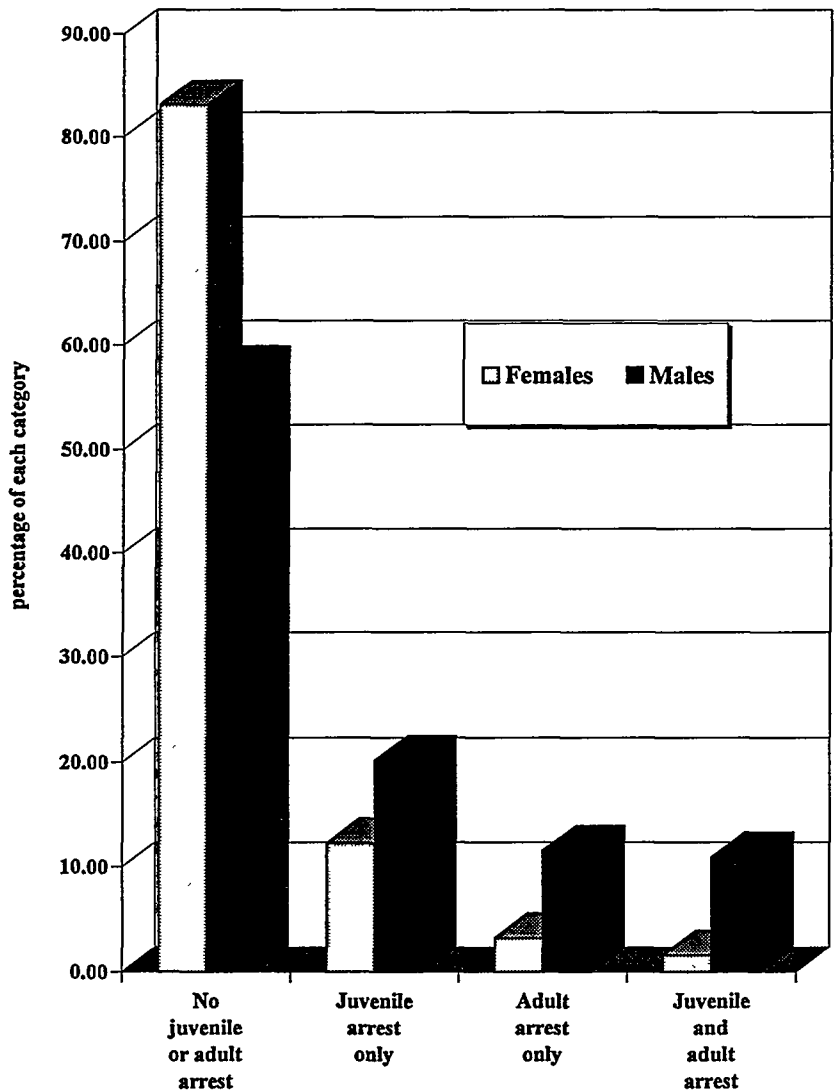


TABLE 2: STRUCTURAL EQUATION MODEL OF BIOLOGICAL AND ENVIRONMENTAL EFFECTS ON JUVENILE AND ADULT CRIME, MALES ONLY

Independent Variables	Ages	Dependent Variables						
		WISC Verbal IQ, age 7 (Y ₁)	WISC Performance IQ, age 7 (Y ₂)	Disciplinary problem, ages 13-14 (Y ₃)	Language achievement, ages 13-14 (Y ₄)	Mental retardation, ages 13-14 (Y ₅)	Number of juvenile offenses, ages 7-17 (Y ₆)	Seriousness of juvenile offenses, ages 7-17 (Y ₇)
Y ₁ WISC Verbal IQ	7	-	-	-	.308*** (8.95)	-	-	-
Y ₂ WISC Performance IQ	7	-	-	-	.253*** (5.72)	-	-	-
Y ₃ Disciplinary problem	13-14	-	-	-	-	-	.220*** (5.04)	.170*** (3.92)
Y ₄ Language achievement	13-14	-	-	-	-	-	-.096* (-2.22)	-.115** (-2.63)
Y ₅ Mental retardation	13-14	-	-	-	-	-	-	-
Y ₆ Number of juvenile offenses	7-17	-	-	-	-	-	-	.244** (2.86)
Y ₇ Seriousness of juvenile offenses	7-17	-	-	-	-	-	-	.226** (2.73)
X ₁ Pregnancy and delivery conditions	Birth	-	-	-	-	-	-	-
X ₂ Mother's education	Birth	-	-	-	-	-	-	-.120** (-2.92)
X ₃ Father's education	Birth	-	-	-	-	-	-	.083* (2.02)
X ₄ Family Income	Birth	-	-	-	-	-	-	-
X ₅ Time father unemployed	Birth	-	-	-	-	-	.179*** (4.15)	.115** (2.62)
X ₆ Hand preference	1	-	-	-	-	-	-	-

X_1 Standard-Binet	4	.543*** (14.18)	.323*** (7.50)	-	-	-.183*** (-3.45)	-	-
X_2 Hand preference	4	-	-	.094* (2.08)	-	-	-	-
X_3 Eye preference	4	-	-	-	-	-	.059** (2.67)	-
X_4 Foot preference	4	-	-	-	-	-	-	-
X_5 Neurological abnormalities	7	-	-	-	-	-	-	-
X_6 Abnormal movements	7	-	-	-	-	-	-	-
X_7 Abnormal vision	7	-	-	-	-	-	-	-
X_8 Lead intoxication	7	-	-	.125** (2.77)	-	-	.149*** (3.46)	-
X_9 Anemia	7	-	-	.121** (2.67)	-	-	.044* (1.95)	-
X_{10} Intellectual status	7	-.138*** (-3.53)	-.185*** (-3.68)	-	-	.263*** (6.97)	-	-
X_{11} Speech	7	-	-	-	-	.092* (2.08)	.045* (2.05)	-
X_{12} Foster parents	7	-	.087* (2.11)	-.87* (-1.95)	-	-	-	-
X_{13} Father absence	Birth-7	-	-	-	-	-	-	-
X_{14} Household moves	Birth-7	-	-	.111* (2.48)	-	-	.092* (2.12)	-
X_{15} Persons supported	7	-	-	-	-	-	.09** (2.06)	-
X_{16} Family income	7	-	-	-	-	-	-	-
R^2		.332	.183	.060	.222	.119	.157	.247
Sample size = 487								

Notes: The t-statistic is reported in parentheses (2-tailed test).

* $p < .05$; ** $p < .01$; *** $p < .001$.

Male model $\chi^2(166) = 160.28$; $p = .804$.

TABLE 3: STRUCTURAL EQUATION MODEL OF BIOLOGICAL AND ENVIRONMENTAL EFFECTS ON JUVENILE AND ADULT CRIME, FEMALES ONLY

Independent Variables	Dependent Variables							
	WISC Verbal IQ, age 7 (Y_1)	WISC Performance IQ, age 7 (Y_2)	Disciplinary problem, ages 13-14 (Y_3)	Language achievement, ages 13-14 (Y_4)	Mental retardation, ages 13-14 (Y_5)	Number of juvenile offenses, ages 7-17 (Y_6)	Seriousness of juvenile offenses, ages 7-17 (Y_7)	Number of adult offenses, ages 18-22 (Y_8)
Y_1 WISC Verbal IQ	7	-	-	.225*** (4.56)	-	-	-	-
Y_2 WISC Performance IQ	7	-	-	.206*** (4.83)	-	-	-	-
Y_3 Disciplinary problem	13-14	-	-	-	-	.232*** (5.40)	.110*** (2.57)	.265*** (3.93)
Y_4 Language achievement	13-14	-	-	-	-	-.101* (2.39)	-.089* (2.03)	-
Y_5 Mental retardation	13-14	-	-	-	-	-	.111** (2.60)	-
Y_6 Number of juvenile offenses	7-17	-	-	-	-	-	-	-.267** (3.10)
Y_7 Seriousness of juvenile offenses	7-17	-	-	-	-	-	-	.524*** (6.36)
X_1 Pregnancy and delivery conditions	Birth	-	-	-	-	.090* (2.03)	-	-
X_2 Mother's education	Birth	.131*** (3.73)	-	.082* (1.98)	.093* (2.39)	-	-	-
X_3 Father's education	Birth	-	-	-	-	-	-	-.112** (2.70)
X_4 Family Income	Birth	-	-	-	.095* (2.44)	-	-	-
X_5 Time father unemployed	Birth	-	-	-.082* (2.10)	-	.112* (2.51)	-	-
X_6 Hand preference	1	-	-	-	-	-	-	-

X_1 Stanford-Binet	4	.568*** (15.93)	.367*** (8.60)	-	.138** (2.57)	-	-	-	-
X_2 Hand preference	4	-	-	-	-	-	-	-	-
X_3 Eye preference	4	-	-	-	-	-	-.080* (-1.95)	-.086* (-2.02)	-
X_4 Foot preference	4	-	-	-	.113** (3.07)	-	.153*** (3.74)	.101* (2.35)	-
X_{11} Neurological abnormalities	7	-.122*** (-3.39)	-.164*** (-4.00)	-	-	-	.083*** (3.88)	-	-
X_{12} Abnormal movements	7	-	-	.503*** (12.69)	-	-	.083*** (3.94)	-	-
X_{13} Abnormal vision	7	.098** (2.90)	-	.103** (2.68)	-	-	-	-	-
X_{14} Lead intoxication	7	.077* (2.33)	-	-	-	-	-	-	-
X_{15} Anemia	7	-	-	-	-	-	-	-	-
X_{16} Intellectual status	7	-	-	-	-	.146** (3.28)	-.053* (-2.11)	-	-
X_{17} Speech	7	-.104** (-3.05)	-	-	-	-	-	-	-
X_{18} Foster parents	7	-	.113** (2.92)	-	-	-	-.207*** (-5.06)	-.257*** (-6.02)	-
X_{19} Father absence	Birth-7	-	-	-	-.103** (-2.60)	-	.103** (2.60)	.093* (2.20)	-
X_{20} Household moves	Birth-7	-	-	-	-	-	-	-	-
X_{21} Persons supported	7	-	-	-	-.138*** (-3.61)	-	-	-	-
X_{22} Family income	7	-	-	-	-	-	-	-	-
R^2		.437	.232	.262	.348	.045	.206	.134	.188
Sample size = 487									

Notes: The t-statistic is reported in parentheses (2-tailed test).

* $p < .05$; ** $p < .01$; *** $p < .001$.

Female model $\chi^2(164) = 116.60$; $p = .989$.

Figure 5: Structural Equation Model of Biological and Environmental Effects on Juvenile and Adult Crime, Males Only

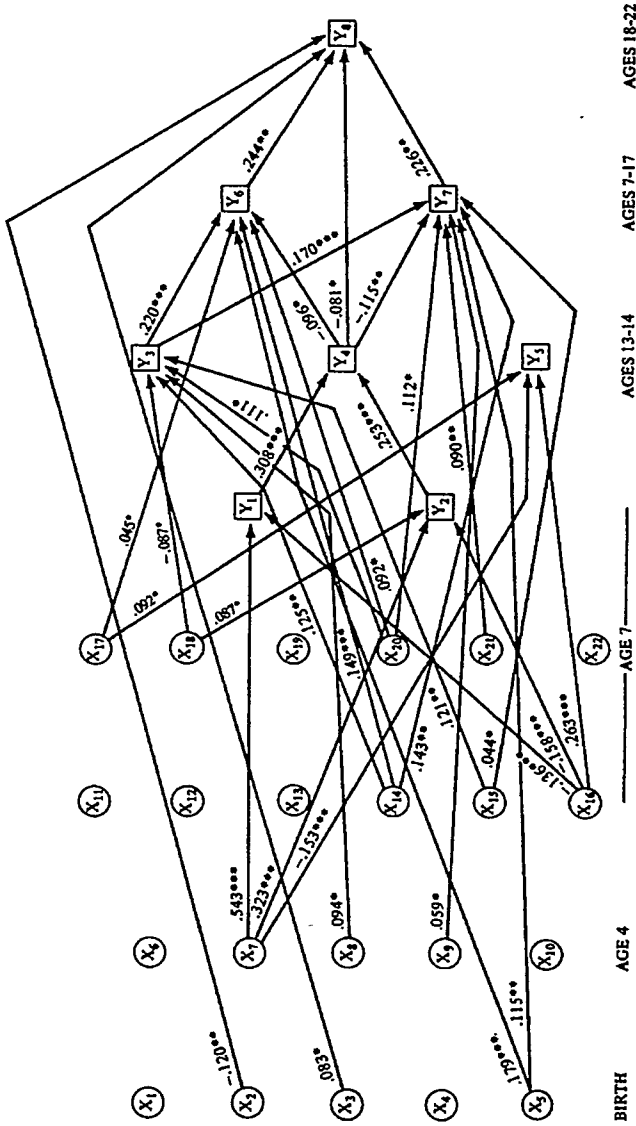


Figure 6: Structural Equation Model of Biological and Environmental Effects on Juvenile and Adult Crime, Females Only

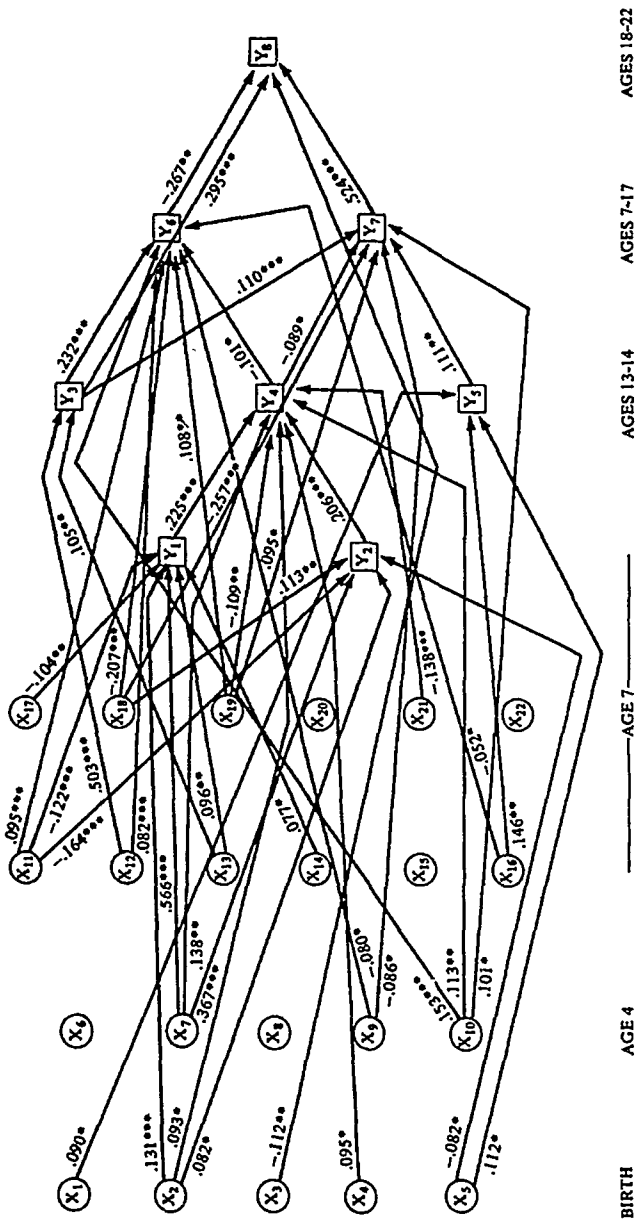


Table 4

GENDER DIFFERENCES IN PREDICTORS OF JUVENILE AND ADULT CRIME

(STATISTICALLY SIGNIFICANT PREDICTORS ONLY FROM TABLES 2 AND 3, IN DECREASING ORDER OF SIGNIFICANCE)

FACTORS PREDICTING NUMBER OF ADULT OFFENSES - MALES

- Y₆ Number of juvenile offenses**
- X₂ Mother's low education**
- Y₇ Seriousness of juvenile offenses**
- X₃ Father's high education*
- Y₄ Low language achievement*

FACTORS PREDICTING NUMBER OF ADULT OFFENSES - FEMALES

- Y₇ Seriousness of juvenile offenses***
- Y₃ Disciplinary problem***
- Y₆ Low number of juvenile offenses**
- X₃ Father's low education**

FACTORS PREDICTING NUMBER OF JUVENILE OFFENSES - MALES

- Y₃ Disciplinary problem***
- X₅ Time father unemployed***
- X₁₄ Lead intoxication***
- Y₄ Low language achievement*
- X₂₀ Household moves*
- X₁₇ Abnormal speech*

FACTORS PREDICTING NUMBER OF JUVENILE OFFENSES - FEMALES

- Y₃ Disciplinary problem***
- X₁₈ Lack of foster parents***
- X₁₂ Abnormal movements***
- X₁₁ Neurological abnormalities***
- X₁₀ Left foot preference***
- X₁₉ Father absence**
- Y₄ Low language achievement*
- X₁₆ Normal intellectual status*
- X₉ Right eye preference*

FACTORS PREDICTING DISCIPLINARY PROBLEM - MALES

- X₁₄ Lead intoxication**
- X₁₅ Anemia**
- X₂₀ Household moves*
- X₈ Left hand preference*
- X₁₈ Lack of foster parents*

FACTORS PREDICTING DISCIPLINARY PROBLEM - FEMALES

- X₁₂ Abnormal movements***
- X₁₃ Abnormal vision**

FACTORS PREDICTING LANGUAGE ACHIEVEMENT - MALES

- Y₁ WISC Verbal IQ***
- Y₂ WISC Performance IQ***

FACTORS PREDICTING LANGUAGE ACHIEVEMENT - FEMALES

- Y₂ WISC Performance IQ***
- Y₁ WISC Verbal IQ***
- X₂₁ Lesser number of persons supported***
- X₁₀ Left foot preference**
- X₇ Stanford-Binet**
- X₁₉ Father presence**
- X₄ Family income*
- X₂ Mother's education*

TABLE 5: REDUCED FORM EQUATIONS FOR ACHIEVEMENT AND JUVENILE AND ADULT CRIME, MALES ONLY

Independent Variables	Ages	Dependent Variables			
		Language achievement, ages 13-14 (Y_1)	Number of juvenile offenses, ages 7-17 (Y_2)	Seriousness of juvenile offenses, ages 7-17 (Y_3)	Number of adult offenses, ages 18-22 (Y_4)
X_1 Pregnancy and delivery conditions	Birth	-	-	-	-
X_2 Mother's education	Birth	-	-	-	-.120
X_3 Father's education	Birth	-	-	-	.063
X_4 Family income	Birth	-	-	-	-
X_5 Time father unemployed	Birth	-	.179	.115	.070
X_6 Hand preference	1	-	-	-	-
X_7 Stanford-Binet	4	.249	-.024	-.029	-.033
X_8 Hand preference	4	-	.021	.016	.009
X_9 Eye preference	4	-	-	.060	.013
X_{10} Foot preference	4	-	-	-	-
X_{11} Neurological abnormalities	7	-	-	-	-
X_{12} Abnormal movements	7	-	-	-	-
X_{13} Abnormal vision	7	-	-	-	-
X_{14} Lead intoxication	7	-	-	-	-
X_{15} Anemia	7	-	.177	.165	.080
X_{16} Intellectual status	7	-.082	.027	.065	.021
X_{17} Speech	7	-	.008	.009	.011
X_{18} Foster parents	7	.022	-.045	-	.011
X_{19} Father absence	7	-	-.021	-.017	-.011
X_{20} Household moves	Birth-7	-	-	-	-
X_{21} Persons supported	Birth-7	-	.116	.131	.058
X_{22} Family income	7	-	.078	.091	.039
Sample size = 487					

TABLE 6: REDUCED FORM EQUATIONS FOR ACHIEVEMENT AND JUVENILE AND ADULT CRIME, FEMALES ONLY

Independent Variables	Ages	Dependent Variables			
		Language achievement, ages 13-14 (Y_1)	Number of juvenile offenses, ages 7-17 (Y_2)	Seriousness of juvenile offenses, ages 7-17 (Y_3)	Number of adult offenses, ages 18-22 (Y_4)
X_1 Pregnancy and delivery conditions	Birth	-	-	.010	.004
X_2 Mother's education	Birth	.140	-.014	-.012	-.003
X_3 Father's education	Birth	-	-	-	-.112
X_4 Family income	Birth	.095	-.010	-.008	-.002
X_5 Time father unemployed	Birth	-.017	.009	.014	.005
X_6 Hand preference	1	-	-	-	-
X_7 Stanford-Binet	4	.340	-.034	-.030	-.007
X_8 Hand preference	4	-	-	-	-
X_9 Eye preference	4	-	-.080	-.086	-.024
X_{10} Foot preference	4	.113	.142	.091	.010
X_{11} Neurological abnormalities	7	-.061	.101	.005	-.089
X_{12} Abnormal movements	7	-	.199	.056	.039
X_{13} Abnormal vision	7	.022	.022	.010	.030
X_{14} Lead intoxication	7	.017	-.002	-.002	-
X_{15} Anemia	7	-	-	-	-
X_{16} Intellectual status	7	-	-.042	-.016	.020
X_{17} Speech	7	-.023	.002	.002	-
X_{18} Foster parents	7	.023	-.210	-.289	-.080
X_{19} Father absence	7	-.110	.119	.105	.023
X_{20} Household moves	Birth-7	-	-	-	-
X_{21} Persons supported	Birth-7	-.138	-.014	.012	.003
X_{22} Family income	7	-	-	-	-
Sample size = 500					