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THE EFFECT OF DEFENDANT GENDER ON JURORS' DECISION-MAKING

Yu Du*

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I. INTRODUCTION

Gender matters.¹ It is a basic social construction that categorizes people and influences their interactions.² Gender makes for a compelling topic: "[T]o focus on gender is to question everything."³ Historically and contemporarily, females are less likely to be perceived as offenders or be linked to the criminal justice system.⁴ However, between 1980 and 2020, the number of incarcerated females in the United States increased by more than 475%, with 38%

- 1. I acknowledge and respect the difference between sex (biological) and gender (socially constructed) as well as the possibilities that defendants may be perceived differently across different gender identities. To date, the bulk of research has examined the effect of defendant gender by varying the gender of the defendant to be cismale or cisfemale. Thus, throughout the literature review and my research, I use male to refer to cisgender male defendants and female to refer to cisgender female defendants. My experiment also measured participants' gender using options for multiple gender identities.
- Blake M. McKimmie & Barbara M. Masser, *The Effect of Gender in the Courtroom*, in FORENSIC PSYCHOLOGY: CONCEPTS, DEBATES AND PRACTICE 95, 95–96 (Joanna R. Adler & Jacqueline M. Gray eds., 2d ed. 2010); see Christian Breheney et al., *Gender Matters in the Insanity Defense*, 31 L. & PSYCH. REV. 93, 93–94 (2007).
- 3. Carrie Menkel-Meadow & Shari Seidman Diamond, *Introduction: The Content, Method, and Epistemology of Gender in Sociolegal Studies*, 25 L. & Soc'Y REV. 221, 221 (1991).
- 4. Ilene H. Nagel & Barry L. Johnson, *The Role of Gender in a Structured Sentencing System: Equal Treatment, Policy Choices, and the Sentencing of Female Offenders Under the United States Sentencing Guidelines*, 85 J. CRIM. L. & CRIMINOLOGY 181, 181 (1994).

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Dr. Du earned her Ph.D. in Criminology, Law and Society at the University of Florida in 2021, where her dissertation explored the main and interactional effect of neuroevidence on juror's perceptions and decision-making processes. Dorothy is an Alum of University of Pennsylvania, holding an M.S. in Criminology (2015) and Social, Cognitive, and Affective Neuroscience Certificate (2016). She also obtained her B.A. in Psychology and Sociology (2014) from the University of Texas at Austin. Prior to the current position, Dr. Du worked as a Visiting Assistant Professor (2020–2021) at Guilford College in North Carolina.

of female inmates being convicted of violent crimes.⁵ In fiscal year 2019, more than 9,300 of federal cases involved female offenders.⁶ By linking county-level data from the 2007 Census of Public Defender Offices to individualized level data from the 2006 and 2009 State Court Processing Statistics, Aaron Gottlieb and Kelsey Arnold calculated that more than sixteen percent of their sample—which consisted of more than 5,000 felony defendants in eleven large urban counties located in four states—was female.⁷ As more female defendants enter the criminal justice system, legal researchers have begun to examine with greater scrutiny the influence of the defendant's gender in legal contexts during the past decade, especially in courtroom settings.⁸

Investigating the role of a defendant's gender in jurors' decisionmaking is particularly important, but research results thus far have proven inconclusive.⁹ Numerous studies have illustrated a defendant's gender, independent of physical attractiveness, has a significant influence on jurors' evaluative judgments and decisions.¹⁰

THE SENT'G PROJECT, INCARCERATED WOMEN AND GIRLS 1 (2022), https://www.sentencingproject.org/publications/incarcerated-women-and-girls/ [https://perma.cc/SDL8-FSVF]; JENNIFER BRONSON & E. ANN CARSON, BUREAU OF JUST. STATS., NCJ 252156, PRISONERS IN 2017, at 21 (2019), https://bjs.ojp.gov/ content/pub/pdf/p17.pdf [https://perma.cc/CAD5-U2HR].

U.S. SENT'G COMM'N, QUICK FACTS: WOMEN IN THE FEDERAL OFFENDER POPULATION (2021), https://www.ussc.gov/sites/default/files/pdf/research-and-publications/quickfacts/Female Offenders FY20.pdf [https://perma.cc/W7F4-2SU7].

Aaron Gottlieb & Kelsey Arnold, The Effect of Public Defender and Support Staff Caseloads on Incarceration Outcomes for Felony Defendants, 12 J. SOC'Y FOR SOC. WORK & RES. 569, 569, 579 (2021).

^{8.} Breheney et al., *supra* note 2, at 94–95, 122. *See also* Christopher M. Bellas, *Female Offenders and Juries, in* THE ENCYCLOPEDIA OF WOMEN AND CRIME 274, 274–75 (Frances P. Bernat et al. eds., 2019).

^{9.} Breheney et al., *supra* note 2, at 93–94.

See Angela S. Ahola et al., Is Justice Really Blind? Effects of Crime Descriptions, Defendant Gender and Appearance, and Legal Practitioner Gender on Sentences and Defendant Evaluations in a Mock Trial, 17 PSYCHIATRY, PSYCH. & L. 304, 321 (2010) (addressing how defendant gender can prejudice the outcome of a criminal trial); L. ForsterLee et al., The Effects of a Victim Impact Statement and Gender on Juror Information Processing in a Criminal Trial: Does the Punishment Fit the Crime?, 39 AUSTRALIAN PSYCH. 57, 64 (2004) (noting how victim impact statements affected judgments relating to female offenders more than male offenders); Monica L. McCoy & Jennifer M. Gray, The Impact of Defendant Gender and Relationship to Victim on Juror Decisions in a Child Sexual Abuse Case, 37 J. APPLIED Soc. PSYCH. 1578, 1579 (2007) (noting how male defendants are seen as more guilty than their female counterparts in certain cases); Blake M. McKimmie et al., Stereotypical and Counterstereotypical Defendants: Who is He and What Was the Case Against Her?,

However, the direction of the effect is divergent.¹¹ Researchers have concluded, however, that gender—or, specifically, being a female defendant—can be a "double-edged sword" in criminal trials by either mitigating or aggravating effects depending on specific circumstances.¹²

This review addresses the effect of the defendant's gender on legal decision-making in courts in the following ways. Part II reviews research into the effect of a defendant's gender on jurors' perceptions and decision-making processes.¹³ In addition, this section briefly discusses three dominant theoretical explanations of the inconsistent effect of a defendant's gender on jurors' decisions and perceptions.¹⁴ Part III presents the results from my original experimental studies examining the main and interactional effect of a defendant's gender on jurors' verdicts, ratings on likelihood of guilt, and perceptions of a defendant.¹⁵ Finally, Part IV draws a general conclusion that female defendants do not receive leniency due to their gender as suggested by previous studies, however, a defendant's gender significantly impacts jurors' perceptions and decision-making processes, but the effect varies.¹⁶

11. Valerie Gray Hardcastle et al., *The Impact of Neuroscience Data in Criminal Cases: Female Defendants and the Double-Edged Sword*, 21 NEW CRIM. L. REV. 291, 292– 93 (2018).

- 13. See discussion infra Part II.
- 14. See discussion infra Section II.D.
- 15. See discussion infra Part III.
- 16. See discussion infra Part IV.

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¹⁹ PSYCH., PUB. POL'Y, & L. 343, 343, 351 (2013) (describing how a decision concerning a defendant's guilt can be influenced by gender, among other things); Joanna D. Pozzulo et al., *The Effects of Victim Gender, Defendant Gender, and Defendant Age on Juror Decision Making*, 37 CRIM. JUST. & BEHAV. 47, 48–49 (2010) (noting how juries may perceive male defendants differently than female defendants); Jodi A. Quas et al., *Effects of Victim, Defendant, and Juror Gender on Decisions in Child Sexual Assault Cases*, 32 J. APPLIED Soc. PSYCH. 1993, 2010 (2002) (addressing findings that jurors were generally more confident of a male defendant's guilt than a female defendant's guilt); Tanya Strub & Blake M. McKimmie, *Sugar and Spice and All Things Nice: The Role of Gender Stereotypes in Jurors' Perceptions of Criminal Defendants*, 23 PSYCHIATRY, PSYCH. & L. 487, 487 (2016) (indicating that the different perceptions that juries hold for males and females is a result of gender stereotypes).

^{12.} Breheney et al., supra note 2, at 102–03, 118; ForsterLee et al., supra note 10, at 64–65; see also Hardcastle et al., supra note 11, at 292–93 (articulating how juries can promote a defendant's blameworthiness while simultaneously mitigating findings); Lauren T. Meaux et al., Saving Damsels, Sentencing Deviants and Selective Chivalry Decisions: Juror Decision-Making in an Ambiguous Assault Case, 25 PSYCHIATRY, PSYCH. & L. 724, 732 (2018) (addressing leniency in the sentencing of female defendants).

II. THE EFFECT OF DEFENDANT GENDER ON JURORS' DECISIONS AND PERCEPTIONS

Female offenders are generally perceived as receiving preferential treatment to their male counterparts at each stage of the criminal justice system from arrest to sentencing.¹⁷ For example, prosecutors are less likely to file narcotics charges against female suspects.¹⁸ Judges are more likely to permit pretrial release for female offenders, regardless of the level of criminality associated with their charges.¹⁹ Jurors are relatively less confident in guilty verdicts for female defendants.²⁰ Women are also less likely to be incarcerated after trial and tend to receive sentences that are sixty-three percent shorter than those received by men.²¹ A large number of studies on jury verdicts have supported the presence of a gender bias favoring female defendants.²² Indeed, female defendants are twelve percent less likely to receive guilty verdicts than are male defendants.²³

^{17.} Darrell Steffensmeier et al., *Gender and Imprisonment Decisions*, 31 CRIMINOLOGY 411, 411–12 (1993).

^{18.} Cecilia Saulters-Tubbs, *Prosecutorial and Judicial Treatment of Female Offenders*, FED. PROB., June 1993, at 37, 41.

Candace Kruttschnitt & Donald E. Green, *The Sex-Sanctioning Issue: Is it History?*, 49 AM. SOCIO. REV. 541, 546–47 (1984).

^{20.} McCoy & Gray, supra note 10, at 1584, 1588.

^{21.} Cassia Spohn & Dawn Beichner, Is Preferential Treatment of Female Offenders a Thing of the Past? A Multisite Study of Gender, Race, and Imprisonment, 11 CRIM. JUST. POL'Y REV. 149, 164 (2000); Sonja B. Starr, Estimating Gender Disparities in Federal Criminal Cases, 17 AM. L. & ECON. REV. 127, 127, 154 (2015); Darrell Steffensmeier et al., The Interaction of Race, Gender, and Age in Criminal Sentencing: The Punishment Cost of Being Young, Black, and Male, 36 CRIMINOLOGY 763, 765 (1998).

^{22.} See Ahola et al., supra note 10, at 319 (addressing the presence of gender bias in sentencing); McCoy & Gray, supra note 10, at 1579–80 (noting the manifestations of leniency for female defendants in cases involving child sexual abuse allegations); McKimmie et al., supra note 10, at 343 (noting how male defendants are often judged more harshly than female defendants); Pozzulo et al., supra note 10, at 48–49 (noting the influence of gender in jurors' perceptions); Quas et al., supra note 10, at 1996 (discussing how biases are exaggerated when an allegation involves a woman defendant and boy victim, relative to other gender combinations of defendants and victims); Strub & McKimmie, supra note 10, at 488 (highlighting the perception that males possess traits commonly associated with criminal stereotypes); see also Simon B. Thompson et al., Are Mock Jurors Influenced by the Defendants' Gender, Socio-Economic Status, and Emotion State in Forensic Medicine?, WEBMEDCENTRAL, Feb. 27, 2011, at 1, 7, WMC001632 (noting the lenience that female defendants).

^{23.} McCoy & Gray, *supra* note 10, at 1587.

On the other hand, certain empirical studies have shown that female defendants are treated worse and perceived with more negativity by jurors under certain conditions—such as with the presence of a mental illness diagnosis, neurobiological evidence, and masculine physical characteristics or behaviors.²⁴ More recent research indicates no gender effect on jurors' verdict decisions or sentence recommendations.²⁵ In sum, previous empirical research has failed to find a consistent and robust effect of a defendant's gender on jurors' decision-making across different legal contexts.

The effect of a defendant's gender on juror decision-making becomes increasingly uncertain when researchers include different manipulations or control variables.²⁶ More than twenty-five years ago, Ronald Mazzella and Alan Feingold's meta-analysis indicated that mock jurors treated male defendants more harshly, perceived them more often as guilty, and viewed them more negatively than female defendants.²⁷ Although the effect size was small, Mazella and Feingold suggested that the statistically significant result might be due to the overrepresentation of male offenders in the criminal justice system.²⁸

Conversely, Dennis J. Devine and David E. Caughlin's more recent meta-analysis of 272 published and unpublished studies found an opposite and weaker effect size than did Mazzella and Feingold did

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^{24.} Breheney et al., *supra* note 2, at 96, 98–100; Hardcastle et al., *supra* note 11, at 292; Strub & McKimmie, *supra* note 10, at 495.

See Julie Blais & Adelle E. Forth, Potential Labeling Effects: Influence of Psychopathy Diagnosis, Defendant Age, and Defendant Gender on Mock Jurors' Decisions, 20 PSYCH., CRIME & L. 116, 129 (2014) (describing a study in which defendant age and gender played no significant rule in outcome variables); Annik Mossière & J. Thomas Dalby, The Influence of Gender and Age in Mock Juror Decision-Making, EUR.'S J. PSYCH. (Nov. 30, 2008), https://doi.org/ 10.5964/ejop.v4i4.440 [https://perma.cc/V5K2-CBAX] (noting how research revealed no significant gender effects); Susan Yamamoto et al., The Influence of Defendant Body Size and Defendant Gender on Mock Juror Decision-Making, COGENT PSYCH., Oct. 4, 2019, at 1, 3, https://doi.org/10.1080/23311908.2019.1674091 [https://perma.cc/RGZ6-9VDB] (noting inconclusive findings regarding the effect of gender on juror decision-making).

^{26.} See Ronald Mazzella & Alan Feingold, *The Effects of Physical Attractiveness, Race, Socioeconomic Status, and Gender of Defendants and Victims on Judgments of Mock Jurors: A Meta-Analysis,* 24 J. APPLIED SOC. PSYCH. 1315, 1316 (1994) (establishing that various other factors can aggravate the disparities that already exist in jury decision-making between male and female defendants).

^{27.} Id. at 1327.

^{28.} Id. at 1316.

in their research.²⁹ Their research revealed an overall slight bias against female defendants.³⁰ This small difference might be explained by the inclusion of new research conducted after 1994.³¹ Noticeably, the relationship between the defendant's gender and jurors' judgments was moderated by sample type: community mock jurors were more likely to give guilty verdicts to female defendants than to male defendants, whereas student participants exhibited the opposite pattern.³² However, different sample types do not fully explain the variability of the gender bias in jurors' decisions.³³ Basically, the effect of being a female defendant on jurors' legal decisions and perceptions does exist but such effect, as well as the direction of the effect, does not apply across all circumstances.³⁴

A. Jurors' Decisions in Insanity Defense Cases

Juror research on the influence of defendant gender in the context of insanity defense is limited.³⁵ Analyzing forty-seven fatal and nonfatal attempted child-killing cases, Wilczynski pointed out a significant gender difference in legal processes and outcomes.³⁶ Female defendants were more likely than male defendants to use insanity pleas, receive non-custodial sentences, and be granted psychiatric probations.³⁷ Similar to the conclusion from an assessment of actual infanticide cases, jurors believed female offenders were less responsible for their behaviors due to signs of insanity.³⁸ Women were almost three times more likely to receive not guilty by reason of insanity (NGRI) verdicts in murder cases relative to similarly situated men.³⁹ Therefore, female defendants were more likely to declare and succeed in an insanity defense.⁴⁰

34. *Id.*

^{29.} Dennis J. Devine & David E. Caughlin, *Do They Matter? A Meta-Analytic Investigation of Individual Characteristics and Guilt Judgments*, 20 PSYCH., PUB. POL'Y, & L. 109, 109, 120 (2014).

^{30.} *Id.*

^{31.} *Id.*

^{32.} *Id.* at 116.

^{33.} *Id*.

³⁵ Ania Wilczynski, *Mad or Bad?: Child-Killers, Gender and the Courts*, 37 BRIT. J. CRIMINOLOGY 419, 427 (1997).

^{36.} *Id.* at 421.

^{37.} *Id.* at 422.

^{38.} Id. at 424.

^{39.} Breheney et al., *supra* note 2, at 105.

^{40.} See generally Jenny Yourstone, Violent Female Offenders: Facts and Preconceptions (Apr. 30, 2008) (Doctoral Thesis, Stockholm University) (on file with *Psykologiska*

Jurors appear to disproportionately render NGRI verdicts to female defendants over male defendants when they are charged with the same crime.⁴¹ A comparison between female and male defendants who succeeded in their use of an insanity defense in Oregon showed that twenty-nine percent of females charged with homicide obtained NGRI verdicts, as opposed to only nine percent of their male counterparts.⁴² Similar gender patterns in the NGRI defense were also evident in New York,43 Hawaii,44 and Connecticut.45 Furthermore, more female offenders received NGRI verdicts in manslaughter cases than male offenders.⁴⁶ In an attempt to clarify the relationship between gender and the success of an insanity plea, McGlynn and colleagues analyzed jurors' decisions in NGRI cases across two races and two genders using a hypothetical murder trial.⁴⁷ The defendant's gender exerted a significant impact on jurors' verdicts and sentence recommendations, with male defendants receiving harsher treatment and longer sentences.⁴⁸ In addition, female offenders of a violent crime were more likely to be medicalized than their male counterparts in insanity defense cases.⁴⁹ As Carlen argued, "[W]omen are more likely to be 'mad than bad' . . . in criminology." 50

A recent study also conducted a mock jury trial to explore how the defendant's gender influenced jurors' decisions in insanity defense cases by manipulating the type and the status of mental illness diagnoses with the defendant's gender.⁵¹ The defendant's gender was strongly associated with NGRI verdicts but trended in the opposite direction of previous research.⁵² Contrary to the results found by

51. Breheney et al., *supra* note 2, at 110.

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Institutionen) (examining multiple studies supporting the conclusion that women were more likely to declare and succeed in an insanity defense).

^{41.} Breheney et al., *supra* note 2, at 105.

^{42.} Jeffrey L. Rogers et al., *Women in Oregon's Insanity Defense System*, 11 J. PSYCHIATRY & L. 515, 522 (1983).

^{43.} Id. at 517.

^{44.} Howard V. Zonana et al., Part II: Sex Differences in Persons Found Not Guilty by Reason of Insanity: Analysis of Data from the Connecticut NGRI Registry, 18 J. AM. ACAD. PSYCHIATRY & L. 129, 130 (1990).

^{45.} *Id.* at 138.

^{46.} Id. at 137.

^{47.} Richard P. McGlynn et al., Sex and Race as Factors Affecting the Attribution of Insanity in a Murder Trial, 93 J. PSYCH. 93, 95 (1976).

^{48.} *Id.* at 98.

^{49.} *Id.* at 97.

^{50.} PAT CARLEN, WOMEN'S IMPRISONMENT: A STUDY IN SOCIAL CONTROL 64 (2021).

^{52.} Id. at 112.

McGlynn and colleagues in 1976,⁵³ mock jurors rendered more guilty verdicts to female than male defendants.⁵⁴ Jurors were also more likely to rate female defendants as more legally responsible and perceived their crimes as more premeditated.⁵⁵ However, no interactional effect between the defendant's gender and mental illness diagnoses was reported in this study.⁵⁶

Aiming to disentangle prior inconsistent findings, Mossiere and Maeder specifically examined whether the defendant's gender interacted with four different types of mental illness to affect mock jurors' evaluations of trial information and NGRI decisions.⁵⁷ Unexpectedly, the defendant's gender did not significantly influence jurors' NGRI verdicts.⁵⁸ Male defendants were not treated more harshly, nor did they receive more guilty verdicts.⁵⁹ However, the defendant's gender influenced mock jurors' perceptions of internal attributes and the perceived stability of criminal behaviors.⁶⁰ Although jurors attributed more internal or biological factors, rather than social or environmental ones, to a female defendant's wrongdoing,⁶¹ they also considered a female defendant less stable.⁶² Similarly, Meaux and colleagues found that mock jurors perceived female defendants as more psychopathic as compared to their male counterparts.⁶³

In sum, these experimental studies have suggested that the defendant's gender significantly effects juror decision-making in insanity-defense cases.⁶⁴ However, with inconsistent patterns and the lack of literature on the topic,⁶⁵ it is impossible to draw definitive conclusions. These preconceived notions on female innocence and propensity for insanity are far from definite. More extensive research is necessary to disentangle this gender biasing effect.

^{53.} McGlynn et al., *supra* note 47, at 97.

^{54.} Breheney et al., *supra* note 2, at 112.

^{55.} Id.

^{56.} Id.

^{57.} Annik Mossière & Evelyn M. Maeder, Juror Decision Making in Not Criminally Responsible on Account of Mental Disorder Trials: Effects of Defendant Gender and Mental Illness Type, 49 INT'L J.L. & PSYCHIATRY 47, 50 (2016).

^{58.} *Id.* at 53.

^{59.} *Id.* at 49, 52.

^{60.} Id. at 52.

^{61.} *Id.*

^{62.} Id. at 51.

^{63.} Meaux et al., *supra* note 12, at 732.

^{64.} *See supra* notes 41–50 and accompanying text.

^{65.} See supra notes 35, 53–59 and accompanying text.

B. Jurors' Decisions in Death Penalty and Life Without Parole (*LWOP*) Cases

Death penalty sentences are rare for both male and female offenders.⁶⁶ Despite that females account for ten percent of murder arrests annually,⁶⁷ only two percent of female defendants received a death sentence at the trial level and only 0.9% of females facing the death penalty were executed from 1973 through 2012.⁶⁸ Twelve states have never executed any female offenders in their entire histories.⁶⁹ Although the use of the death penalty is infrequent and inconsistent for female defendants, a few new female inmates are sentenced to death row each year.⁷⁰ It is widely viewed in our society that female defendants seem to be treated differently from male defendants in jurors' death penalty decisions.⁷¹ However, few studies have empirically examined this gender effect using a mock jury trial, and this is most likely due to its limitation on ecological validity.⁷² Most researchers used archival data on death penalty trials from various jurisdictions to explore the relationship between the defendant's gender and jurors' sentence recommendations.⁷³

An early study analyzed capital cases in Florida, finding that jurors were less likely to recommend the death penalty for female defendants than for male defendants.⁷⁴ Foley and Powell cautioned that capital defendants received differential treatments at several decision-making stages of the legal system because of their gender.⁷⁵ Similarly, Williams and Holcomb merged data ranging from FBI records to death penalty information from the Office of the Ohio Public Defender between 1981 and 1994 to estimate the probability that a specific homicide could lead to a jury recommendation of

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- 70. *Id.* at 622; *see also* Rapaport, *supra* note 66.
- 71. Streib, *supra* note 69, at 612.
- 72. See infra notes 74–88 and accompanying text.
- 73. See infra notes 74–88 and accompanying text.
- 74. Linda A. Foley & Richard S. Powell, *The Discretion of Prosecutors, Judges, and Juries in Capital Cases*, 7 CRIM. JUST. REV. 16, 21 (1982).
- 75. Id.

^{66.} Elizabeth Rapaport, *The Death Penalty and Gender Discrimination*, 25 L. & Soc'Y REV. 367, 374 (1991).

^{67.} VICTOR L. STREIB, DEATH PENALTY FOR FEMALE OFFENDERS, JANUARY 1, 1973, THROUGH DECEMBER 31, 2012, at 3 (2013), https://files.deathpenaltyinfo.org/legacy/documents/FemDeathDec2012.pdf [https://perma.cc/SK5W-6CJG].

^{68.} Id.

^{69.} Victor L. Streib, *Rare and Inconsistent: The Death Penalty for Women*, 33 FORDHAM URB. L.J. 609, 621 (2006).

death.⁷⁶ Controlling for the victim's demographics, the offender's race, and other relevant confounding variables, male offenders were 2.6 times more likely to receive death sentence recommendations than female offenders.⁷⁷ A similar gender effect was replicated after the interaction between the victim's race and gender was taken into account.⁷⁸

In addition, by examining data from the North Carolina Capital Sentencing Project during the period between 1977 and 2009, Gillespie and colleagues found a more than 200% increase in the odds of the jury recommending a death sentence instead of LWOP in cases involving a male defendant compared to cases with a female defendant.⁷⁹ Conversely, using the same dataset from North Carolina capital trials between 1979 and 2002, Stauffer and colleagues failed to discover this gender effect.⁸⁰ They extended Williams and Holcomb's 2004 study by adding more variables, such as the presence of a public attorney, prior criminal record, and the victim's illegal activities.⁸¹ Despite the fact that capital cases involving male defendants increased the probability of a jury's recommendation of the death penalty, the defendant's gender difference was not statistically significant.⁸²

Furthermore, two similar publications using propensity score matching (PSM) analysis⁸³ demonstrated that before PSM, female defendants charged with first-degree murders were significantly less likely to receive death sentence recommendations from jurors than

^{76.} Marian R. Williams & Jefferson E. Holcomb, *Racial Disparity and Death Sentences in Ohio*, 29 J. CRIM. JUST. 207, 207, 211–12 (2001).

^{77.} *Id.* at 215.

^{78.} Marian R. Williams & Jefferson E. Holcomb, *The Interactive Effects of Victim Race and Gender on Death Sentence Disparity Findings*, 8 HOMICIDE STUD. 350, 350 (2004).

^{79.} Lane Kirkland Gillespie et al., *Exploring the Role of Victim Sex, Victim Conduct, and Victim–Defendant Relationship in Capital Punishment Sentencing*, 18 HOMICIDE STUD. 175, 181, 186 (2014).

^{80.} Amy R. Stauffer et al., *The Interaction Between Victim Race and Gender on Sentencing Outcomes in Capital Murder Trials*, 10 HOMICIDE STUD. 98, 102, 112 (2006).

^{81.} Id. at 101, 104.

^{82.} *Id.* at 109.

^{83.} PSM analysis is a quasi-experimental technique to construct an artificial control group by matching important similar characteristics between the treatment group and the non-treated group in order to make causal inferences. *See generally* Yongnam Kim & Peter Steiner, *Quasi-Experimental Designs for Causal Inference*, 51 EDUC. PSYCH. 395, 399–400 (2016) (discussing matching and propensity score design analyses).

their male counterparts.⁸⁴ However, once cases were matched on potential covariates, the gender difference disappeared, with the odds of a jury recommending the death penalty for a female versus a male defendant reducing to almost zero.⁸⁵ This may be due to the fact that female-defendant cases tended to involve significantly fewer aggravators and more mitigating factors than male defendant cases.⁸⁶ Previous studies have suggested that the gender effect fades once researchers account for numerous confounding variables, as well as case characteristics.⁸⁷ Summarily, the defendant's gender does not seem to play a crucial role in jurors' decision-making processes for capital cases.⁸⁸

C. Jurors' Decisions Across Different Types of Crimes

1. In Sexual Crimes

Most mock juror experiments have used a child or an adult sexual assault scenario to assess the role of the defendant's gender in jurors' verdicts, recommendations on sentence lengths, and perceptions of the defendant.⁸⁹ The effect of the defendant's gender has been significant and relatively consistent.⁹⁰ In a child sexual assault scenario, female defendants were treated more leniently, especially when the jurors and the victims were males.⁹¹ Additionally, mock jurors were more confident in their guilty verdicts for male defendants than for female defendants.⁹² This further provided

Wesley G. Jennings et al., A Propensity Score Matching Analysis of the Relationship Between Victim Sex and Capital Juror Decision-Making in North Carolina, 52 Soc. SCI. RSCH. 47, 52 (2015); Tara N. Richards et al., An Examination of Defendant Sex Disparity in Capital Sentencing: A Propensity Score Matching Approach, 39 AM. J. CRIM. JUST. 681, 691 (2014).

^{85.} Jennings et al., *supra* note 84, at 52; Richards et al., *supra* note 84, at 692.

^{86.} Richards et al., supra note 84, at 694.

^{87.} Bellas, supra note 8, at 274–75; see also Elizabeth A. Tomsich et al., A Review of Sex Disparities in the "Key Players" of the Capital Punishment Process: From Defendants to Jurors, 39 AM. J. CRIM. JUST. 732, 737–44 (2014).

^{88.} See Bellas, supra note 8; see also Tomsich et al., supra note 87, at 737, 744.

See generally Ahola et al., supra note 10, at 305; McCoy & Gray, supra note 10, at 1578; Pozzulo et al., supra note 10, at 47; Quas et al., supra note 10, at 1993; Georgia M. Winters, The Impact of Defendant Gender and Attractiveness on Juror Decision-Making in a Sexual Offense Case 1, 16–17, 46 (2018) (Ph.D. dissertation, The City University of New York) (ProQuest).

^{90.} See generally Ahola et al., supra note 10, at 305; McCoy & Gray, supra note 10, at 1578; Pozzulo et al., supra note 10, at 47; Quas et al., supra note 10, at 1993; Winters, supra note 89, at 16–17, 46.

^{91.} Quas et al., *supra* note 10, at 2010.

^{92.} Id.

support for previous studies, suggesting that jurors perceived female defendants as more believable than their male counterparts.⁹³

Likewise, Pozzulo and colleagues manipulated the victim's gender, the defendant's gender, and the defendant's age in a teacher/student sexual assault case.⁹⁴ They found that jurors rated female defendants as less guilty than male defendants.⁹⁵ However, the defendant's gender was the only variable that showed a significant main effect in this study.⁹⁶ There were no significant main effects of the victim's gender or the defendant's age, and "no significant two- or three-way interactions."⁹⁷ Moreover, Ahola and colleagues conducted a series of experiments using three different crime scenarios (i.e., child molestation, child abuse, and homicide), finding a similarly lenient effect on female defendants.⁹⁸ The authors did not examine the effect of the victim's gender or its interaction with the defendant's gender on jurors' and legal practitioners' decisions and perceptions.⁹⁹ Nonetheless, across a variety of crimes, mock jurors systematically recommended shorter sentences for female defendants than for male defendants.¹⁰⁰

Conversely, using a representative and jury-eligible community sample, one recent study challenged previous findings in the teacherstudent sexual assault scenario but was consistent with the results found by Quas and colleagues in 2002.¹⁰¹ Although a biasing effect favoring female defendants existed in jurors' judgments of the defendant's likelihood of guilt,¹⁰² this effect did not translate into significant differences in jurors' final guilty verdicts between male

^{93.} See McCoy & Gray, supra note 10, at 1578.

^{94.} See Pozzulo et al., supra note 10, at 47.

^{95.} See id. at 54.

^{96.} See id.

^{97.} Id.

^{98.} See Ahola et al., supra note 10, at 304 (explaining that Experiment 1 was with all male defendants, so the finding of a similar leniency on female defendants only applies to Experiment 2). However, the victim described in the child molestation case was the defendant's twelve-year-old daughter, and the victim in the child abuse case was the defendant's five-year-old son. *Id.* at 308, 313.

^{99.} See generally id. at 305 (listing the main objectives of the experiments which exclude victim's gender and/or its interaction with defendants' gender or jurors'/legal practitioners' decisions and perceptions).

^{100.} See id. at 316.

^{101.} See Winters, supra note 89, at 16-17, 46.

^{102.} See id. at 31.

and female defendants.¹⁰³ Nor did the defendant's gender have a significant influence on jurors' sentencing recommendations.¹⁰⁴

2. In Violent Crimes

When the hypothetical crime is not sexually motivated or related, results regarding the effect of the defendant's gender are more inconsistent and less conclusive.¹⁰⁵ A number of studies concerning murder and aggravated robbery support a finding of leniency towards female defendants.¹⁰⁶ McKimmie and colleagues delivered a twenty-page written transcript of an invader-murder-by-homeowner case to explore the effect of the defendant's gender on verdicts and videotaped the jury deliberation processes.¹⁰⁷ Female defendants were found guilty less often and received more lenient judgments than male defendants.¹⁰⁸ A further analysis of the juries' group discussions revealed that juries' final verdicts were predicted by a discussion of the defendant's gender when the defendant was female,¹⁰⁹ whereas verdicts were predicted by a discussion of the offense for a male defendant.¹¹⁰

A later study by McKimmie and colleagues in 2013 partially replicated their previous research in 2006¹¹¹ by using an aggravated robbery vignette and manipulating the case strength.¹¹² Simple effect analyses found a significant interaction effect between the defendant's gender and case strength.¹¹³ Male defendants were "more likely to be guilty in the strong-case condition than in the weak-case condition,"¹¹⁴ whereas such difference was insignificant for female defendants.¹¹⁵ Although case strength did not impact mock jurors' ratings of guilt likelihood for female defendants, male defendants were perceived as more guilty than females in the strong case situation.¹¹⁶ Female defendants were also less likely to be convicted

106. See, e.g., McKimmie & Masser, supra note 2, at 100.

114. Id.

116. See id.

^{103.} See id. at 33.

^{104.} See id. at 49.

^{105.} See, e.g., McKimmie et al., supra note 10, at 347, 351.

^{107.} Id. at 100-01.

^{108.} *Id.* at 101.

^{109.} *Id.*

^{110.} *Id*.

^{111.} See id. at 100–01; McKimmie et al., supra note 10, at 345–46.

^{112.} See McKimmie et al., supra note 10, at 345.

^{113.} See id. at 346.

^{115.} Id.

than male defendants in a hypothetical child murder case,¹¹⁷ as well as in a spousal murder case.¹¹⁸

However, not all experimental studies show the same leniency effect toward female defendants.¹¹⁹ Blais and Forth demonstrated that the defendant's gender did not influence jurors' verdicts in an aggravated assault case.¹²⁰ The gender difference in jurors' perceived amenability to treatment and likelihood of reoffending for psychopathic defendants was also absent.¹²¹ Meaux and colleagues further argued that the defendant's gender was highly unlikely to have a reliable impact on jurors' decision-making in non-sexual crimes due to the lower rate of publications on null findings.¹²²

3. In Non-Violent Crimes

Although the leniency effect for female defendants has been demonstrated in sexually motivated crimes and varied across non-sexual violent crimes,¹²³ this pattern does not emerge for non-sexual non-violent crimes based on limited research.¹²⁴ Maeder and colleagues manipulated the defendant's gender and the type of alleged crimes (i.e., auto theft and shoplifting), as well as the juror's gender, to examine the role of the defendant's gender on jurors' judgments and decisions.¹²⁵ In the end, the defendant's gender did not independently influence nor interact with other variables to influence jurors' verdicts or perceptions of the defendant.¹²⁶ Another study also supported Maeder and colleagues' findings by showing that the defendant's gender did not affect jurors' decisions in a shoplifting situation.¹²⁷

^{117.} See id. at 348–49.

^{118.} See Strub & McKimmie, supra note 10, at 493.

^{119.} *See generally* Blais & Forth, *supra* note 25, at 116 ("There were no significant main effects or interactions concerning the gender variables.").

^{120.} See id.

^{121.} See id.

^{122.} Meaux et al., *supra* note 12, at 725.

^{123.} See discussion supra Sections II.C.1–2.

^{124.} See infra text accompanying notes 125–27.

See Evelyn M. Maeder et al., A Test of Gender–Crime Congruency on Mock Juror Decision-Making, COGENT PSYCH., Apr. 19, 2018, at 1, 7, https://doi.org/10.1080/ 23311908.2018.1461543 [https://perma.cc/F8XF-A5S7].

^{126.} Id.

^{127.} Yamamoto et al., supra note 25, at 1.

D. Theoretical Explanations for Inconsistent Effects

Empirical studies have continued to show divergent effects of the defendant's gender on jurors' perceptions and decision-making across different conditions.¹²⁸ As a result, scholars have suggested at least three theoretical explanations for the inconsistency relating to the effect of the defendant's gender: paternalism,¹²⁹ double deviance,¹³⁰ and gender-crime congruency.¹³¹

1. Paternalism

One popular explanation for the female leniency effect refers to judicial or protective paternalism or chivalry.¹³² One side of the paternalism assumes that females are weaker, more passive, less dangerous, less responsible for their wrongdoings, and more amenable to treatment than their male counterparts.¹³³ Women are stereotyped as vulnerable, fragile, and needing patriarchal protection.¹³⁴ Therefore, women tend to be criminalized with reluctance because they are likely to be perceived as in need of guidance and correction, similar to a parenting relationship.¹³⁵ As a result, women are perceived as deserving leniency imposed by key legal actors (i.e., prosecutors, judges, and jurors) in the criminal justice system across all stages of the legal processing.¹³⁶

The other side of the paternalism views females as warm, caring, and primary caregivers.¹³⁷ They are seen as less dangerous and having more social importance than males.¹³⁸ As such, judges and juries treat them preferentially.¹³⁹ Research has revealed that female

^{128.} See discussion supra Sections II.A-C.

^{129.} See discussion infra Section II.D.1.

^{130.} See discussion infra Section II.D.2.

^{131.} See discussion infra Section II.D.3.

^{132.} See Nagel & Johnson, supra note 4, at 188; Steffensmeier et al., supra note 17, at 446.

^{133.} See Nagel & Johnson, supra note 4, at 188; see also Cortney A. Franklin & Noelle E. Fearn, Gender, Race, and Formal Court Decision-Making Outcomes: Chivalry/Paternalism, Conflict Theory or Gender Conflict?, 36 J. CRIM. JUST. 279, 281 (2008).

^{134.} See Bellas, supra note 8, at 275; see also S. Fernando Rodriguez et al., Gender Differences in Criminal Sentencing: Do Effects Vary Across Violent, Property, and Drug Offenses?, 87 Soc. Sci. Q. 318, 320–21 (2006).

^{135.} See Nagel & Johnson, supra note 4, at 189.

^{136.} See Bellas, supra note 8, at 275; Franklin & Fearn, supra note 133, at 281.

^{137.} See Alice H. Eagly & Valerie J. Steffen, Gender and Aggressive Behavior: A Meta-Analytic Review of the Social Psychological Literature, 100 PSYCH. BULL. 309, 311 (1986); Steffensmeier et al., supra note 17, at 434.

^{138.} See Steffensmeier et al., supra note 17, at 412.

^{139.} Id. at 439.

defendants receive more leniency if perceived as kind and loving.¹⁴⁰ Both laypersons and professionals tend to think that women are simply not bad nor capable of committing crimes.¹⁴¹

2. Double Deviance

One contrary perspective explaining the female penalty effect is that women are seen as doubly deviant, or the "evil woman" thesis.¹⁴² In our society, women are generally held to higher behavioral standards and expectations than men.¹⁴³ Female offenders are therefore punished for both violating the basic social norms and deviating from their gender-stereotypical expectations.¹⁴⁴ The violation of these two stereotypes is called double deviance.¹⁴⁵ Similarly, the evil woman thesis further hypothesizes that women who exhibit any deviant behaviors that are counter to appropriate or stereotypical gender roles tend to be treated more harshly than their male counterparts, especially when they are viewed as having bad core character.¹⁴⁶

Several studies have shown evidence that women may be perceived more negatively under conditions of double deviance.¹⁴⁷ For example, female offenders were sentenced to longer terms than males for crimes like child assault and neglect.¹⁴⁸ They were also rated as less stable and more psychopathic by jurors in an insanity defense context.¹⁴⁹ When females deviated from their traditional gender expectations, which includes loving, caring, and nurturing, they lost the paternalistic protection of the benevolent beliefs and tended to be evaluated more negatively regardless of the crime type.¹⁵⁰ Research evidence indicated that certain female defendants not only failed to

^{140.} See Franklin & Fearn, supra note 133, at 281.

^{141.} See Ahola et al., supra note 10, at 320.

^{142.} Breheney et al., *supra* note 2, at 102–03; *see* ForsterLee et al., *supra* note 10, at 59; Hardcastle et al., *supra* note 11, at 310.

^{143.} See Hardcastle et al., supra note 11, at 310.

^{144.} Id.

^{145.} See generally Kathleen Daly, Neither Conflict nor Labeling nor Paternalism Will Suffice: Intersections of Race, Ethnicity, Gender, and Family in Criminal Court Decisions, 35 CRIME & DELINQ. 136, 137–38 (1989) (discussing and comparing the development of the paternalism thesis and the evil woman thesis).

^{146.} See Breheney et al., supra note 2, at 102–03; Hardcastle et al., supra note 11, at 310; Nagel & Johnson, supra note 4, at 189.

^{147.} See infra text accompanying notes 148–51.

^{148.} Nagel & Johnson, supra note 4, at 189.

^{149.} See Meaux et al., supra note 12, at 730; Mossière & Maeder, supra note 57, at 52.

^{150.} See McKimmie & Masser, supra note 2, at 102.

benefit from judicial paternalism in terms of verdicts and sentencing recommendations but even received harsher punishment for their offenses.¹⁵¹

3. Gender-Crime Incongruency

The third hypothesis built on the double deviance concept is selective chivalry theory or gender-crime incongruency effect, which points out the interaction between gender role and crime type.¹⁵² Selective chivalry theory is proposed to provide a rationale for the treatment of non-traditional or non-stereotypical female defendants in the criminal justice system,¹⁵³ and to explain the inconsistent and occasionally contradictory effect of the defendant's gender on jurors' decision-making.¹⁵⁴ Similarly, gender-crime incongruency effect suggests that only women who commit crimes that fit their stereotypical female roles tend to benefit from the leniency in the criminal justice system, such as female defendants charged with shoplifting.¹⁵⁵ Instead, women who engage in crimes that do not match up with stereotypical gender expectations, such as murder and auto theft, tend to be punished more harshly than their more-traditional counterparts.¹⁵⁶

In support of the theory, Wiest and Duffy indicated that jurors' perceptions and verdicts for female defendants varied as a function of how well they fit the stereotypical gender roles and traditional offense type after comparing outcomes in both maternal and paternal infanticide cases.¹⁵⁷ The interactive effect between the defendant's gender and crime type on jurors' decisions is stronger or more salient for female defendants than for male defendants.¹⁵⁸ The gender-crime incongruency effect explains the condition in which female defendants potentially received harsher treatments than their male counterparts.¹⁵⁹ Furthermore, Strub and McKimmie demonstrated that a female defendant charged with a stereotypically male crime (i.e., murder) was perceived more negatively when she was described

^{151.} See Breheney et al., supra note 2, at 102–03.

^{152.} See Maeder et al., supra note 125, at 2; Meaux et al., supra note 12, at 732.

^{153.} Meaux et al., supra note 12, at 732.

^{154.} Id. at 726; Rodriguez et al., supra note 134, at 334–35.

^{155.} Maeder et al., *supra* note 125, at 2.

^{156.} *Id.* at 3; Meaux et al., *supra* note 12, at 726.

^{157.} Julie B. Wiest & Mary Duffy, *The Impact of Gender Roles on Verdicts and Sentences in Cases of Filicide*, 26 CRIM. JUST. STUD. 347, 357–58, 360 (2013).

^{158.} Id. at 351.

^{159.} Maeder et al., *supra* note 125, at 2–3.

in masculine rather than feminine terms.¹⁶⁰ Gender-stereotype-based descriptions of a defendant significantly influenced mock jurors' perceptions and legal decision-making processes.¹⁶¹ However, in a specific test for the gender-crime incongruency hypothesis, Maeder and colleagues failed to find a significant effect of the defendant's gender on jurors' verdicts and perceptions in either auto theft or shoplifting scenarios.¹⁶² Although they provided no evidence to support the hypothesis, they considered it premature to reject the gender–crime incongruency hypothesis.¹⁶³ Besides, these authors did not account for an extensive range of potential confounding variables in isolating the main effect of the defendant's gender on jurors' perceptions and judgments.¹⁶⁴

The effect of the defendant's gender in the legal system may be broader than the suggested theories.¹⁶⁵ Other factors considered by jurors during their deliberations can also confound the influence of the defendant's gender.¹⁶⁶ For instance, research suggested that jurors were more likely to compare male defendants with offender stereotypes,¹⁶⁷ while comparing female defendants with gender stereotypes during jury deliberations.¹⁶⁸ Possibly, gender-crime incongruence (versus congruence) leads to jurors' differential treatments and perceptions of the defendants in the criminal justice system.¹⁶⁹

III. MY EXPERIMENTAL STUDY ON THE EFFECT OF DEFENDANT GENDER

Previous studies have indicated that the defendant's gender influences jurors' decision-making and perceptions of the defendant, but the effect of the defendant's gender can be mitigating or aggravating.¹⁷⁰ One reason for the inconsistency could be that using a heinous crime or a crime with clear intentions may create a ceiling effect, whereby jurors' decisions cannot be influenced by any

^{160.} Strub & McKimmie, supra note 10, at 490.

^{161.} *Id*.

^{162.} See Maeder et al., supra note 125, at 6.

^{163.} Id. at 7.

^{164.} See generally id.

^{165.} McKimmie & Masser, supra note 2, at 112.

^{166.} Id. at 100-01.

^{167.} Strub & McKimmie, supra note 10, at 490.

^{168.} Id.

^{169.} Maeder et al., *supra* note 125, at 6.

^{170.} See generally id. at 7–8.

potential mitigating factors, such as the different types of evidence¹⁷¹ (i.e., neuro-evidence, a type of evidence testified to by neuroscience experts in court).¹⁷² Given the mixed results and many unresolved questions that remain, a more comprehensive study is warranted and will benefit this field significantly.

My experimental study investigated the main and conditional effects of the defendant's gender on jurors' verdicts, ratings on likelihood of guilt, and juror perception of the defendant by incorporating two compelling moderators recommended by previous research simultaneously: crime severity and the presence of neuro-evidence.¹⁷³ Previous studies have suggested that the presence of neuro-evidence and crime severity moderate the effect of the defendant's gender on jurors' decision-making, with some studies indicating a mitigating effect,¹⁷⁴ while others reveal an aggravating effect for a female versus male defendant.¹⁷⁵ However, when combining all three variables, whether the defendant's gender still exerts a significant effect, and if so, under which conditions it works in which direction, remain open questions.

- 174. Schweitzer et al., *supra* note 171, at 372, 390.
- 175. Breheney et al., supra note 2, at 100–01; Hardcastle et al., supra note 11, at 308; see also Paul S. Appelbaum et al., Effects of Behavioral Genetic Evidence on Perceptions of Criminal Responsibility and Appropriate Punishment, 42 PSYCH., PUB. POL'Y, & L. 134, 135–36 (2015) (implying that the mitigating effect of neuro-evidence might backfire by increasing the perceived future dangerousness of defendants, thereby leading to harsher punishments).

^{171.} N. J. Schweitzer et al., *Neuroimages as Evidence in a* Mens Rea *Defense: No Impact.*, 17 PSYCH., PUB. POL'Y, & L. 357, 372 (2011).

^{172.} *Id.* at 357 ("Recent developments in the neuropsychology of criminal behavior have given rise to concerns that neuroimaging evidence (such as MRI and functional MRI [fMRI] images) could unduly influence jurors.").

^{173.} See generally Darby Aono et al., Neuroscientific Evidence in the Courtroom: A Review, COGNITIVE RSCH: PRINCIPLES & IMPLICATIONS, Oct. 22, 2019, at 1, 3; Schweitzer et al., supra note 171, at 381 (reviewing four separate experiments with similar violent crime scenarios to test if the seriousness of the offense moderated the effect of neuroscientific evidence on jurors' decisions. Each experiment used the same manipulation of evidence, so the only difference across studies was crime severity); see also John M. Pearson et al., Modelling the Effects of Crime Type and Evidence on Judgments About Guilt, 2 NATURE HUM. BEHAV. 856, 857 (2018) (reporting experiments in which authors asked participants to evaluate the seriousness of thirtythree crime scenarios, ranging from owning an illegal business to mass murder, and then to make their verdict decisions. The results revealed that jurors were more likely to return guilty verdicts when they judged the case was more severe and the effect of crime severity on jurors' verdict confidence varied broadly across case scenarios. After controlling for case strength, jurors' confidence in their judgment of guilt increased for crimes that were rated as more heinous or as deserving more punishments).

In addition, my study improved upon previous research methodology and increased the ecological validity by using less severe crime scenarios and adapting a real appellate case, *Waterman v. State* (2015),¹⁷⁶ with more neutral and ambiguous evidence of criminal intentions. Therefore, jurors in the experiment were required to critically evaluate the evidence, find facts, and make verdict decisions by applying legal standards (i.e., whether each legal element was proved beyond a reasonable doubt).

I hypothesized that the defendant's gender would directly influence mock jurors' decision-making. Jurors in the female defendant condition would be less likely to render guilty verdicts, more likely to rate the female defendant as having a lower likelihood of guilt, and more likely to have positive perceptions of the defendant than jurors in the male defendant condition. Furthermore, I predicted that the defendant's gender would interact with crime severity and the presence of neuro-evidence to affect jurors' verdicts and perceptions of the defendant.

A. Method and Procedure

This study used 811 jury-eligible participants recruited via Prolific,¹⁷⁷ an online experimental platform and employed a 2 (neuro-evidence: present or absent) x 2 (defendant gender: male or female) x 2 (crime severity: aiding and abetting homicide or involuntary manslaughter due to recklessness) between-subjects factorial design.

Each participant reviewed the informed consent form. After obtaining informed consent, participants were randomly assigned to one of eight experimental conditions and read the trial stimulus corresponding with each participant's assigned condition. The defendant, the defendant's friend, and a state trooper testified in all versions of the trial summary. The state trooper summarized the case and testified about his interviews with the defendant throughout the investigation. The defendant's friend described what happened before the crime and testified that the defendant knew about the plan to kill and was involved in the murder of his or her mother. The defendant testified and denied the allegation that she or he intended her or his mother's death.

^{176.} See generally Waterman v. State, 342 P.3d 1261, 1263 (Alaska Ct. App. 2015) ("[I]t is constitutional for the legislature to specify a single standard of care for criminally negligent homicide, even when the defendant is a young adult under the age of 25, or even a teenager as young as 16.").

^{177.} PROLIFIC, https://www.prolific.co/participants [https://perma.cc/7UNR-BA7D] (last visited Nov. 4, 2022).

In the presence of neuro-evidence condition, the defense attorney raised the point that the defendant's behaviors might be negatively influenced by her or his brain immaturity, and a qualified neuroscience expert testified to support this claim. In the absence of neuro-evidence condition, no neuroscience information was offered. Both sides proffered closing arguments. The trial summary also included jury instructions on relevant legal standards for returning a guilty verdict, as well as burden of proof, summarized from *Alaska Trial Jury Handbook* (2019)¹⁷⁸ and *Minnesota Jury Instructions* (2019).

Next, participants completed several questions asking them to choose a verdict (i.e., guilty beyond a reasonable doubt or not guilty), rate the defendant's likelihood of guilt, answer questions regarding their perceptions of the defendant on a series of bipolar adjective pairs¹⁸⁰ asking about the defendant's moral and legal responsibility, as well as the defendant's controllability over her or his behaviors. Participants in the neuro-evidence condition responded to two additional sets of questions about the expert testimony regarding their perceptions of how much influence the introduction of neuro-evidence had on their verdict decisions.

Participants' demographic and background information, as well as attention and manipulation check questions about the content of the trial summary, the defendant's gender, the presence of neuro-evidence, and crime severity, were collected at the end of the study in order to minimize the confounding effect of answering manipulation check questions on the dependent variables.¹⁸¹ The post-trial

^{178.} ALASKA CT. SYS., ALASKA TRIAL JURY HANDBOOK 17 (2022), https://public.courts.alaska.gov/web/forms/docs/j-180.pdf [https://perma.cc/39QN-GQLS].

^{179.} MINN. DIST. JUDGES ASS'N, MINNESOTA PRACTICE, JURY INSTRUCTION GUIDES CRIMINAL (6th ed. 2021).

^{180.} Lynda A. King et al., *Dichotomous and Multipoint Scales Using Bipolar Adjectives*, 7 APPLIED PSYCH. MEASUREMENT 173, 174 (1983) (describing bipolar adjective pairs as a scale for measuring where a participant is provided "with a set of polar opposities from which to choose. Individuals are instructed to select [the] option which is closest to their own location on the continuum being measured. The contracst between the two choices [aims] to provide [participants] with a clearer definition of the dimension of interest."). This type of scale has shown a strong, trait-related principal component that was independent of social desirability, and it has demonstrated high internal consistency. *Id.*

^{181.} For attention checks, see generally Emily Geisen, Improve Data Quality by Using a Commitment Request Instead of Attention Checks, QUALTRICSXM (Aug. 4, 2022), https://www.qualtrics.com/blog/attention-checks-and-data-quality [https://perma.cc/ 39QN-GQLS] ("Attention checks are a common method researchers use to catch unmotivated [participants] who may harm data quality by not reading survey

questionnaire also included questions evaluating whether jurors were able to properly apply legal standards when rendering verdict decisions in different conditions. Upon completion of the post-trial questionnaire, participants were debriefed, thanked, and given monetary compensations for their time.

In both aiding and abetting a homicide and involuntary manslaughter due to recklessness conditions (i.e., high and low crime severity conditions), the majority of jurors followed the jury instructions and applied legal elements properly when making their verdict decisions (70.8% and 68.8% respectively). Given the high percentage of jurors who were able to strictly follow the law in their decision-making processes, statistical analyses were performed only for this subset of jurors in order to minimize confounding effects from jurors who did not render final verdicts seriously or properly and thus to increase internal validity of the study results for causal inference.

B. Results

1. Verdicts

For jurors who properly applied the legal elements, the logistic regression model for verdict decisions indicated the main effect of the defendant's gender,¹⁸² the interaction between neuro-evidence and defendant gender,¹⁸³ the interaction between defendant gender and crime severity,¹⁸⁴ and the three-way interaction between neuro-evidence, defendant gender, and crime severity¹⁸⁵ were statistically significant. Jurors in the female defendant condition rendered more guilty verdicts than did jurors in the male defendant conditions, with female defendants being more likely to receive a guilty verdict by

185. b(S.E.) = -2.20 (1.04), standardized B = .11, odds ratio = .11, p < .05.

questions carefully, speeding through surveys, skipping questions, answering randomly, or providing nonsense replies"); for manipulation checks, *see generally* David J. Hauser et al., *Are Manipulation Checks Necessary?*, FRONTIERS IN PSYCH., June 21 2018 at 1, 1–4 (describing manipulation checks as internal analyses researchers use to check on the effectiveness of the manipulation, primarily when treatment conditions fail or go unnoticed by participants).

^{182.} b(S.E.) = -1.54 (.49), standardized B = .22, odds ratio = .22, p < .01. The odds ratio (OR) represents the odds that an outcome will occur given an event compared to the odds of the outcome occurring in the absence of that event. See Magdalena Szumilas, *Explaining Odds Ratios*, 19 J. CANADIAN ACAD. CHILD ADOLESCENT PSYCHIATRY 227, 227 (2010).

^{183.} b (S.E.) = 1.64 (.64), standardized B = 5.17, odds ratio = 5.17, p < .01.

^{184.} b(S.E.) = 2.00(.79), standardized B = 7.38, odds ratio = 7.38, p < .01.

seventy-eight percent, compared to male defendants. The probability of jurors rendering guilty verdicts was highest in the combination of a male defendant and the presence of neuro-evidence condition, followed by a female defendant with the absence of neuro-evidence condition, a female defendant with the presence of neuro-evidence condition, and lastly a male defendant with no neuro-evidence condition. More simply, jurors' verdict decisions for female defendants were not influenced by the presence of neuro-evidence, however, guilty verdicts for male defendants were significantly increased when neuro-evidence was introduced at trial.

Regarding the significant interaction between the defendant's gender and crime severity, the probability of a female defendant receiving guilty verdicts was highest in the low crime severity condition, followed by a male in the low crime severity condition, a male defendant in the high crime severity condition, and lastly a female defendant in the high crime severity condition. In the low crime severity condition, female defendants tended to receive more guilty verdicts than their male counterparts. However, the pattern was reversed in the high crime severity condition. A female defendant was less likely to be found guilty than a male defendant. In addition, the gender difference between a female and a male defendant in verdict decisions was more pronounced in the low crime severity condition than in the high crime severity condition.

The three-way interaction effect revealed that female defendants generally were found guilty more often in the low crime severity condition than in the high crime severity condition, regardless of the presence or absence of neuro-evidence. Thus, for female defendants, crime severity or the charge of the crime mattered more prominently in jurors' verdicts. Conversely, for male defendants, the combination of the presence of neuro-evidence and low crime severity significantly increased the number of guilty verdicts. Unlike female defendants, neither the presence of neuro-evidence nor crime severity alone played an essential role in jurors' verdict decisions for male defendants.

2. Likelihood of Guilt and Perceptions of Defendant

Both multiple analysis of variance (MANOVA)¹⁸⁶ and analysis of variance (ANOVA)¹⁸⁷ showed no significant main effect of the

^{186.} *Multiple Analysis of Variance (MANOVA)*, STATISTICS.COM, https://www.statistics.com/glossary/multiple-analysis-of-variance-manova/ [https://perma.cc/KXX8-8JX8] (last visited Nov. 4, 2022).

defendant's gender on jurors' ratings on likelihood of guilt and their perceptions of defendant. That is, jurors did not evaluate or perceive the defendant differently based on the defendant's gender. However, the omnibus MANOVA analysis demonstrated a significant interaction effect between the defendant's gender and crime severity on likelihood of guilt and perceptions of defendant.¹⁸⁸ Specifically, results from two separate three-way ANOVA analyses with likelihood of guilt and perceptions of defendant as dependent variables showed that this interaction effect only significantly affected jurors' perceptions of the defendant, but not jurors' ratings on the defendant's likelihood of guilt.¹⁸⁹ Furthermore, results from multiple linear regressions revealed consistent patterns regarding the main and the interactional effects of the defendant's gender.

Besides the effect of the defendant's gender, several extra-legal factors, such as a juror's gender, age, religion, and their attitude towards the death penalty, also significantly influenced jurors' evaluative judgments, with juror's religion and attitude towards the death penalty exerting the largest impacts. Jurors who were agnostic¹⁹⁰ and protestant¹⁹¹ and jurors who opposed to death penalty¹⁹² tended to give lower ratings on likelihood of guilt, relative to jurors who were Catholic and jurors who favored the death penalty, respectively.

In terms of their perceptions of the defendant, male jurors and younger jurors perceived the defendant more favorably than did female and older jurors.¹⁹³ Jurors who were Jewish were more likely to perceive the defendant positively than were jurors who were Catholics.¹⁹⁴ Jurors who opposed the death penalty tended to have more favorable perceptions of the defendant, relative to jurors who favored the death penalty.¹⁹⁵

In conclusion, the defendant's gender played an important role in jurors' perceptions and decision-making processes. The current study

- 194. b (S.E.) = 4.47 (1.57), standardized B = .13, p < .01.
- 195. b (S.E.) = 3.12 (.66), standardized B = .27, p < .001.

^{187.} What is ANOVA (Analysis of Variance) and What Can I Use it For?, QUALTRICSXM, https://www.qualtrics.com/experience-management/research/anova/ [https://perma.cc/ 8NF3-W7BK] (last visited Nov. 4, 2022).

^{188.} p = .049, partial- $\eta^2 = .01$, observed power = .59.

^{189.} F(41, 507) = 5.72, p = .02, partial- $\eta^2 = .01$, observed power = .67.

^{190.} b(S.E.) = -15.50 (4.42), standardized B = -.28, p < .001.

^{191.} b(S.E.) = -8.09 (3.77), standardized B = -.13, p < .05.

^{192.} b(S.E.) = -7.42 (2.88), standardized B = -.15, p < .01.

^{193.} Result for juror's gender: *b* (*S.E.*) = 1.19 (.50), standardized *B* = .10, *p* < .05; result for juror's age: *b* (*S.E.*) = -.06 (.02), standardized *B* = -.13, *p* < .05.

demonstrates that female defendants are not only associated with significantly more guilty verdicts but also that gender and crime severity influence both jurors' verdict decisions and their perceptions of the defendant.

C. Discussion

Contrary to previous studies supporting judicial paternalism,¹⁹⁶ this study found a significantly aggravating, rather than mitigating, effect of the defendant's gender (i.e., being a female defendant) on jurors' verdict decisions. Instead of being treated more leniently, female defendants received more guilty verdicts and were generally perceived more negatively than their male counterparts. In the study, two crimes were used for high and low severity conditions (i.e., either aiding and abetting a homicide or voluntary manslaughter due to recklessness) was intentionally designed to be ambiguous and not specific to one gender stereotype. Therefore, the results are more aligned with the double deviance theory rather than the gender-crime incongruency hypothesis.¹⁹⁷

Alternatively, one explanation for the female penalty effect could be that jurors simply overcompensate in rectifying their behaviors. They may be well educated about the general female leniency effect in the criminal justice system, and simultaneously, they are vested with authoritative power and accountability.¹⁹⁸ Jurors who can properly follow jury instructions may also be highly sensitive to the influences of extra-legal factors that have been shown to trigger potential biases due to the importance of objectivity in delivering verdicts and punishment.¹⁹⁹ Thereby making a conscious effort to judge the defendant apart from the gender bias favoring females to ensure that their legal decisions are unbiased and impartial.²⁰⁰ Due to human errors in accurately estimating the effect size of gender bias, jurors tend to overcorrect for it in practice, leading to disproportional responses in the opposite direction to which was originally predicted by the female leniency effect.²⁰¹

^{196.} See Nagel & Johnson, supra note 4, at 185–90; Steffensmeier et al., supra note 17, at 435; see also Franklin & Fearn, supra note 133, at 287.

^{197.} See supra text accompanying notes 142-69.

See Michael I. Norton et al., Casuistry and Social Category Bias, 87 J. PERSONALITY & Soc. PSYCH. 817, 817–31 (2004).

^{199.} See infra text accompanying notes 202-07.

^{200.} See Duane T. Wegener & Richard E. Petty, *The Flexible Correction Model: The Role* of *Naive Theories of Bias in Bias Correction*, 29 ADVANCES EXPERIMENTAL SOC. PSYCH. 141, 143, 149 (1997).

^{201.} See id. at 143.

There was significant two-way interaction between the defendant's gender and crime severity, three-way interaction between the defendant's gender, crime severity, and the presence of neuroevidence. This suggests that the effect of the defendant's gender on jurors' verdicts was moderated by at least two legal factors: the charge of the crime and the neuroscience expert testimony presented by the defense attorney at trial. Similar to a fifty percent attenuation interaction effect,²⁰² jurors perceived female defendants less favorably than male defendants in the low crime severity condition, whereas such difference was less noticeable in the high severity crime condition. Since the effect size of the interaction between the defendant's gender and crime severity was the largest, this study further revealed that the female penalty effect derived from double deviance theory was conditional, the effect only exists in the low severity crime condition. Furthermore, for female defendants, jurors who properly applied the law in their verdicts placed greater emphasis on the charge rather than on the presence of neurosevidence in their decision-making processes. However, for male defendants, jurors placed relatively more weight on the neuroevidence which explained how the male defendant's brain immaturity affected his behaviors in the low severity crime condition rather than in the high severity crime condition, leading to more guilty verdicts. Consistent with previous studies,²⁰³ jurors behaved differently and focused on different legal factors in their verdict decisions when facing defendants of different genders.

Why do jurors who properly follow jury instructions still consider other legal and extra-legal factors in their verdict decisions? It is possible that jurors who properly follow the law in their decisionmaking are well-informed and tended to evaluate any evidentiary information critically and seriously, actively organizing all the relevant information into a comprehensive narrative with a causal structure to describe the sequence of events under question and construct their stories.²⁰⁴ Besides the fact that female defendants are

^{202.} Joseph J. Stevens, *Interaction Effects in ANOVA*, UNIV. OR., https://pages.uoregon.edu/stevensj/interaction.pdf [https://perma.cc/A3AD-BXCW] (last visited Jul. 10, 2022).

^{203.} See, e.g., McKimmie et al., supra note 10, at 343, 345, 350–51; McKimmie & Masser, supra note 2, at 95–102, 109–12.

^{204.} See Nancy Pennington & Reid Hastie, A Cognitive Theory of Juror Decision Making: The Story Model, 13 CARDOZO L. REV. 519, 520–27 (1991).

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less common in any stage of the criminal justice process,²⁰⁵ jurors may experience cognitive dissonance when facing a female defendant as their views or beliefs about female roles in society and criminal phenomenon are contradicted simultaneously as double deviance theory suggests.²⁰⁶ If jurors had difficulty developing a plausible narrative to explain the defendant's behavior, these well-informed and responsible jurors may look for additional input from legal authorities, such as the charge determined by the prosecutor, to reconcile their cognitive conflicts and construct their stories.²⁰⁷

Regarding male defendants, criminal or impulsive behaviors were more likely to be associated with males than females.²⁰⁸ After all, legal proceedings presupposed folk psychology in which all normally socialized people deployed in order to comprehend, explain, and predict both legal and criminal human behaviors.²⁰⁹ The combination of the neuroscientific explanation of impulsivity and the male gender would make the storytelling model more reasonable for jurors who strictly apply legal standards for verdicts. This conclusion explains the three-way interaction between the defendant's gender, charge, and the presence of neuro-evidence. Additionally, participants' perceptions of the defendant were influenced by the crime charged. When the charge was involuntary manslaughter due to recklessness, jurors may have unconsciously assumed the defendant was not dangerous. However, when the crime charge was aiding and abetting a first-degree murder, jurors may have the opposite perception of the defendant. Any potential culpable evidence that deviated from jurors' expectations would predispose the defendant to an adverse outcome. As a result, jurors who properly apply legal standards in their decision-making may render more guilty verdicts for male defendants when neuro-evidence is present in low severity crime condition.

^{205.} See Beth E. Richie et al., Nat'l Inst. of Just., Research on Women and Girls in the Justice System: Plenary Papers of the 1999 Conference on Criminal Justice Research and Evaluation, in 3 ENHANCING POLICY AND PRACTICE THROUGH RESEARCH 4, 6–7, 29, 33 (2000).

^{206.} See Enide Maegherman et al., Law and Order Effects: On Cognitive Dissonance and Belief Perseverance, 29 PSYCHIATRY, PSYCH. & LAW 33, 33–35 (2022).

^{207.} See generally Pennington & Hastie, *supra* note 204, at 533–50 (theorizing and explaining the story model for jurors' decision-making with empirical studies).

^{208.} Chiang-shan Ray Li et al., *Gender Differences in the Neural Correlates of Response Inhibition During a Stop Signal Task*, 32 NEUROIMAGE 1918, 1919 (2006).

^{209.} Robert Birmingham, Folk Psychology and Legal Understanding, 32 CONN. L. REV. 1715, 1715–16 (2000).

IV. CONCLUSION

In the American legal system, jurors perform an essential role in protecting human rights and liberties.²¹⁰ They hold equal importance to judges, prosecutors, and defense attorneys in the courtroom.²¹¹ Research on how a criminal defendant's gender influences jurors' decision-making has increased exponentially in recent decades.²¹² However, our current understanding of the effect of the defendant's gender, specifically being a female defendant, is still limited due to the inconclusive and contradictory nature of prior study results.²¹³ This present study suggests that a defendant's gender not only exerts a significant effect on the outcome but also interacts with the crime charged and the neuro-evidence presented at trial to influence jurors' verdicts and evaluative judgments.²¹⁴ The defendant's gender (i.e., being female) can serve as a "double-edged sword" to differentially impact jurors' judgments about their perception of criminal behaviors, their perceptions of the defendant, and their decisionmaking processes across different circumstances.²¹⁵ As I only analyzed jurors' verdicts and perceptions for those who were able to apply legal elements in their decision-making processes,²¹⁶ I concluded convincingly that modern female defendants do not receive leniency due to their gender from the criminal courts as suggested by previous studies.²¹⁷ Instead, courts punish female defendants and jurors perceive them more negatively than their male counterparts, especially when the crime is less severe.²¹⁸

- 213. See supra notes 17–25 and accompanying text.
- 214. See supra Section II.D.
- 215. See supra note 12 and accompanying text.
- 216. See supra Section III.A.
- See, e.g., Jill K. Doerner & Stephen Demuth, Gender and Sentencing in the Federal Courts: Are Women Treated More Leniently?, 25 CRIM. JUST. POL'Y REV. 242, 242 (2014) (finding female defendants receive more lenient sentencing outcomes than male defendants).
- 218. See supra notes 147–51 and accompanying text.

^{210.} See Richard Lorren Jolly, Jury Nullification as a Spectrum, 49 PEPP. L. REV. 341, 343 (2022).

^{211.} See Timothy Sandefur, Why Juries Matter, DISCOURSE (Dec. 17, 2021), https://www.discoursemagazine.com/culture-and-society/2021/12/17/why-juriesmatter/ [https://perma.cc/PHY5-V9W4]; How Courts Work: The Role of Juries, A.B.A. (Sept. 9, 2019), https://www.americanbar.org/groups/public_education/ resources/law_related_education_network/how_courts_work/jury_role/ [https://perma.cc/2SZ2-PMFF].

^{212.} See sources cited supra notes 8-12.

Judges, prosecutors, and defense attorneys can benefit from understanding that both extra-legal (i.e., the defendant's gender) and legal factors (i.e., crime severity and neuro-evidence) play a crucial role in jurors' legal decision-making.²¹⁹ Specifically, the more educated lawyers, prosecutors, and judges are about the impact of the defendant's gender on jurors' legal decision-making, the more effectively they can develop and prepare their arguments for male and female defendants distinctively.²²⁰ More knowledge of the conditional impact of the defendant's gender will also help legal actors strategically respond to cross-examinations, decide on the types of evidence to present, and what to expect with different types of evidence, especially when cases are factually and legally ambiguous.²²¹ In addition, besides including demographic, background, and experience questions, attorneys may find it beneficial to add questions regarding the gender implicit bias in a voir dire for jury selection to identify jurors who can perform their jury duties properly by being impartial and fair.

In summary, the effect of the defendant's gender on jurors and jurors' decision-making processes is diverse, dynamic, and everchanging. As society has progressed and developed, more jury education programs, as well as dramatic reforms to jury trials, have occurred over the past fifteen years. Because of this, jurors have largely improved their comprehension of evidence and their ability to follow jury instructions during the trial and deliberations.²²² However, the effect of a defendant's gender remains significant on jurors' perceptions and decision-making processes, but the effect varies in different situations.²²³ A better understanding of the conditions under which the defendant's gender negatively or positively affects jurors' verdicts and evaluations of the defendant is important for researchers, practitioners, and legal actors due to its inevitability in courts both nationally and internationally. Almost all the experimental research on the effect of the defendant's gender on jurors' decisions suffer from theoretical and methodological

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^{219.} See discussion supra Section III.C.

^{220.} See generally discussion supra Section III.C (discussing implications of gender as one of many extra-legal and legal factors affecting jury decision-making).

^{221.} See, e.g., Lucy Fowler, Gender and Jury Deliberations: The Contributions of Social Science, 12 WM. & MARY J. WOMEN & L. 1, 29–30 (2005) (discussing the effect of gender on jury deliberations, decision-making and evidence interpretation).

^{222.} GREGORY E. MIZE ET AL., NAT'L CTR. FOR STATE CTS., THE STATE-OF-THE-STATES SURVEY OF JURY IMPROVEMENT EFFORTS: A COMPENDIUM REPORT 31, 36–37 (2007).

^{223.} See supra Part II.

limitations, such as small sample size,²²⁴ unrepresentativeness of the sample,²²⁵ inability to mirror the real jury experience and deliberation process,²²⁶ as well as failure to include potential moderators and confounding factors.²²⁷ Therefore, future research investigating the conditional or interactional effect of the defendant's gender should include a variety of moderators, such as the defendant's race, juror's gender and race, civil versus criminal cases, and so forth.

226. See supra notes 72–73 and accompanying text.

^{224.} See supra notes 32–33 and accompanying text.

^{225.} See supra notes 27–28 and accompanying text.

^{227.} See supra notes 24–26, 170–72 and accompanying text.