Biological Research On Behavior As Extra-Legal And Discretionary Factors In Sentencing And Punishment

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Biological Research On Behavior As Extra-Legal And Discretionary Factors In Sentencing And Punishment

Abstract
In recent years, there has been an increase in empirical literature regarding how and why neuroscience and genetics research on behavior may influence criminal punishment. This dissertation aims to add to this growing body of literature specifically on types of evidence and aspects of sentencing and punishment that have not yet been studied. This dissertation consists of three papers that examine how the presentation of biological evidence in court or knowledge of the biological influences to behavior may act as extra-legal and discretionary factors in sentencing. The first paper, utilizing a multi-factorial experiment with the death-qualified jury-eligible public, examines how biological risk factors for criminality might affect views on capital sentencing. Results suggest that the general presentation of evidence on biological risk factors may not impact views on death penalty support or cruel and unusual punishment, but it may significantly impact perceptions of moral responsibility and future dangerousness. The second paper, utilizing a multi-factorial experiment with a lay public sample, examines how psychiatric labels, and having diagnoses biologically “labelled,” affect sentencing beliefs. Results show that psychiatric labels can lead to significant non-punitive effects on sentencing, as mediated by reduced stigmatization regarding lack of treatability, social acceptance, and personal responsibility. Biological “labelling” may not significantly affect sentencing, apart from Pedophilic Disorder. The third paper, utilizing qualitative interviews with Pennsylvania state judges and grounded theory analysis, develops a model that illuminates a process by which judicial stereotyping associated with genetic essentialist biases toward mental disorders may negatively affect judges’ views regarding the sentencing of offenders with psychiatric diagnoses. Data suggest that judges exhibit stereotyping behavior by linking the relationships between genetic essentialist biases (immutability, informativeness, uniformity) and types of stigmatization (pessimism, dangerousness, family stigma), leading to judges’ negative views on the punishment of such offenders particularly with regard to incapacitation and deterrence. Together, the findings in this dissertation advance our understanding on if and how different types of biological research on behavior may practically and philosophically influence discretion in sentencing. Such understanding can help to anticipate the effects of neuroscience and genetics research as discretionary and extra-legal factors in sentencing moving forward.

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BIOLOGICAL RESEARCH ON BEHAVIOR AS EXTRA-LEGAL AND DISCRETIONARY FACTORS IN SENTENCING AND PUNISHMENT

Colleen Berryessa

A DISSERTATION

in

Criminology

Presented to the Faculties of the University of Pennsylvania

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ABSTRACT

BIOLOGICAL RESEARCH ON BEHAVIOR AS EXTRA-LEGAL AND DISCRETIONARY FACTORS IN SENTENCING AND PUNISHMENT

Colleen Berryessa
Adrian Raine

In recent years, there has been an increase in empirical literature regarding how and why neuroscience and genetics research on behavior may influence criminal punishment. This dissertation aims to add to this growing body of literature specifically on types of evidence and aspects of sentencing and punishment that have not yet been studied. This dissertation consists of three papers that examine how the presentation of biological evidence in court or knowledge of the biological influences to behavior may act as extra-legal and discretionary factors in sentencing. The first paper, utilizing a multi-factorial experiment with the death-qualified jury-eligible public, examines how biological risk factors for criminality might affect views on capital sentencing. Results suggest that the general presentation of evidence on biological risk factors may not impact views on death penalty support or cruel and unusual punishment, but it may significantly impact perceptions of moral responsibility and future dangerousness. The second paper, utilizing a multi-factorial experiment with a lay public sample, examines how psychiatric labels, and having diagnoses biologically “labelled,” affect sentencing beliefs. Results show that psychiatric labels can lead to significant non-punitive effects on sentencing, as mediated by reduced stigmatization regarding lack of treatability, social
acceptance, and personal responsibility. Biological “labelling” may not significantly affect sentencing, apart from Pedophilic Disorder. The third paper, utilizing qualitative interviews with Pennsylvania state judges and grounded theory analysis, develops a model that illuminates a process by which judicial stereotyping associated with genetic essentialist biases toward mental disorders may negatively affect judges’ views regarding the sentencing of offenders with psychiatric diagnoses. Data suggest that judges exhibit stereotyping behavior by linking the relationships between genetic essentialist biases (immutability, informativeness, uniformity) and types of stigmatization (pessimism, dangerousness, family stigma), leading to judges’ negative views on the punishment of such offenders particularly with regard to incapacitation and deterrence. Together, the findings in this dissertation advance our understanding on if and how different types of biological research on behavior may practically and philosophically influence discretion in sentencing. Such understanding can help to anticipate the effects of neuroscience and genetics research as discretionary and extra-legal factors in sentencing moving forward.
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GENERAL INTRODUCTION

In order to maintain fairness in the U.S. legal system, sentences for criminal offenses, under legal doctrine, are supposed to be primarily based on the retributive principles of proportionality and uniformity (Fraser, 2005). Proportionality is the idea that criminal penalties should be scaled in proportion to each individual offender’s level of blameworthiness (Von Hirsch, 1993). An offender’s blameworthiness is determined by the seriousness of the crime, specifically the harm achieved or threatened by its commission, and the offender’s degree of culpability, which considers the offender’s capacity to conform his conduct to the law, intent, and motives (Fraser, 2004). Uniformity is the idea that offenders with similar degrees of blameworthiness should all receive similar types and severity of sanctions in sentencing (Von Hirsch, 1993).

The utilization of the principles of proportionality and uniformity in sentencing are argued to lead to punishments that are perceived to be fair, and, correspondingly, a legal system that is respected, legitimate, and just (Hart, 2008; Tyler, 2006). In order to safeguard these principles and a legitimate legal system, judges across jurisdictions should sentence offenders with similar degrees of blameworthiness, for the commission of comparable offenses, to similar punishments within their available sentencing guidelines (Fraser, 2005). While juror sentencing is rare outside of capital cases, jurors do impose sentences for non-capital offenses in six states and select around 4,000 felony sentences each year; therefore, jurors in these contexts should also sentence offenders according to the principles of proportionality and uniformity to ensure fair punishments (King & Noble, 2005). In capital cases, capital jurors should weigh aggravating and
mitigating factors regarding an offender’s blameworthiness, arriving at similar sentencing decisions when offenders have comparable levels of culpability and cases have similar facts.

Yet in practice, this ideal version of sentencing arising from uniformity and proportionality diverges starkly from how punishment decisions occur every day in our justice system. When punishments for equal blameworthiness are not proportional and uniform, such punishments result in sentencing disparities defined by Hagan and Bumiller (1983, pp. 9) as “a form of unequal treatment that is often of unexplained cause and is at least incongruous, unfair, and disadvantaging in consequence.” One of the main factors that results in sentencing disparities and helps to pervert this ideal system of punishment is sentencing discretion (Gelsthorpe & Padfield, 2012).

Although sentencing in non-capital cases is often restricted by guidelines, sentencers, who are defined as individuals like judges or jurors who render sentences in criminal trials (Homel & Lawrence, 1992), are able to exercise a certain amount of leeway and discretion when sentencing offenders (Spohn & Hemmens, 2011). For example, judges may choose to suspend prison time in favor of probation, and even for more serious offenses, judges are still able to choose the length of an offender’s prison sentence within the sentencing guidelines provided to them. Sentencing discretion is supposed to rely on an assessment of legal factors, including the harm achieved by the crime, basic level of culpability specified by legal doctrine (purposely, knowingly, recklessly, or negligently), and in some contexts, prior criminal record (Robinson, 2008; Robinson Jackowitz, & Bartels, 2012; Von Hirsch, 1983). However, in practice, sentencing discretion is often
influenced by extra-legal factors that are not formally recognized by criminal law (Robinson et al., 2012). Numerous considerations such as an offender’s remorse, the public’s demand for punishment, an offender’s perceived good or bad character, potential for contributions to society in the future, or suffering that may be incurred from the sentence apart from the official punishment are all known to be significantly influential extra-legal factors on sentencers’ punishment decisions, even though they most often have no bearing on the harm caused by an offender’s criminal action or his culpability (Robinson et al., 2012).

Sentencers in non-capital cases can also differ on the perceived goals that punishment should serve, which can extra-legally influence sentencing decisions (Austin & Williams, 1977; Frase, 1997; Von Hirsch, 1983; Von Hirsch, 1983a). In punishment theory, there are five objectives of punishment: retribution, deterrence, restoration, rehabilitation, and incapacitation (Smith, 2005). Although formal sentencing criteria are primarily based on factors related to retribution, punishment decisions are often influenced by sentencers’ views on what the purposes of punishment should be, either more generally or for offenders in specific cases; differences in sentencer punishment philosophy can lead to disparate sentencing outcomes for offenders, even if offenders in two cases are perceived to have similar degrees of blameworthiness (Frase, 2005; Miller, 1992).

In capital cases, capital jurors are also given sentencing discretion and are often influenced by extra-legal considerations in deciding whether or not an offender should be sentenced to death (Hoeffel, 2004). Factors such as geography, race and gender of the defendant, and other juror biases have been shown to affect juror decision-making and
contribute to disparate sentencing outcomes, specifically a death sentence compared to a life sentence, when the facts of capital cases are similar (Luginbuhl & Burkhead, 1994).

Capital jurors are also given a powerful discretionary role when weighing evidence in order to determine whether or not an offender should be sentenced to death (Garvey, 1998). During capital sentencing, capital jurors are given instructions to evaluate mitigating factors against the death penalty versus aggravating factors for the death penalty. Unlike aggravating factors, there are little guidelines on what can and cannot be considered by capital jurors when it comes to mitigating factors to an offender’s culpability (Costanzo & Costanzo, 1992). Capital jurors are given great latitude to decide if and what evidence actually mitigates culpability and if such evidence should be factored into the sentencing decision (Capital Punishment in Context, 2010). This latitude may differ from case to case, specifically influenced by factors such as an individual expert’s presentation of such evidence and how individual jurors understand that evidence (Garvey, 1998; Tiersma, 1995). For example, an offender’s poor social background may be viewed as a mitigating factor by some jurors in one case but might not be viewed by jurors as mitigating in another case, even if the offenders’ blameworthiness might be considered similar; this difference in capital juror opinion sometimes influences if one offender is sentenced to death and another receives life imprisonment (Haney, 1995).

Overall, sentencing discretion often perverts the ideal version of sentencing based on proportionality and uniformity, and results in disparities. Although provided with guidelines and instructions, sentencers are given great latitude in their roles as those
making punishment decisions, meaning that they are given a degree of freedom to choose an offender’s punishment as influenced by questions on if, how, and why they think he should be punished (Austin & Williams, 1977; Frase, 1997; Frase, 2005; Von Hirsch, 1983; Von Hirsch, 1983a). Ultimately, judges and jurors are affected by and consider extra-legal and discretionary factors in addressing these questions on punishment during sentencing (Frase, 2005; Von Hirsch, 1983; Von Hirsch, 1983a).

Fundamentally, neuroscience and genetic research on biological influences to different behaviors has been fueling societal debate in recent years on these very questions regarding if, how, and why offenders should be punished (Farahany, 2016). Although this scientific research cannot directly answer questions on punishment, it is thought to provide empirical evidence about human behavior that may practically and philosophically bear on punishment decisions (Farahany, 2016). Since such research raises the same types of questions on punishment as those often considered in sentencing, biological research on behavior has been argued to represent an area of potentially significant extra-legal and discretionary factors that could influence punishment decisions through sentencing discretion (Barth, 2007; Berryessa 2016; Farahany, 2016; Glenn & Raine, 2014; Hart, 2008; Jones & Shen, 2012; Rothstein, 1999).

Over the past fifteen years, the sentencing outcomes of hundreds of criminal cases have been influenced by neurobiological and genetic evidence (Farahany, 2016). Such evidence has most often included the presentation of an offender’s medical history, neuroimages or testimony on an offender’s brain abnormality, neuropsychological testing, and evidence of an offender’s family history or genetic tests in order to establish
predisposition to a mental disorder (Denno, 2011; Farahany, 2016). Unfortunately, the data that exist about the use of neurobiological evidence in court are imperfect and primarily focus on how such evidence mitigates, rather than potentially aggravates, punishment outcomes. Yet while limited methodologically, the data are at least illustrative of how these types of evidence are being used in U.S. courts in sentencing (Farahany, 2016).

From 2005 to 2012, a total of 820 judicial opinions discussed neurobiological evidence as claims raised in an attempt to mitigate a sentence during trial or upon appeal; 58% were capital cases and 42% were non-capital cases involving serious felonies (Farahany, 2016). In many of the non-capital cases, such evidence has been presented in post-conviction appeals to an offender’s sentence and argued to be a mitigating factor to an offender’s culpability that should be considered in resentencing. Overall, 22% of non-capital cases in which neurobiological evidence was presented during appeal or sentencing achieved a positive or mitigated sentencing outcome for an offender upon appeal as either a reversal, remand, or modification of a part of the trial court’s decision (Farahany, 2016). In capital cases specifically, neurobiological evidence has most often either been presented as mitigating factors to an offender’s culpability during sentencing or upon appeal or has been used in post-conviction claims related to ineffective assistance of counsel; 17% of capital cases in which neurobiological evidence was presented achieved a positive or mitigated sentencing outcome for an offender either during sentencing or upon appeal (Farahany, 2016).

Thus, there is some evidence that the presentation of neurobiological evidence has the
potential to affect punishment outcomes for a significant number of defendants in both capital and non-capital cases. Although specific reasons for why such evidence has affected punishment outcomes in these and other cases are unknown, including if such evidence has aggravated punishment outcomes, it is reasonable to suggest that biological research on behavior may in some way be affecting sentencing through extra-legal or discretionary factors. Particularly, the views and perceptions of sentencers on this evidence or other knowledge of biological influences to behavior, paired with their powers of sentencing discretion, may be influential on sentencing decisions in cases such as these (Berryessa, 2016; Hart, 2008; Jones & Shen, 2012; Rothstein, 1999).

For example, neurobiological evidence could potentially have either positive or negative effects in death penalty cases based on the individual perceptions and discretion of capital jurors. In capital cases, if evidence is effective in mitigating capital jurors’ perceptions of an offender’s responsibility, the likelihood an offender is sentenced to death is often significantly reduced (Capital Punishment in Context, 2010; Costanzo & Costanzo, 1992). There is also literature suggesting that knowledge regarding the biological influences to an individual’s behavior or characteristics can significantly decrease perceptions of his personal responsibility, as he is thought to be less able to control his behavior and outcomes (Kvaale, Gottdiener, & Haslam, 2013). Therefore, it is possible that evidence on biological influences to an offender’s behavior could mitigate views on his culpability, and, potentially, make it less likely that some capital jurors would support a death sentence.

Alternatively, knowledge regarding the biological influences to an individual’s
behavior or characteristics has been shown to significantly increase perceptions on his potential for violence or dangerousness, based on perceived immutability of his behavior and lack of treatability (Kvaale et al., 2013). Evidence suggesting an offender’s increased likelihood for potential dangerousness has also been found to significantly increase capital jurors’ support for the death penalty, even when the alternative punishment is life without the possibility of parole (Blume, Garvey, & Johnson, 2001; Edens, Buffington-Vollum, Keilen, Roskamp, & Anthony, 2005). Therefore, evidence on biological influences to an offender’s behavior could exacerbate views on his future dangerousness and possibly increase the likelihood some capital jurors would support a death sentence in an offender’s case.

As a second example, judges’ punishment decisions are extra-legal influenced by factors such as the possibility for rehabilitation and an offender’s potential for future contributions to society (Frase, 2005; Robinson et al., 2012). Extra-legal factors such as these could conceivably be influenced or tied to research on neuroscientific or genetic influences on behavior, potentially resulting in sentencing disparities for certain offenders. For example, biological influences to specific behaviors or attributes are often perceived to suggest that an individual is less likely to be treated or have the potential for positive outcomes because of the perceived lack of immutability of his biologically-influenced attributes (Kvaale et al., 2013). Such perceptions may extra-legally affect punishment decisions by decreasing judges’ support that an offender can or should be rehabilitated, or beliefs that the offender has the potential to make meaningful contributions to society in the future; this may lead judges to support more aggravated or
regulatory punishments for such offenders if treatment-oriented sentences are thought to be potentially ineffective or if offenders are perceived to be unable to contribute to society when released from prison (Berryessa & Cho, 2013; Robinson et al., 2012).

If neuroscience and genetics research does indeed represent an area of significant extra-legal and discretionary factors that could influence sentencing, biological research on behavior then also raises several empirical questions about how and why this research on behavior may actually affect sentencing and views toward punishment, as well as how and why it may influence the perceptions of those making sentencing decisions in certain contexts (Berryessa, 2016; Farahany, 2016; Hart, 2008; Jones & Shen, 2012). In order to get at these questions as well as anticipate the practical effects of such research on punishment decisions, there has been a recent increase in experimental and empirical literature regarding how and why neuroscience and genetics research may influence views and decisions on sentencing and fairness in punishment, including how such research may extra-legally influence judges’ and jurors’ discretion in sentencing (e.g. Appelbaum & Scurich, 2014; Appelbaum & Scurich, 2015; Appelbaum, Scurich, & Raad, 2014; Aspinwall, Brown, & Tabery, 2012; Fuss, Dressing, & Briken, 2015; Greene & Cahill, 2012; Kim, Boytos, Seong, & Park, 2015; Remmel, Glenn, & Cox, 2018; Schweitzer, Saks, Murphy, Roskies, Sinnott-Armstrong, & Gaudet, 2011; Saks, Schweitzer, Aharoni, & Kiehl, 2014; Scurich & Appelbaum, 2016).

Using this background as a framework, this dissertation adds to this growing body of literature, specifically on aspects of punishment and types of biological evidence that have not yet been surveyed in the existing literature. The three papers in this dissertation
examine how the presentation of biological evidence in court or knowledge of the biological influences to behavior may act as extra-legal and discretionary factors that influence views on punishment in a variety of contexts: how and why evidence of biological risk factors for criminality affects views on capital sentencing, how and why psychiatric and biological labels affect sentencing beliefs, and how knowledge of genetic influences to mental disorders influences judges’ views on punishment. Together, the findings in this dissertation advance our understanding on if and how different types of biological research on behavior may practically and philosophically influence discretion in sentencing.

Paper 1 Summary

The first paper in this dissertation is titled, “Jury-eligible Public Attitudes Toward Biological Risk Factors for Criminal Behavior and Implications for Capital Sentencing.” Literature on biological risk factors for the development of criminality continues to be a growing area of criminological research (Raine, 2002). Yet, the importance of this research and how it should be integrated into explanatory models of criminality still remain unresolved in the criminological community (Ellis & Hoffman, 1990; Richerson, Mulder, & Villa, 2002; Walklate, 2007; Wortley, 2011). A direct result of these unsettled issues has been a lack of clear information for members of the public regarding how biological characteristics may influence the development of criminality and whether this research is pertinent to criminology, policy, and law (Raine, 2002). Although public discussion on these issues has been encouraged, it is still unknown how public attitudes on biological risk factors for the development of criminality could affect the legal
process; particularly, capital sentencing is the legal area where public attitudes toward biological risk factors, specifically of those that are jury-eligible and death-qualified, have been thought to potentially be most influential (Rose, 2000).

This study, utilizing a between-subjects multi-factorial experimental design with a sample of the jury-eligible public who have indicated that they are not opposed to the use of the death penalty, examines if and how evidence on different biological risk factors for criminality might affect death penalty sentencing with regard to four contexts: support for the death penalty for an offender who exhibits a specific biological risk factor, mitigation, future dangerousness, and cruel and unusual punishment. These biological risk factors include lower physiological reactivity, minor physical anomalies, prenatal nicotine and alcohol exposure, reduced testosterone levels, brain damage, lower IQ, and mutations of the MAO-A gene (see Yang, Gao, Glenn, Peskin, Schug, & Raine, 2014). Further, since biological risk factors are thought to increase the risk of developing antisocial behavior when interacting with social risk factors for criminality (Raine, 2002), this research also examines if the inclusion of social risk factor evidence, along with biological risk factor evidence, influences respondent views toward the death penalty in the above areas.

Results show that the presentation of evidence on biological risk factors may not affect whether or not the use of the death penalty is supported for an offender or perceptions of cruel and unusual punishment. However, this research does indicate biological risk factor evidence may influence public views on two aspects of capital sentencing: mitigation and dangerousness. Although the presentation of biological risk factor evidence does not appear to be viewed as strongly mitigating, it does have at least
some significant mitigating effect on an offender’s overall level of moral responsibility in capital contexts, again regardless of the specific risk factor exhibited. The presentation of evidence on certain biological risk factors (lower physiological reactivity, reduced testosterone levels, brain damage, mutations of MAO-A) also may aggravate views of an offender’s future dangerousness, which could potentially increase the likelihood that the death penalty is endorsed for an offender who exhibits one of these four specific factors. Three potential implications of this work for the criminal justice system, particularly for experts and attorneys in capital cases, are discussed.

**Paper 2 Summary**

The second paper in this dissertation is titled, “The Effects of Psychiatric and “Biological” Labels on Lay Sentencing and Punishment Decisions.” Research under the *focal concerns perspective on sentencing* shows that certain offender characteristics extra-legally impact sentencing through how social control decision-makers evaluate blameworthiness, community protection, and bureaucratic constraints (Grattet, 2011). One offender characteristic that likely affects sentencing through focal concerns, but which has not been directly applied to it, is labelling with psychiatric illnesses. Evidence shows psychiatric labels can influence sentencing through affecting perceptions of blameworthiness and dangerousness (Barnett, Brodsky, & Davis, 2004; Boccaccini, Murrie, Clark, & Cornell, 2008; Edens, Colwell, Desforges, & Fernandez, 2005; Edens, Desforges, Fernandez, & Palac, 2004; Scurich, Gongola, & Krauss, 2016). Yet how and why psychiatric labelling may affect sentencing beliefs remains unclear. Recent literature has postulated that social cognitive theories of public stigma of mental health may help to
explain why psychiatric labelling could affect sentencing. These theoretical frameworks analyze relationships between “discriminative stimuli” and “discriminatory behavior” by identifying cognitive mediators of these constructs (Corrigan, 2000). Dimensions of public stigma toward psychiatric illnesses are thought to potentially act as cognitive mediators resulting in discrimination (Corrigan, Markowitz, Watson, Rowan, & Kubiak, 2003).

Public understandings have also recently shifted to acknowledge biological influences to mental disorders. Literature has reported both mitigation of stigma and discrimination due to biological “labels” to psychiatric diagnoses (Pescosolido, Martin, Long, Medina, Phelan, & Link, 2010). Yet these labels can also increase stigmatization and discrimination, as individuals may be perceived as less treatable because of their illnesses’ biological influences (Phelan, 2005). As experimental literature regarding how biological “labels” may affect sentencing is mixed (Appelbaum & Scurich, 2015; Greene & Cahill, 2012; Saks et al., 2014; Schweitzer et al., 2011), it is unclear if and why stigmatization of psychiatric illnesses, even if affected by biological “labels,” influences sentencing views.

Utilizing this framework and a lay sample for several reasons discussed in the manuscript, this 2 x 2 partially-crossed, between-subjects multi-factorial experiment examines how psychiatric labels, and having diagnoses biologically “labelled,” affect sentencing beliefs. Dimensions of public stigma toward psychiatric illnesses are hypothesized to mediate sentencing views, as influenced by social cognitive theories of public stigma of mental health (Corrigan, 2000). Utilizing mediation analysis, four
psychiatric labels (Attention Deficit Hyperactivity Disorder, behavioral-variant Frontotemporal Dementia, High Functioning Autism, Borderline Intellectual Disability) led to significant beneficial effects on sentencing (less prison/rehabilitation support) as mediated by decreased stigmatization regarding lack of treatability, social acceptance, and personal responsibility. One biological “label” (Pedophilic Disorder) resulted in less prison support, as mediated by decreased stigmatization related to dangerousness.

This study supports the effects of psychiatric labelling on sentencing under the focal concerns perspective on sentencing. As no psychiatric labels resulted in increased discriminatory sentencing behavior and, instead, led to decreased discriminatory sentencing behavior, this research provides support that psychiatric labelling with certain disorders may reduce punitiveness and bolster non-punitive sentencing beliefs. Biological “labelling,” aside from Pedophilic Disorder, may not affect sentencing. Further implications from these findings, specifically for particular mental disorders in the criminal justice system, are also discussed.

**Paper 3 Summary**

The third paper in this dissertation is titled, “Judicial Stereotyping Associated with Genetic Essentialist Biases Toward Mental Disorders and Negative Effects on Sentencing.” Judges often stereotype offenders based on certain characteristics during sentencing (Ulmer, 1997). Judges’ sentencing views and practices appear to be particularly affected by the stereotyping of offender characteristics that have been defined as *essential characteristics*, which are thought to dictate a person’s identity (Haslam, Rothschild, & Ernst, 2002; Norenzayan & Heine, 2005). Although judicial stereotyping
can lead to either positive or negative effects on punishment, race, gender, and mental disorder diagnoses are essential characteristics that often negatively affect judges’ sentencing views through stereotyping (Doerner & Demuth, 2010; Jones & Cauffman, 2008; Steffensmeier, Ulmer, & Kramer, 1998).

However, one area that has not yet been empirically examined is when essential characteristics are described to be genetically influenced, and how and why this knowledge may negatively affect judges’ views on sentencing offenders with such characteristics. Adding knowledge of genetic influences to essential characteristics can result in additional unconscious psychological biases that may amplify existing stigmatization of such characteristics (Haslam & Ernst, 2002). These additional psychological biases, called genetic essentialist biases, embody the reductionist view that genetic makeup is an added characteristic that further determines how aspects of a person’s identity should be judged (Dar-Nimrod & Heine, 2011). As literature suggests that stereotyping an offender’s essential characteristics influences judicial sentencing practices, it is reasonable think that genetic essentialist biases associated with specific essential characteristics may also negatively affect judges’ views on punishment. This research looks to understand the process of judicial stereotyping related to genetic essentialist biases and its potential negative effects on sentencing with regard to one particular essential characteristic: mental disorder diagnoses.

This study, utilizing qualitative methodology and grounded theory analysis, develops a model that examines if and how judicial stereotyping associated with genetic essentialist biases may negatively affect sentencing views toward offenders with mental
disorders known or thought to be genetically influenced. A sample of 59 Pennsylvania state court judges who hear criminal matters is used as the research sample. Data, resulting in model development, suggest that judges exhibit stereotyping behavior by linking the relationships between three genetic essentialist biases (immutability, informativeness, and uniformity) and three types of stigmatization (pessimism, dangerousness, and family stigma) associated with each bias. When judges exhibited this stereotyping behavior without the effects of intervening factors, they then expressed how knowledge regarding the genetic influences to an offender’s mental disorder would negatively influence their sentencing views, specifically related to more support for deterrence and incapacitation. Three intervening conditions associated with judges’ personal characteristics (judges’ personal experiences involving genetics, strength of judges’ beliefs on scientific determinism compared to their free will beliefs, and judges having no personal experiences with mental disorders) influenced whether judges’ sentencing views were negatively influenced by such knowledge of genetics.

Ultimately, this paper offers the first empirical support of its kind suggesting that some judges may exhibit stereotyping toward certain essential characteristics when they are known to be genetically influenced and that such behavior has the potential to negatively affect sentencing, specifically related to deterrence and incapacitation. Further, this research also supports that at least some forms of judicial stereotyping may fit the model of stereotyping related to essential characteristics provided by the social psychological literature (Heatherton, 2003; Yzerbyt, Leyens, & Schadron, 1997). Implications for therapeutic jurisprudence are also discussed.
Abstract

This experiment, utilizing a sample of death-qualified jury-eligible public, examines if and how evidence on biological risk factors for criminality might affect views on the death penalty in four contexts: death penalty support, mitigation, future dangerousness, and cruel and unusual punishment. Results suggest that the presentation of evidence on biological risk factors generally, regardless of the specific risk factor, may not impact views on whether or not the use of the death penalty is appropriate. The presentation of biological risk factor evidence does not appear to be viewed as strongly mitigating, but biological risk factors generally do have a small, yet statistically significant, impact on perceptions of moral responsibility. The presentation of evidence on certain biological risk factors also may aggravate views of future dangerousness, which could potentially increase the likelihood that the death penalty is supported. Implications of these attitudes for the criminal justice system are discussed.

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Introduction

In recent decades, biosocial criminological theory has made its way into developmental and explanatory models of criminality, including how different neurological, genetic, and other physiological characteristics act as biological risk factors for the development of criminal behavior. Biological risk factors can be thought of as biological attributes that are associated with an increased risk of developing criminal or antisocial behavior, specifically when interacting with social risk factors for criminality such as a single-parent household, familial conflict, and low socioeconomic status (Yang et al., 2014). There has been a growing, robust body of literature on certain biological risk factors for criminality, including lower physiological reactivity, minor physical anomalies, prenatal nicotine and alcohol exposure, increased testosterone levels, brain damage, lower IQ, and low expressing alleles of the MAO-A gene, in recent years (Raine, 2002; Yang et al., 2014). Due to the growth of this research and its increasing exposure to the public, it is possible that public perceptions of and attitudes toward these risk factors may correspondingly impact perceptions on the appropriateness of certain legal responses to criminal offending. Accordingly, this current research examines if and how perceptions of evidence on biological risk factors for criminality might affect views toward the death penalty.

Although research on biological risk factors to criminal behavior has been included in academic literature in the last several decades, there is still little overall consensus within the criminological community on the importance and relevance of biological risk factors for the development of criminal behavior. Although contemporary biological approaches
integrate a complex combination of biological factors and environmental considerations, criminology has still been hesitant to welcome these approaches into use and theory for several reasons (Ellis & Hoffman, 1990; Raine, 2002a; Wortley, 2011). Some criminologists posit that biological risk factors to crime are irrelevant to the larger discipline, as they do not contribute to knowledge of patterns or universal theories concerning the causes or correlates of crime; others argue that biological risk factors, unlike social risk factors, cannot be meaningfully rooted in discussions that translate criminological theory to criminal justice policy (Walklate, 2007). There also remains substantial dispute within the discipline regarding whether research on biological risk factors is conclusive enough to be integrated into the larger body of criminological theory (Richerson et al., 2002). Additionally, there is debate surrounding what is meant when findings report an “increased risk” for the development of criminal behavior due to the exhibition of biological risk factors (Richerson et al., 2002), and whether literature reporting an “increased risk” for delinquency due to biological risk factors might be understood as deterministic (Walsh & Wright, 2015).

A direct result of these unresolved issues in the criminology community on biological risk factors has been a lack of clear information and answers for the public regarding how biological characteristics influence the development of criminal behavior and whether this research is pertinent to criminology and policy (Raine, 2002a). Yet a lack of consensus from the discipline on whether biological approaches are important to understanding the causes of criminal behavior, as well as a lack of consensus on whether biological risk factors should influence policy and the criminal justice system, have not
deterred public curiosity. Biological approaches represent popular areas of interest and
discussion in the media and amongst the general public (Rafter, 2008; Raine, 2002a). As
research on biological risk factors continues to grow, as well as gain popularity, scholars
have stressed the need for public engagement and attitude measurement on these issues,
specifically in two areas.

First, the criminology community has remained unresolved on the importance of this
research to understanding criminal behavior and if biological risk factors for criminality
should be integrated into criminological theory. Therefore, it is important to know how
the public and their views toward criminal behavior may be affected by this contention
within the criminology community (Jackson, 2006). Second, scholars have stressed the
need for public discussion and attitude measurement to examine how the public’s views
on biological risk factors may have practical implications for the legal process and affect
views on what should be considered appropriate punishments, as well as measure views
regarding how and if this research should be involved in the legal process and what types
of concerns the public may have about it entering courts (Sterzer, 2010).

Specifically, the area where public attitudes toward biological risk factors for
criminal behavior has been thought to potentially have the largest potential impact on the
legal system and views on the appropriateness of certain punishments is with regard to
capital sentencing (Rose, 2000). In capital sentencing, jurors decide whether or not an
offender should be sentenced to death. Evidence can be presented to provide reasons for
why a defendant should or should not receive a death sentence. Capital jurors are given
instructions to evaluate mitigating factors, presented by the defense, against aggravating
factors, presented by the prosecution. Mitigating factors include any evidence that may reduce the moral culpability of the defendant in the case or may provide other reasons for preferring a life sentence to death (“Mitigation in Capital Cases,” 2010). Yet, unlike aggravating factors, there is little structure or guidelines on what can and cannot be presented and considered by the jury when it comes to mitigating factors. In fact, the Supreme Court ruled that in deciding between the death penalty and life imprisonment, the jury may consider any mitigating evidence that a juror finds relevant (Costanzo & Costanzo, 1992).

Further, given the lax guidelines and the fact that jurors in capital cases are given the discretion to consider any mitigating evidence in their decisions whether or not an individual should be put to death, it is reasonable to think that a defense attorney who is representing an individual in a capital case would be interested in having this type of evidence presented and considered on behalf of the defendant during capital sentencing if available. Jurors’ attitudes in the courtroom toward offenders have been shown to be mitigated by characteristics that jurors perceive to be out of defendants’ control, including biological characteristics (Barnett, Brodsky, & Price, 2007). Additionally, evidence on biological, specifically neurological, characteristics of offenders have in some cases been viewed as mitigators to moral responsibility and death penalty sentences in existing experimental literature (e.g. Greene & Cahill, 2012; Saks et al., 2014). If biological risk factors are indeed thought to be viewed by some capital jurors as mitigators, Glenn and Raine (2014) argue that evidence on a range of biological risk factors for criminal behavior is likely to be presented by defense attorneys and in some
way considered by juries in death penalty trials in the future. Thus, knowing if biological risk factor evidence is perceived as potentially mitigating by the public, especially by those who are jury-eligible and death-qualified who may be similar to those who could serve on capital juries, is extremely informative for potentially how likely and in what manner this evidence could be utilized or presented in capital cases moving forward.

Along with the notion that biological risk factors might be presented as mitigating factors in death penalty trials, there are also two other respects with which attitudes toward biological risk factors for criminality may be important to capital contexts. First, attitudes toward biological risk factors to criminality are likely relevant to an offender’s perceived future dangerousness, which is known to affect views on the death penalty. In many states, future dangerousness can be considered as an aggravating factor for the death penalty and, in some states, its consideration is *necessary* to impose the death penalty (Edens, Buffington-Vollum, et al., 2005). For example, the Texas death penalty statute indicates that the jury must determine beyond a reasonable doubt that there is a likelihood that an offender would commit future criminally violent acts and represents a continuing threat to society to render a death sentence (Texas Statutes and Codes, 2000). Even outside jurisdictions in which determination of future violence risk is not an aggravating factor that jurors may legally weigh or where it must be considered, there is evidence that perceptions of future dangerousness remain a significant influence on sentencing decisions in capital cases. A study of South Carolina capital jurors suggests that the majority of capital jurors in capital sentencing deliberation spend a significant amount of time thinking about the offender’s perceived likelihood to kill again if not
executed (Blume et al., 2001). Further, jurors’ heightened perceptions of an offender’s likelihood of future dangerousness significantly influence the endorsement of death penalty for an offender, even when the alternative punishment is life imprisonment without parole (Blume et al., 2001).

Regarding biological risk factors for criminality, research has shown that an individual’s biological characteristics can be perceived to be immutable aspects of a person, which can lead to negative perceptions regarding how treatable he may be, how likely he will be able to change his behavior, or how dangerous he may be if his biological characteristics are associated with violence (e.g. Dar-Nimrod & Heine, 2011; Haslam, 2011). Thus, if information regarding an individual’s biological characteristics is presented as evidence that he exhibits biological risk factors for criminality, it is possible those characteristics may be viewed as significant evidence that an individual will be dangerous in the future and he will continue to be a dangerous risk to the safety of others if he is not executed. Regardless if future dangerousness must be considered in sentencing, is weighed as an aggravating factor, or it is just on the minds of jurors, evidence on biological risk factors could potentially be very influential on views regarding future dangerousness, and ultimately, influential on views whether the death penalty is thought to be an appropriate legal response to offending.

The second way in which attitudes toward biological risk factors for criminality may be important to capital contexts outside of mitigation involves the evolving standards of decency doctrine of Eighth Amendment jurisprudence. The Court, with regard to the death penalty under this doctrine, examines the opinions of state legislatures, sentencing
juries, judges, academics, the public, and the larger international community
to determine whether particular applications of the death penalty are considered “cruel
and unusual” (Haney, 2007). In this determination, the Court examines factors that
determine whether there is a “clear consensus” regarding whether the death penalty
should be applicable in certain contexts. Although social science research and public
attitude measurement, such as polls, are not thought to carry as much weight as other
evidence that measures the progression of society’s attitudes toward the appropriateness
of the death penalty in certain contexts, they have still been considered and cited by the
Court in its holdings as evidence or support of evidence regarding society’s evolving
standards or views toward perceived violations of cruel and unusual punishment,
especially in more recent opinions (Matusiak, Vaughn, & Carmen, 2014).

Further, biological characteristics of offenders have been considered in Eighth
Amendment analyses in recent years. Although not related to the death decisions, in
Graham v. Florida (2010), the Court cited neuroscience research to support conclusions
that there are fundamental differences between juvenile and adult brains that suggest
adolescents have mitigated culpability that should allow for somewhat mitigated
sentences (in this case, life without parole for non-homicide offenses was considered
cruel and unusual for juveniles). At present time, it is unclear if or why any biological
risk factors for criminality might be considered by the Court in Eighth Amendment
analyses with regard to potential violations of cruel and unusual punishment. Yet, given
the fact that neuroscientific factors have been already considered in such analyses and
biological risk factors might be potentially perceived to reduce moral culpability, it could
be possible moving forward. Therefore, this paired with the fact that the Court sometimes
considers social science evidence and measurements of public attitudes to gauge the
progression of society’s consensus on cruel and unusual punishment, knowledge of
public attitudes regarding whether the death penalty for offenders with certain biological
risk factors for criminality may be considered cruel and unusual could be important.

To date, there is only very limited research on how public attitudes toward biological risk factors may affect perceptions of the death penalty. Previous public attitude and jury research has specifically focused on examining whether certain neurological and genetic risk factors, rather than biological risk factors more generally, are seen as mitigating factors for the death penalty and responsibility. Schweitzer et al. (2011), utilizing a diverse sample of U.S. adults, found neuroimages of a mentally disordered offender did not impact sentencing or impressions of an offender when respondents were asked to read a variety of vignettes on criminal cases. Greene and Cahill (2012), employing a vignette-style experiment using a sample of psychology undergraduate students, found neuroimages of a defendant with psychosis significantly mitigated impressions of a defendant, his perceived likelihood of dangerousness, and ultimately his chances to be recommended for the death penalty. In a mock jury experiment, Saks et al. (2014) found that neuroimaging evidence on neural abnormalities associated with psychopathy and schizophrenia mitigated perceptions of moral responsibility and support for death sentences for a sample of U.S. adults. Yet, two recent vignette-style studies on the mitigating effects of information on behavioral genetics, including a case on whether a defendant should be sentenced to death, found no
significant influences on responsibility, impressions of defendants, or whether an individual was sentenced to death for two diverse samples of U.S. adults (Appelbaum & Scurich, 2014; Appelbaum et al., 2015).

Thus, these studies have found mixed evidence on whether information on specific neurological and genetic risk factors is considered mitigating (both generally and specifically as it relates to the death penalty), if it affects death penalty support, and if it may affect views of future dangerousness. Yet these studies have not examined the great majority of the most supported biological risk factors for criminality identified in the literature in the last several decades with regard to capital contexts and have not focused on how biological risk factors may influence other aspects of the death penalty discussed here, such the evolving standards of decency doctrine.

Building upon this framework in order to fill this gap in the literature, this research examines how the public’s views on biological risk factor evidence may impact perceptions of capital sentencing (Rose, 2000; Sterzer, 2010). This study, utilizing a between-subjects multi-factorial experimental survey design and survey with a sample of the death-qualified jury-eligible public, tests how evidence on biological risk factors (lower physiological reactivity, minor physical anomalies, prenatal nicotine and alcohol exposure, increased testosterone levels, brain damage, lower IQ, and low expressing alleles of the MAO-A gene) might impact views of the death penalty with regard to four the contexts discussed above:

1. Does evidence on biological risk factors affect perceptions of whether or not the death penalty is an appropriate legal response to offending?
2. Are biological risk factors considered mitigating factors in death penalty contexts, and correspondingly, does biological risk factor evidence mitigate perceptions of moral responsibility?

3. Does evidence on biological risk factors affect perceptions of future dangerousness in death penalty contexts?

4. Does evidence on biological risk factors influence views on whether the death penalty would be considered cruel and unusual punishment?

Further, biological risk factors are thought to increase the risk of exhibiting criminal or antisocial behavior when paired or interacting with social risk factors for criminality, such as a single-parent household, familial conflict, and low socioeconomic status (Yang et al., 2014). Thus, this research also examines if and how the inclusion of information on an offender’s potential social risk for offending, along with biological risk factor evidence, influences views toward the biological risk factor evidence and, correspondingly, toward the death penalty in the above contexts, compared to when biological risk factor evidence is presented alone without social risk factor information.

As previously mentioned, existing literature has not yet examined the majority of the most supported biological risk factors for criminality identified in the literature with regard to capital contexts, as well as only primarily focused on mitigation and support for the death penalty rather than other aspects of death penalty. Further, this existing literature has also reported mixed-results. As such, I entered this research with an open mind on what I would find and conceived of this study as largely exploratory with agnostic hypotheses.
Method

Research Design

This study utilizes a 7 x 2 (+1) multi-factorial survey experimental design with contrastive-vignettes, which combines concepts from classical experiments and survey methodology (Atzmuller & Steiner, 2010; Burstin, 1980; Ganong & Coleman, 2006). Each respondent in this research received one vignette about a death penalty case, that varied by two categories of independent variables (biological risk factor evidence, social risk factor information) with seven and two levels respectively, resulting in a 7 (biological risk factors evidence: lower physiological reactivity, minor physical anomalies, prenatal nicotine and alcohol exposure, increased testosterone levels, brain damage, lower IQ, and low expressing alleles of the MAO-A gene) x 2 (social risk factor information: poor social background, neutral social background) fully-crossed, between-participants experimental design. There was also one control vignette condition (+1) which held the facts of the death penalty case constant, but no biological risk factor evidence and no information on social background were included. The design of the vignette, the categories of independent variables, and vignette measures will now be described.

Experimental Vignette Design.

In this study, the vignette stimulus is structured as a newspaper article (based upon a real newspaper article, Smith, 2014) describing an offender, Anthony Thomas, who is appealing his death penalty sentence. In the control condition, Thomas is said to be appealing his sentence and a brief description of the case is presented, but the
presentation of new biological evidence is not included nor information on the offender’s social background. In all conditions except the control, Thomas is said to be appealing his sentence by presenting evidence on a biological risk factor for criminality that was not presented at his original trial. Further, information on his social background is included (instrument can be found in Appendix A). Names and some details have been changed from the case described in the original newspaper article just in case any respondents were to be familiar with the original case.

There are several reasons for choosing to use a post-conviction appeal scenario in this study, rather than asking participants to act as mock jurors during the sentencing phase of a death penalty case. The structure of this study is similar to one done by Edens, Guy, and Fernandez (2003) that examined public attitudes surrounding capital murder for juveniles when an individual is described as having psychopathic traits (compared to being described as non-psychopathic). That study used an amended form of an existing article on an individual’s death penalty conviction, followed by a set of general questions about the content of the article in order to assess the impact of their study variables in a “real world” context (Edens et al., 2003). By this, the authors meant that they wanted participants to feel as if they had happened upon the article in a newspaper and were thinking about their views on the issues and questions at hand more generally. This notion is supported by their description of the content and structure of their stimulus (Edens et al., 2003). By attempting to gauge public attitudes on the issues at hand in a “real world” setting, the authors chose not to examine public attitudes through their decision-making as mock-jurors with regard to a specific defendant framed in a legal
setting, but instead to use their stimulus to examine if certain variables would impact layperson perceptions of what types of legal response are most appropriate for an offender. Mock-juror research has been known to be limited due to cognitive biases of respondents (Kovera & Austin, 2016; Lieberman, Krauss, Heen, & Sakiyama, 2016; Wiener, Krauss, & Lieberman, 2011). Specifically, the influence of certain juror demographics such as race, similarities perceived between the mock juror and defendant, similarities or differences perceived between the mock juror and the judge or attorney in a case, the introduction of juror instructions, the structure of the deliberation, and giving participants direct control over verdicts or sentencing options, interact to produce response bias and affect jury verdicts and other study outcomes related to juror perceptions of an offender, his case, or his behavior (for a thorough review, see Devine et al., 2001). Additionally, mock jurors are often influenced by types of scientific evidence if it is presented by an expert witness, especially if the witness is portrayed as a “highly expert witness” presenting evidence on very complex information, which are sometimes used in mock juror studies (Cooper, Bennett, & Sukel, 1996).

Several of these same factors were considered when choosing to structure the stimulus as a vignette-style newspaper article. Similar to the Edens et al. (2003) study, the newspaper vignette used here is an amended version of a real article on a death penalty appeal (Smith, 2014). Although study measures are asked about the defendant in the vignette and may be informative or have implications for capital juror decision-making, the aim of this study is to assess how biological risk factors may influence lay person perceptions and public attitudes of capital sentencing and the appropriateness of
the death penalty more generally and not just specifically in this case. As such, similar to Edens et al. (2003), I chose not to ask respondents to think of themselves as jurors, structure the stimulus like a mock-jury study, read juror instructions, act as mock jurors in sentencing, weigh mitigating and aggravating factors, render legal decisions related to the specific defendant in the vignette, or provide some demographic information on the offender, such as race or geographic location, that are known to result in response bias in mock-jury research (Cooper et al., 1996; Devine et al., 2001; Edens et al., 2003). I also did not have the biological risk factor evidence presented by an expert in the stimulus. Instead, since this research examines public attitudes rather than mock juror perceptions or decision-making, I structured the stimulus in a “real world” context and attempted to structure and ask questions as those soliciting general opinions, rather than those directly related to legal decision-making, in order to encourage participants to think about their perceptions and attitudes on these issues more generally.

**Independent Variables.**

There are two categories of independent variables in this study that were randomly varied across administered vignettes: biological risk factor evidence and social risk factor information. In all vignette conditions except the control, participants randomly received one piece of evidence on the offender’s biological characteristics (one of the seven biological risk factors described below) and randomly received information on the offender’s social background (either the individual comes from a neutral or poor social/family background) (see Appendix A). For respondents who received the one control condition, respondents neither received evidence on the offender’s biological
characteristics nor his social background.

For the first set of independent variables, seven different biological risk factors are used in this study: lower physiological reactivity, minor physical anomalies, prenatal nicotine and alcohol exposure, increased testosterone levels, brain damage, lower IQ, and low expressing alleles of the MAO-A gene. Each participant was presented with evidence on one and only one of these biological risk factors in their version of the vignette. The seven biological risk factors reported above have been chosen for use in this study due to the substantial amount of literature reported over the last several decades on each of these factors: lower physiological reactivity, including low resting heart rate and low skin conductance (Fairchild, van Goozen, Stollery, & Goodyer, 2008; Gao, Raine, Venables, Dawson, & Mednick, 2010; Kruesi, Casanova, Mannheim, & Johnson-Bilder, 2004; Ortiz & Raine, 2004; Wadsworth, 1976); minor physical anomalies (MPAs), which are physical attributes associated with fetal neural maldevelopment in the third trimester (Arseneault, Tremblay, Boulerice, Seguin, & Saucier, 2000; Firestone & Peters, 1983); prenatal nicotine and alcohol exposure, associated with a mother smoking and/or drinking during pregnancy (Brennan, Grekin & Mednick, 1999; Brennan, Grekin, Mortensen, & Mednick, 2002; Wakschlag, Pickett, Cook, Benowitz, & Leventhal, 2002); increased testosterone levels (Brook, Starzyk, & Quinsey, 2001); brain damage that affects emotional and social cognition, but not IQ (Yang et al., 2014); lower IQ, specifically associated with low verbal IQ (Moffitt, Lynam, & Silva, 1994); and low expressing alleles of the MAO-A gene, associated with serotonin neurotransmitter dysfunction (Moore, Scarpa, & Raine, 2002).
The second independent variable category in this research is information on an offender’s social background, representing information on the offender’s potential social risk for offending. Experimental vignette conditions varied by participants either receiving information on an offender’s poor social background or neutral social background (see Appendix A). The choice to vary experimental conditions by poor or neutral social background is due to the robust amount of literature reporting that biological risk factors interact with social risk factors for criminality, such as low socioeconomic status or single parent household (Raine, 2002a). Therefore, by including information on potential social risk factors along with the biological risk factor evidence, this allowed for the examination regarding if and how respondents’ perceptions of biological risk factors, with regard to the death penalty, are affected by the inclusion of an additional social risk factor that may interact with the biological risk factor, compared to when the offender’s social background is neutral.

**Dependent Measures.**

The dependent measures in this experiment measure if and how the independent variables influence participants’ attitudes toward the death penalty with regard to four contexts addressed in this study’s research questions:

**Death penalty support.** In order to assess if evidence on biological risk factors affects how likely respondents would support the death sentence as an appropriate legal response to offending, the following measure was asked to all respondents: “What do you believe the sentence should be for this crime?” and respondents were asked to select one of the following choices: *Death, Life without parole, or Life with chance of parole in 40*
years.

**Biological risk factor as mitigating factor.** In order to assess if evidence on biological risk factors are considered by respondents as a mitigating factor to the death penalty, the following question was asked to all respondents who received a piece of biological risk factor evidence (which was in paragraph 3 of the stimulus), who rated their answer on a scale from 1 to 100: “On a scale of 1 (completely disagree) to 100 (completely agree), rate how much you agree with the following statement: I believe the defendant’s responsibility is mitigated by the evidence discussed in paragraph 3 of the newspaper article.”

**Mitigating effect of biological risk factor on moral responsibility.** Another measure was also asked to all respondents specifically regarding the defendant’s total level moral responsibility (“Considering all the information provided, rate the defendant’s moral responsibility for his crime from 1 (not at all responsible) to 100 (completely responsible).”) to see if and how the inclusion of biological risk factor evidence and potential inclusion of social risk factor information may affect respondents’ views concerning the offender’s total level of moral responsibility.

**Future dangerousness.** In order to assess if evidence on biological risk factors affects respondents’ views of future dangerousness, the following question was asked to all respondents, who rated their answer on a scale from 1 to 100: “On a scale of 1 (not at all) to 100 (completely), how well does the statement “He is likely to be violent in the future” describe the defendant?”

**Cruel and unusual punishment.** In order to assess if evidence on biological risk
factors influences views if the death penalty might be considered cruel and unusual punishment, the following question was asked to all respondents, who rated their answer on a scale from 1 to 100: “On a scale of 1 (not at all) to 100 (completely), rate how much you agree with the following statement: Sentencing this individual to death would be considered cruel and unusual punishment.”

**Evidence of biological risk.** All respondents who received a piece of biological risk factor evidence were also asked a question regarding the degree to which participants specifically considered the evidence on the offender’s biological characteristics, presented to them in each of their vignettes, as evidence of a risk factor for the development of criminal behavior (“On a scale of 1 (do not agree at all) to 100 (completely agree), rate how much you agree with the following statement: I would consider the evidence discussed in paragraph 3 of the newspaper article as a risk factor for the development of criminal behavior.”). This question was included in this study in order to examine whether respondents’ endorsements of certain types of biological evidence as biological risk factors for criminality may help to explain whether respondents support the use of the death penalty or any of their views on the death penalty in the other described contexts.

**Sampling Procedure**

The views of those individuals who are eligible to serve on juries and who are not opposed to the use of the death penalty are most pertinent to this current research, since they would not be inherently opposed to the use of the death penalty as a legal response to offending and exhibit two necessary characteristics (jury-eligibility and death-
qualification) that are necessary to potentially serve as jurors in capital sentencing. Thus, the target population for this study was the death-qualified jury-eligible U.S. adult population.

The sample for this study was drawn from a population of U.S. adults who opt-in to complete studies for the online survey marketing firm, Amazon’s Mechanical Turk in December 2015. When posting the study to Amazon’s Mechanical Turk in order to recruit participants, the title of the study and the description of the study requested respondents who were age 18 and above, jury-eligible, and would support the death penalty in at least some contexts. The study was first piloted to ensure comprehensibility and readability by requesting the participation of 5 to 7 “workers” that fit the sample frame (age 18+, U.S. citizens residing in the U.S., jury-eligible, not opposed to the use of the death penalty) to pilot the 15 versions of the vignette. Once I ensured that the study was understood by participants, I requested for responses from additional “workers” that fit the sample criteria, with a target sample of 40 respondents per vignette condition. An IP blocker was used to ensure that each respondent could only take the survey once. After the total sample of individuals that fit these criteria chose to participate in the study during the pilot and the total launch, no additional individuals were able to participate in the study and the survey was closed. Individuals were paid $0.75 for their participation in the ten-minute study.

Forty respondents were each randomly administered one of fifteen different versions of the vignette, with a total target sample of 600 respondents. The vignette was administered to forty respondents per condition in order to attain sufficient statistical
power to detect effects and differences between conditions. Literature has reported that at least twenty respondents are needed per condition to provide sufficient power when using t-tests (Simmons, Nelson, & Simonsohn, 2011). As this study also utilized two-way ANOVAs with 15 groups, power analysis for this study design using g-power, with an alpha of 0.05 and for a medium effect size (0.25), also indicated a sample size of 600 was more than sufficient to achieve power = 0.80.

**Study Administration**

This study used web-based methods to administer this study. The study itself was built on Qualtrics, which is an established online survey platform. Informed consent was collected from all participants, which were each then randomly administered one of the fifteen vignette conditions. After reading a single vignette, participants answered dependent measures designed to measure how the biological risk factor evidence and social risk factor information influenced attitudes toward the death penalty, and then all participants were presented a set of six non-experimental survey questions (not described or included in this analysis). At the end of the survey, participants completed a manipulation check that measured recall of the facts in the vignette and an honesty question in order to ensure respondents attentively engaged in the study. Further, although the title of the study and the description of the study posted on Amazon’s Mechanical Turk requested respondents who were age 18 and above, jury-eligible, and would support the death penalty in at least some contexts, two questions were also asked to respondents to confirm whether or not they were supportive of the death penalty in at least some cases (death-qualification) and whether they were jury-eligible to ensure that
respondents did indeed fit the sample frame. Respondents also provided demographic information. The University of Pennsylvania Institutional Review Board approved this study.

Data Analysis

Data were analyzed using the statistical software, STATA (version 14). As this study sought to examine if the presentation of biological risk factor evidence, both generally and factor-specific when paired with and without social risk factor information, may significantly influence views toward various contexts related to capital sentencing, several analyses were carried out in order to address this study’s research questions. In order to examine if evidence on biological risk factors affected respondent perceptions on the appropriateness of the death sentence penalty (Death penalty support), logistic regression was used (after combining Life without possibility of parole and Life with parole in 40 years into a Non-death category in order to make the dependent variable binary) to examine two phenomena: (1) whether the inclusion of evidence on specific biological risk factors, compared to the inclusion of other risk factors, and social background could predict the likelihood of respondents endorsing the use of death penalty, as well as (2) if the inclusion of evidence on biological risk factor evidence generally, compared to the control condition in which no biological evidence was presented, could predict the likelihood of respondents supporting the use of the death penalty.

In order to examine if biological risk factor evidence, when paired with or without social risk factor information, mitigates perceptions of an offender’s moral responsibility
(Mitigating effect of biological risk factor on moral responsibility), affects views of future dangerousness in death penalty contexts (Future dangerousness), and affects views of whether or not the death penalty would be considered cruel and unusual (Cruel and unusual punishment), two-way ANOVAs were used to identify the main and interaction effects of the two independent variable categories (biological risk factor evidence variables, social risk factor information variables) on continuous dependent measures. Only significant interaction effects will be reported, and Tukey HSD post-hoc tests were conducted if ANOVAs showed significant main effects.

For views of future dangerousness in death penalty contexts (Future dangerousness), two point-biserial correlations were also used to assess the association between respondent views on future dangerousness and support of the death penalty (both for respondents receiving any piece of biological risk factor evidence and those receiving certain biological risk factors). Further, Welch’s t-test, which is more reliable than student’s t-test when two samples have unequal sample sizes which was true of the data in this study, was used to compare if the mean ratings of respondents who received vignette conditions including evidence on biological risk factors on these three dependent measures significantly differed from those of respondents who received the control vignette condition.

Finally, two dependent measures were asked only to individuals who received a vignette with biological risk factor evidence (all conditions except the control). In order to examine if biological risk factor evidence impacted these respondents’ views on what may be considered mitigating factors in death penalty contexts (Biological risk factor as
mitigating factor) and if the biological characteristics presented were considered evidence of biological risk factors (Is the presented evidence considered a “biological risk factor”?), one-way ANOVAs were used to identify the main effects of the biological risk factor evidence variables on continuous dependent measures, followed by Tukey HSD post-hoc tests if an ANOVA showed a main effect. Descriptive statistics were calculated for some of the experimental measures and for participant demographics.

Results

Demographics

All members of the sample were located in the United States of America, age 18 and older, jury-eligible, and supported the use of the death penalty in at least some cases. Approximately forty participants were recruited for each vignette condition (n = 600). Data from twenty-nine participants did not fit the sample frame or failed the manipulation check. Five respondents failed the “check” question and three participants answered the “honesty” question inaccurately. Although the study requested respondents who were age 18 and above, jury-eligible, and would support the death penalty in at least some contexts, two questions were also asked to respondents to confirm whether or not they were supportive of the death penalty in at least some cases and whether they were jury-eligible to ensure respondents did fit the sample frame. Six respondents indicated by their answers that they were not eligible for jury duty and fifteen individuals indicated that they did not support the death penalty in any contexts, and thus, were removed from analyses. After removing data from these twenty-nine participants that did not fit the sample frame or who failed the manipulation check, the total sample is 571 respondents.
The mean age of respondents was 39.19 years ($SD = 12.05$), and the age range of participants was from 20 to 78 years of age. The sample was 52.19% male ($n = 298$) and 47.81% female ($n = 273$). The sample was also 84.49% white ($n = 483$). The majority of respondents (57.79%) had a college or post-graduate education ($n = 330$), and the median household income of participants was $22,500 - $39,999. Full demographics are available upon request.

**Experiment Results**

Results\(^2\) are provided here below, as organized by the dependent measures utilized in this study that sought to examine if and how the independent variables influence participants’ attitudes toward the death penalty with regard to four contexts addressed in this study’s research questions. In addition to Tables 1.1 through 1.4, descriptive statistics for variables included in the analyses are included in Appendix A.

**Death penalty support.**

After reading the vignette, the first question asked to all respondents was to indicate their beliefs regarding what the sentence should be for the crime described in the vignette when given the choices of *Life without parole*, *Life with parole in 40 years*, and *Death*. Since this study examines whether evidence on biological risk factors affects how likely respondents would endorse the death penalty for an offender, responses that endorsed *Life without parole* and *Life with parole in 40 years* were ultimately combined into a *Non-death* category during analysis in order to create a binary dependent variable

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\(^2\) All presented models were run with and without controlling for demographic variables (age, gender, race, income, education), of which did not significantly change any of the presented results. Models without demographic controls are presented, but results with demographic controls are available upon request.
(Death = “1”, Non-death = “0”) and conduct two binomial logistic regressions.

First, logistic regressions were conducted to examine whether the inclusion of evidence on specific biological risk factors, compared to each other (i.e. the inclusion of evidence on brain damage compared to the inclusion of evidence on low IQ compared to the inclusion of evidence on MPAs, etc.), and social background could predict the likelihood of respondents endorsing the death penalty for the crime described in the vignette. Results showed that for participants who received a piece of biological risk factor evidence, whether or not they supported the death penalty was not significantly affected nor dependent on the specific biological risk factor evidence included in their vignette, nor dependent on the inclusion or omission of information poor or neutral social background \((LR \ chi^2(13) = 6.92, df = 13, p = 0.91, n = 532)\). Results of this logistic regression, with lower physiological reactivity as the reference category, are included in Table 1.1.

After observing that participants’ support for the death penalty was not significantly influenced by evidence on specific biological risk factors nor social background, a logistic regression was conducted to examine if the inclusion of evidence on biological risk factor evidence generally, controlling for social background, could predict the likelihood of respondents supporting the death penalty in this context compared to the control condition in which no biological evidence was presented. Results of the logistic regression showed that participants’ choices regarding whether or not to endorse the death penalty were not significantly affected nor dependent on whether biological risk factor evidence was included in their vignette, regardless of the specific
factor, compared to the control condition ($LR \text{ chi}^2(8) = 3.11, df = 8, p = 0.93, n = 571$).

Results of this logistic regression are included in Table 1.2.

Descriptively, when asked to choose a punishment, 30.6% of all respondents ($n = 163$) who received a piece of biological risk factor evidence, regardless of the specific factor, selected death, while 69.4% of respondents (total $n = 369$) selected a non-death sentence. For those in the control condition who received no biological risk factor evidence, 25.7% respondents ($n = 10$) selected death, while 74.3% of respondents selected a non-death sentence (total $n = 29$).

**Cruel and unusual punishment.**

All respondents were asked to rate, on a scale of 1 (not at all) to 100 (completely), how much they agreed with the statement that sentencing the offender to death would be considered cruel and unusual punishment. Across all vignette conditions in which biological risk factor evidence was presented, the mean rating of respondents was 37.35 ($SD = 34.8$) regarding their level of endorsement that death would be considered cruel and unusual punishment; this was not significantly different from the average rating of respondents ($M = 42.77, SD = 31.75$) who received the control condition of the vignette that did not include the presentation of biological risk factor evidence ($t = 1.02, df = 44, p = 0.31, n = 571$). For those conditions in which respondents received a piece of biological risk factor evidence, a two-way ANOVA revealed no significant main or interaction effects for either independent variable category (biological risk factor evidence, social risk factor information) regarding whether respondents believed that sentencing the offender to death would be considered cruel and unusual (model: $F_{13,518} = 0.94, p = 0.51,$
meaning participant ratings were not significantly affected nor dependent on the specific biological risk factor presented in their vignette nor social background.\(^3\)

**Future dangerousness.**

Next, respondents were asked to rate on a scale of 1 (not at all) to 100 (completely) how well the statement, “He is likely to be violent in the future” describes the defendant. Across all vignette conditions in which biological risk factor evidence was presented, the mean rating of respondents was 66.23 (SD = 25.23) regarding their level of endorsement that the offender would be violent in the future; this was significantly different from the average rating of respondents (\(M = 57.08\), \(SD = 24.47\)) who received the control condition of the vignette that did not include the presentation of biological risk factor evidence (\(t = 2.25, df = 544, p < 0.05, n = 571\)).

For those conditions in which respondents received a piece of biological risk factor evidence, a two-way ANOVA revealed a significant main effect for biological risk factor evidence (\(F_{6,518} = 2.63, p < 0.01, n = 532\)), but not for the social risk factor information (\(F_{1,518} = 0.05, p = 0.82, n = 532\)). Since the biological risk factor evidence showed a significant main effect, post-hoc tests were conducted to examine how the biological risk factor evidence influenced respondents’ answers. Respondents who received biological risk factor evidence regarding an offender’s low IQ (\(M = 59.16\), \(SD = 28.39\), \(n = 74\)) rated their endorsement of the statement “He is likely to be violent in the future” at 66.23 (SD = 25.23), which was significantly higher than the average of 57.08 (SD = 24.47) for respondents who received the control condition of the vignette that did not include the presentation of biological risk factor evidence (\(t = 2.25, df = 544, p < 0.05, n = 571\)).

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\(^3\) Analyses related to cruel and unusual punishment were also run to see whether or not endorsement of death penalty impacted views on cruel and unusual punishment; when running analyses that controlled for endorsement of the death penalty, it did not affect respondent views on cruel and unusual punishment. Results of analyses including this control are available upon request.
future” significantly lower compared to those respondents who received a vignette in which the biological evidence presented consisted of low physiological reactivity ($M = 68.39, SD = 24.84, p < 0.05, n = 73$), brain damage ($M = 70.21, SD = 23.07, p \leq 0.01, n = 75$), high levels of testosterone ($M = 69.90, SD = 23.88, p < 0.05, n = 78$), or low expressing alleles of the MAO-A gene ($M = 69.19, SD = 22.77, p < 0.05, n = 78$).

Further, respondents who received evidence on the offender’s low physiological reactivity ($M = 68.39, SD = 24.84, p < 0.05, n = 73$), brain damage ($M = 70.21, SD = 23.07, p < 0.01, n = 75$), high levels of testosterone ($M = 69.90, SD = 23.88, p < 0.01, n = 78$), or low expressing alleles of the MAO-A gene ($M = 69.19, SD = 22.77, p < 0.01, n = 78$) rated their endorsements of the offender’s likelihood for future violence significantly higher compared to those respondents receiving the control vignette condition in which no biological risk factor evidence was presented ($M = 57.08, SD = 24.11, n = 39$).

Finally, since future dangerousness has been argued to affect views on the support for the appropriateness of the death penalty in cases (Blume, Garvey, & Johnson, 2001), I chose to assess the association between respondent views of future dangerousness and their support of the death penalty. A point-biserial correlation was first used to assess the association between respondent views on future dangerousness (1 to 100) and support of the death penalty (“Death = “1”, Non-death = “0”) for respondents receiving any piece of biological risk factor evidence. Results showed a moderately positive significant relationship between higher levels of future dangerousness ratings and support for the death penalty (Coefficient = 0.4604, $t = 11.94, p < 0.0001, df = 530$). Second, a point-biserial correlation was used to assess the association between respondent views on future
dangerousness (1 to 100) and support of the death penalty (Death = “1”, Non-death = “0”) for respondents receiving any of the four biological risk factors reported above (low physiological reactivity, brain damage, high levels of testosterone, low expressing alleles of the MAO-A gene); results also showed a moderately positive significant association between higher levels of future dangerousness ratings and these respondents’ support for the death penalty as an appropriate legal response to offending (Coefficient = 0.441, \( t = 8.66, p < 0.0001, df = 302 \)).

**Biological risk factor as mitigating factor.**

On a scale of 1 (completely disagree) to 10 (completely agree), respondents who received a piece of biological risk factor evidence rated how much they agreed that the defendant’s responsibility is mitigated by the evidence discussed in paragraph 3 of the newspaper article, which was the description of the specific biological risk factor evidence included in their vignette. The mean values of respondents’ endorsements for this statement for each biological risk factor can be found in Table 1.3. Since the question specifically asked respondents about their beliefs on the biological risk factor evidence they received (and did not ask them to consider any other aspect of the vignette), a one-way ANOVA (with the biological risk factor evidence as the independent variable) was conducted and revealed significant differences for this question between groups of respondents receiving the seven different pieces of biological risk factor evidence (\( F_{6,525} = 3.59, p < 0.01, n = 532 \)).

Post-hoc tests revealed that respondents who received biological risk factor evidence regarding an offender’s brain damage (\( M = 36.33, SD = 30.12, n = 75 \)) agreed
significantly more that the defendant’s responsibility is mitigated by the evidence compared to those respondents who received a vignette in which the biological evidence presented consisted of low physiological reactivity ($M = 25.41, SD = 30.72, p < 0.05, n = 73$), minor physical anomalies ($M = 23.33, SD = 26.33, p < 0.01, n = 79$), prenatal nicotine and alcohol exposure ($M = 16.27, SD = 22.52, p < 0.001, n = 76$), high levels of testosterone ($M = 26.14, SD = 28.63, p < 0.05, n = 78$), or low expressing alleles of the MAO-A gene ($M = 27.07, SD = 27.86, p < 0.05, n = 78$). Further, respondents who received biological risk factor evidence regarding an offender’s prenatal nicotine and alcohol exposure ($M = 16.27, SD = 22.52, n = 76$) agreed significantly less that the defendant’s responsibility is mitigated by the evidence compared to those respondents who received a vignette in which the biological evidence presented consisted of lower IQ ($M = 29.37, SD = 29.62, p < 0.01, n = 74$), brain damage ($M = 36.33, SD = 30.12, p < 0.0001, n = 75$), high levels of testosterone ($M = 26.14, SD = 28.63, p < 0.05, n = 78$), or low expressing alleles of the MAO-A gene ($M = 27.07, SD = 27.86, p < 0.05, n = 78$).

**Mitigating effect of biological risk factor on moral responsibility.**

Relatedly, considering all the information provided, all respondents were asked to rate the defendant’s moral responsibility for his crime from 1 (not at all responsible) to 100 (completely responsible). Across all vignette conditions in which biological risk factor evidence was presented, the mean rating of respondents on total level of moral responsibility was 90.31 ($SD = 16.85$); this was significantly different than the average rating of respondents who received the control condition of the vignette ($M = 96.51, SD = 5.83$) that did not include the presentation of biological risk factor evidence ($t = 5.23, df = \)
For those respondents who received a piece of biological risk factor evidence, a two-way ANOVA revealed no significant main or interaction effects for either independent variable category (biological risk factor evidence, social risk factor information) on the defendant’s total level of moral responsibility (model: $F_{13,518} = 1.29$, $p = 0.21, n = 532$), meaning participant ratings were not significantly affected nor dependent on the specific biological risk factor presented in their vignette nor social background.

**Evidence of biological risk.**

Finally, respondents who received a piece of biological risk factor evidence rated how much they agreed with the statement, “I would consider the evidence discussed in paragraph 3 of the newspaper article as a risk factor for the development of criminal behavior,” which was the description of the biological risk factor evidence, on a scale of 1 (do not agree at all) to 100 (completely agree). The mean values of respondents’ endorsements of this statement for each biological risk factor can be found in Table 1.4. Once again, since the question specifically asked respondents about their beliefs on the biological risk factor evidence (and asked them not to consider any other aspect of the vignette), a one-way ANOVA (with the biological risk factor evidence as the independent variable) was conducted and revealed significant differences between groups of respondents receiving the seven different pieces of biological risk factor evidence ($F_{6,525} = 8.31, p < 0.0001, n = 532$).

Post-hoc tests revealed numerous significant pairwise comparisons between groups. Respondents who received biological risk factor evidence regarding an offender’s
prenatal nicotine and alcohol exposure \((M = 23.90, SD = 25.51, n = 76)\) agreed significantly less that the evidence was a risk factor for the development of criminal behavior compared to those respondents who received all other types of biological evidence presented: low physiological reactivity \((M = 40.00, SD = 31.82, p < 0.01, n = 73)\), minor physical anomalies \((M = 36.19, SD = 30.81, p < 0.01, n = 79)\), brain damage \((M = 56.42, SD = 30.61, p < 0.0001, n = 75)\), lower IQ \((M = 37.66, SD = 31.07, p < 0.01, n = 74)\), high levels of testosterone \((M = 43.28, SD = 30.20, p < 0.0001, n = 78)\), and low expressing alleles of the MAO-A gene \((M = 46.51, SD = 32.40, p < 0.0001, n = 78)\).

Conversely, respondents who received biological risk factor evidence regarding an offender’s brain damage \((M = 56.42, SD = 30.61, n = 75)\) agreed significantly more that the evidence was a risk factor for criminality compared to those respondents who received all other types of biological evidence presented except low expressing alleles of the MAO-A gene: low physiological reactivity \((M = 40.00, SD = 31.82, p < 0.01, n = 73)\), minor physical anomalies \((M = 36.19, SD = 30.81, p < 0.0001, n = 79)\), prenatal nicotine and alcohol exposure \((M = 23.90, SD = 25.51, p < 0.0001, n = 76)\), lower IQ \((M = 37.66, SD = 31.07, p < 0.001, n = 74)\), and high levels of testosterone \((M = 43.28, SD = 30.20, p < 0.01, n = 78)\).

**Discussion**

The research reported here examines how evidence on different biological risk factors, potentially paired with evidence on a defendant’s social background or risk for offending, might affect the public’s views on the death penalty in several contexts, including views on the death penalty as an appropriate legal response for offending,
mitigation, future dangerousness, and cruel and unusual punishment. Overall, the results of the experiment suggest that the presentation of evidence on biological risk factors, either generally or factor-specific, does not affect views on the appropriateness of the death penalty as a legal response to offending. Further, information on the defendant’s social risk also does not appear to affect respondents’ views on the death penalty or their consideration of the biological risk factor evidence with regard to any of the capital context examined in this research. Although evidence on biological risk factors was not shown to significantly affect views on the appropriateness of the death penalty in the case and fact pattern utilized in this study, this research does indicate biological risk factor evidence may influence public views on two aspects of capital sentencing.

First, with regard to mitigation, biological risk factor evidence generally does appear to have the potential to mitigate, but these results suggest that it is not viewed as strongly mitigating and the specific risk factor presented is not significant. Respondents who received biological risk fact evidence, regardless of the specific factor presented, did indeed view the offender’s total level of moral responsibility as significantly less than those who received the control condition of the vignette. However, although respondents indicated that brain damage was viewed as significantly more mitigating to the offender’s responsibility compared to five of the other risk factors, the brain damage evidence did not lead to a significant increase nor decrease regarding views of the offender’s total level of moral responsibility, compared to the presentation of biological risk factor evidence generally. Thus, although brain damage may be viewed as more mitigating than the other factors, it likely is not viewed as strongly mitigating enough to affect views of an
offender’s total level of moral responsibility.

Further, although biological risk factor evidence does provide at least some significant mitigating effect on views of moral responsibility, the general presentation of biological risk factor evidence does not appear to be viewed as strongly mitigating either. Even though significantly less than the control, the mean rating of respondents across all vignette conditions in which biological risk factor evidence was presented regarding the offender’s total level of moral responsibility was still very high ($M = 90.31$), which suggests the belief that the offender was still almost completely morally responsible for his behavior. This pattern may indicate that the potential significant mitigating effect of this evidence on views of moral responsibility may largely depend on the fact pattern or case in which it is being presented. In this case, the offender’s total level of moral responsibility was perceived to be overwhelmingly high by those that received the control condition of the vignette ($M = 96.51$). Since the biological risk factor evidence was likely not viewed as strongly mitigating, the general presentation of biological risk factor evidence was only able to significantly affect respondent views on moral responsibility to a certain degree or “floor,” which ultimately still resulted in very high ratings of moral responsibility.

Yet, this evidence could be more significant and effectual to views on moral responsibility in other cases in which views of an offender’s moral responsibility are more questionable or variable. If there are other circumstances that may complicate perceptions of an offender’s total level of moral responsibility or if there are other mitigating factors being considered, it is possible that views of an offender’s moral
responsibility, aside from the presentation of biological risk factor evidence, might be perceived to be much lower than in the case utilized in this research. In such cases, the effect of biological risk factor evidence on views of moral responsibility could be potentially more likely to impact views on appropriateness of the death penalty as a legal response, even though it may not be viewed as strongly mitigating.

One final interesting finding regarding mitigation is that prenatal nicotine and alcohol exposure was viewed as significantly less mitigating to total moral responsibility compared to four of the other risk factors. This was surprising, as it is common knowledge that drinking and smoking during pregnancy can be bad for an unborn fetus and can cause significant damage to the health of the baby after birth (McNulty, 1987; Peadon et al., 2010). As such, one might have assumed that the presentation of this factor would result in more mitigating attitudes toward an individual who exhibits this risk factor, rather than it being viewed as the least mitigating factor, as it is commonly known to negatively affect neurological development and behavior. Future research should assess why prenatal nicotine and alcohol exposure may be less associated with mitigation compared to other, potentially less familiar, biological risk factors.

Second, these results provide evidence regarding how certain biological risk factors might affect views of future dangerousness, which could ultimately impact views on whether or not the death penalty is an appropriate legal response. Exhibition of low physiological reactivity, brain damage, high levels of testosterone, or low expressing alleles of the MAO-A gene appear to be significantly positively associated with potential for future violence, and results also indicated that there was a moderately positive
significant relationship between increased views of future dangerousness associated with these four factors and support for the use of the death penalty. Thus, although these risk factors did not impact support for the death penalty of and by themselves, future dangerousness associated with these four risk factors could increase support for the death penalty. As perceptions of future dangerousness have been shown to be extremely influential on support for the use of the death penalty (Blume et al., 2001), it is possible that evidence on or the exhibition of one of these four risk factors could impact views on support for or on the appropriateness of the use of the death penalty in other cases or contexts.

One other notable finding related to future dangerousness was that respondents who read that the offender exhibited brain damage rated likelihood for future violence the highest, which is an interesting contrast to brain damage evidence also being viewed by respondents as the most mitigating factor with regard to moral responsibility. This might suggest and provide support that brain damage evidence is viewed as a “double-edged sword,” meaning that it can be viewed as either positively or negatively with regard to an offender, his characteristics, and his future behavior depending on an individual’s perceptions (Jones & Shen, 2012). On one hand, such evidence may support that the neurological deficits of the offender make him more immutable to intervention and, therefore, he is a permanent danger in the future. This could lead to aggravated views of future dangerousness. On the other hand, such evidence might be viewed as evidence of an offender and his behavior being influenced by his “biological brokenness” or by neurological deficits out of his control, and therefore, result in perceptions that his moral
responsibility for his actions is diminished. This could lead to mitigated views of moral responsibility (Barth, 2007; Jones & Shen, 2012). Thus, it appears that brain damage evidence might result in “double-edged” views regarding mitigation and risk of future criminal behavior in relation to the death penalty.

One context related to capital punishment that appears not to be affected by biological risk factor evidence is the evolving standards of decency doctrine. The presentation of evidence that an offender exhibits a biological risk factor, regardless of the specific factor, did not significantly affect views on whether the death penalty should be considered cruel and unusual punishment. Since social science research and public attitude measurement are sometimes considered by the Court as evidence or support of evidence regarding society’s evolving views on cruel and unusual punishment (Matusiak et al., 2014), this research indicates that societal views on biological risk factors for criminality have likely not yet progressed or evolved to a point where there might be serious questions raised by the public on whether the application of the death penalty for offenders who exhibit biological risk factors would be considered cruel and unusual. Therefore, this suggests that Eighth Amendment analyses would not yet be affected by public attitudes on these issues.

One final interesting finding of this research surrounds respondents’ views on whether they considered the evidence they received on the offender’s biological characteristics as evidence of a biological risk factor for the development of criminal behavior. Although some biological characteristics were more significantly considered to be risk factors compared to others (e.g. brain damage more than most other risk factors,
prenatal nicotine and alcohol exposure less than all other risk factors), respondents’ average ratings for the biological risk factors examined in this research showed either negative or mixed, “middle of the road” views that the evidence they received on the biological characteristics of the offender should be considered a biological risk factor. In fact, brain damage was most considered by respondents to be a risk factor, and the mean rating was only slightly above the middle value of the rating scale on whether respondents considered the presented evidence as that of a biological risk factor ($M = 56.42$). Thus, as the biological characteristics examined in this research do not appear to be particularly or strongly perceived as risk factors for criminality by the public, two further questions arise: (1) what are the public perceiving these biological characteristics as if they are not being viewed as biological risk factors?; and, correspondingly, (2) why might these biological characteristics not affect respondents’ views toward the appropriateness of the death penalty, if they are not being viewed as biological risk factors? Unfortunately, these questions are not addressed in the scope of this study, but they do represent an area ripe for future research that should be examined in future inquires.

Ultimately, as participants in this research are members of the death-qualified jury-eligible public that could be in a position to serve on capital juries or may be similar to individuals who could serve on capital juries, there are three potential implications of this work for the criminal justice system. First, the fact that these results suggest that the presentation of biological risk factor evidence may not influence views on the appropriateness of the use of the death penalty may signify to defense attorneys, who
might be considering whether or not to have testimony on biological risk factors presented in court by an expert during capital sentencing, that presentation of such evidence may be unnecessary if it will not have any significant benefit or increase the likelihood of life without parole, rather than death, for their clients. Further, the prosecution might forgo presenting biological risk factor evidence with hopes that it might be viewed as aggravating, especially related to future dangerousness, if it is thought that the evidence will not significantly positively affect support for a death sentence.

Second, this research indicates several practical considerations for attorneys and experts concerning what might or might not be influential or beneficial regarding the presentation of biological risk factor evidence. Although this research suggests evidence on biological risk factors for criminality might not be viewed as strongly mitigating, it also suggests that it does significantly mitigate views of an offender’s overall level of moral responsibility. Thus, in certain contexts, especially with regard to cases in which there are other circumstances or factors that may mitigate views of an offender’s moral responsibility aside from the biological risk factor evidence, defense attorneys might choose to have biological risk factor evidence presented as a mitigator if it is thought that it could be beneficial and help to reduce support for a death sentence. Further, the specific type or characteristics of the biological risk factor does not appear to matter with regard to affecting views on an offender’s total level of moral responsibility. As such, experts might choose to focus testimony more on biological risk factors or associations to offending as mitigators generally and less on the specific characteristics of certain risk
As discussed above, the presentation of evidence on certain biological risk factors (lower physiological reactivity, high testosterone levels, brain damage, low expressing alleles of the MAO-A gene) also appears to aggravate views regarding future dangerousness. Therefore, defense attorneys may ask experts to use parts of their testimony in an attempt to counteract or assuage fears about future dangerousness if an offender exhibits one of these specific risk factors. Finally, experts giving testimony on biological risk factors may want to forgo covering or discussing certain topics if the discussion of those issues will incur no significant benefits. For example, this study suggests that there is currently little question on whether or not biological risk factor evidence impacts views on cruel or unusual punishment. Therefore, an expert may choose to omit testimony discussing these issues, as it may have no significant effect on views regarding support for or the appropriateness of the death penalty in a case.

The third and final implication of this work for the criminal justice system is that the further presentation of information on social risk factors for offending, along with biological risk factor evidence, appears not to be significantly beneficial. The presence of additional social risk factor information did not have any influential effect on the consideration of the biological risk factor evidence with regard to any of the capital contexts studied in this research. Thus, if there is no benefit to the presentation of this information along with the biological risk factor evidence, attorneys and experts may choose to focus less on the presentation of social risk factor information and, rather, focus more on the presentation of biological risk factor evidence, which may be more likely to
result in beneficial or mitigating effects on support for the death penalty in a specific case.

This research does have its limitations. Participants were gathered on Mechanical Turk, which is known to have demographically diverse samples and provide reliable data (Barger, Behrend, Sharek, & Sinar, 2011; Buhrmester, Kwang, & Gosling, 2011; Rouse, 2015). Yet is still limited to those who opt-in to taking surveys on that crowd sourcing service and it is unclear how these respondents’ demographics or views may generalize to or differ from potential capital jurors nationally. However, it is important to note that the demographic composition of this sample is similar to other studies on death penalty views discussed in this paper (e.g. Edens et al., 2010; Saks et al., 2014; Schweitzer et al., 2011). Further, it is possible that respondents who do not support the death penalty might have opted-in to take the survey in order to receive compensation or to please the researcher, even though they did not fit within the sample frame; even though it is unknown if this occurred, future research should replicate these results using a qualification questionnaire to dismiss any potential participants who did not meet the sample frame prior to allowing them to participate in the study. Finally, as with all studies utilizing vignette or scenario-based experiments, ecological validity concerns may apply to this research (Bieneck, 2009). Thus, research of this type should be replicated and completed with other vignette-scenarios in order to increase confidence in these results.

Despite these limitations, this research and its results represent an exploratory approach to examine how evidence on different biological risk factors for criminality,
possibly paired with evidence on social risk, might affect the public’s views on the death penalty in several contexts. Additionally, these results also suggest a number of potential implications for the criminal justice system, although this research and others like it will need to replicated moving forward in order to better define the potential implications of these results. In addition to areas of future research noted above, future inquires on these issues should also directly compare social, biological, psychological, and other types of risk factors in order to measure the real impact of biological risk factor evidence, compared to other types of risk factors, on public views of the death penalty.
### Paper 1 Tables and Figures

Table 1.1. Logistic Regression Model for Presentation of Biological Risk Factor Evidence and Social Background on Death Penalty Support \((Death = "1", \ Non-death = "0")\). Reference category: low physiological reactivity, \(LR\ chi^2(13) = 6.92, df = 13, p = 0.91, n = 532\).

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>(B)</th>
<th>Standard Error</th>
<th>(Z)</th>
<th>(p)-value (two-tailed)</th>
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<td></td>
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<td>Minor physical anomalies</td>
<td>0.253</td>
<td>0.505</td>
<td>0.50</td>
<td>0.616</td>
</tr>
<tr>
<td>Prenatal nicotine and alcohol exposure</td>
<td>0.179</td>
<td>0.510</td>
<td>0.35</td>
<td>0.726</td>
</tr>
<tr>
<td>Brain Damage</td>
<td>0.091</td>
<td>0.540</td>
<td>0.17</td>
<td>0.866</td>
</tr>
<tr>
<td>Lower IQ</td>
<td>0.012</td>
<td>0.524</td>
<td>0.02</td>
<td>0.982</td>
</tr>
<tr>
<td>High levels of testosterone</td>
<td>-0.101</td>
<td>0.520</td>
<td>-0.20</td>
<td>0.845</td>
</tr>
<tr>
<td>Low expressing alleles of the MAO-A gene</td>
<td>-0.502</td>
<td>0.519</td>
<td>-0.97</td>
<td>0.334</td>
</tr>
<tr>
<td>Social Background ((1 = &quot;poor,&quot; 0 = &quot;neutral&quot;))</td>
<td>0.476</td>
<td>0.515</td>
<td>0.93</td>
<td>0.355</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interactions</th>
<th>(B)</th>
<th>Standard Error</th>
<th>(Z)</th>
<th>(p)-value (two-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low physiological reactivity x poor social background</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minor physical anomalies x poor social background</td>
<td>-0.779</td>
<td>0.703</td>
<td>-1.11</td>
<td>0.268</td>
</tr>
<tr>
<td>Prenatal nicotine/alcohol exposure x poor social Background</td>
<td>-0.883</td>
<td>0.729</td>
<td>-1.21</td>
<td>0.226</td>
</tr>
<tr>
<td>Brain Damage x poor social background</td>
<td>-0.679</td>
<td>0.715</td>
<td>-0.95</td>
<td>0.343</td>
</tr>
<tr>
<td>Lower IQ x poor social background</td>
<td>-0.711</td>
<td>0.751</td>
<td>-0.95</td>
<td>0.344</td>
</tr>
<tr>
<td>High levels of testosterone x poor social background</td>
<td>-0.027</td>
<td>0.702</td>
<td>-0.04</td>
<td>0.969</td>
</tr>
<tr>
<td>Low expressing alleles of the MAO-A gene x poor social background</td>
<td>0.079</td>
<td>0.724</td>
<td>0.11</td>
<td>0.914</td>
</tr>
<tr>
<td>Constant</td>
<td>-0.832</td>
<td>0.379</td>
<td>-2.20</td>
<td>0.028</td>
</tr>
</tbody>
</table>

Table 1.2. Logistic Regression Model for Presentation of Biological Risk Factor Evidence vs. Control on Death Penalty Support \((Death = "1", \ Non-death = "0")\), controlling for social background \(LR\ chi^2(8) = 3.11, df = 8, p = 0.93, n = 571\).

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>(b)</th>
<th>Standard Error</th>
<th>(Z)</th>
<th>(p)-value (two-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low physiological reactivity</td>
<td>0.454</td>
<td>0.447</td>
<td>0.99</td>
<td>0.320</td>
</tr>
<tr>
<td>Minor physical anomalies</td>
<td>0.306</td>
<td>0.449</td>
<td>0.68</td>
<td>0.495</td>
</tr>
<tr>
<td>Prenatal nicotine and alcohol exposure</td>
<td>0.224</td>
<td>0.448</td>
<td>0.43</td>
<td>0.664</td>
</tr>
<tr>
<td>Brain Damage</td>
<td>0.200</td>
<td>0.440</td>
<td>0.37</td>
<td>0.715</td>
</tr>
<tr>
<td>Lower IQ</td>
<td>0.138</td>
<td>0.456</td>
<td>0.24</td>
<td>0.808</td>
</tr>
<tr>
<td>High levels of testosterone</td>
<td>0.372</td>
<td>0.436</td>
<td>0.87</td>
<td>0.442</td>
</tr>
<tr>
<td>Low expressing alleles of the MAO-A gene</td>
<td>-0.018</td>
<td>0.445</td>
<td>-0.09</td>
<td>0.928</td>
</tr>
<tr>
<td>Social Background ((1 = &quot;poor,&quot; 0 = &quot;neutral&quot;))</td>
<td>0.054</td>
<td>0.190</td>
<td>0.28</td>
<td>0.778</td>
</tr>
<tr>
<td>Constant</td>
<td>-1.065</td>
<td>0.367</td>
<td>-2.90</td>
<td>0.004</td>
</tr>
</tbody>
</table>
Table 1.3. Ratings of Respondents Who Received Biological Risk Factor Evidence Regarding Such Evidence as Mitigators to Responsibility \((n = 532)\).

<table>
<thead>
<tr>
<th>Rate how much you agree with the following statement:</th>
<th>Mean ratings of respondents on a scale of 1 (do not agree at all) to 100 (completely agree) (standard deviations)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I believe the defendant’s responsibility is mitigated by the evidence discussed in paragraph 3 of the newspaper article.</td>
<td></td>
</tr>
<tr>
<td>Low physiological reactivity ((n = 73))</td>
<td>25.42 ((SD = 30.73))</td>
</tr>
<tr>
<td>Minor physical anomalies ((n = 79))</td>
<td>23.33 ((SD = 26.34))</td>
</tr>
<tr>
<td>Prenatal nicotine and alcohol exposure ((n = 76))</td>
<td>16.27 ((SD = 22.52))</td>
</tr>
<tr>
<td>Brain Damage ((n = 75))</td>
<td>36.33 ((SD = 30.12))</td>
</tr>
<tr>
<td>Lower IQ ((n = 74))</td>
<td>29.37 ((SD = 29.62))</td>
</tr>
<tr>
<td>High levels of testosterone ((n = 78))</td>
<td>26.14 ((SD = 28.63))</td>
</tr>
<tr>
<td>Low expressing alleles of the MAO-A gene ((n = 78))</td>
<td>27.07 ((SD = 27.86))</td>
</tr>
</tbody>
</table>

Table 1.4. Ratings of Respondents Who Received Biological Risk Factor Evidence Regarding Whether Such Evidence is Considered a Biological Risk Factor for Criminality \((n = 532)\).

<table>
<thead>
<tr>
<th>Rate how much you agree with the following statement:</th>
<th>Mean ratings of respondents on a scale of 1 (do not agree at all) to 100 (completely agree) (standard deviations)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I would consider the evidence discussed in paragraph 3 of the newspaper article as a risk factor for the development of criminal behavior.</td>
<td></td>
</tr>
<tr>
<td>Low physiological reactivity ((n = 73))</td>
<td>40.00 ((SD = 31.82))</td>
</tr>
<tr>
<td>Minor physical anomalies ((n = 79))</td>
<td>36.19 ((SD = 30.81))</td>
</tr>
<tr>
<td>Prenatal nicotine and alcohol exposure ((n = 76))</td>
<td>23.90 ((SD = 25.51))</td>
</tr>
<tr>
<td>Brain Damage ((n = 75))</td>
<td>56.42 ((SD = 30.61))</td>
</tr>
<tr>
<td>Lower IQ ((n = 74))</td>
<td>37.66 ((SD = 31.07))</td>
</tr>
<tr>
<td>High levels of testosterone ((n = 78))</td>
<td>43.28 ((SD = 30.20))</td>
</tr>
<tr>
<td>Low expressing alleles of the MAO-A gene ((n = 78))</td>
<td>46.51 ((SD = 32.40))</td>
</tr>
</tbody>
</table>
Abstract

This research, using focal concerns perspective on sentencing, examines how and why psychiatric labels, and having diagnoses biologically “labelled,” affect sentencing beliefs. Dimensions of public stigma toward psychiatric illnesses are hypothesized to mediate sentencing views. This is a 2 x 2 partially-crossed, between-subjects multi-factorial experiment with a lay sample (n = 1213), presenting mediation analyses. Four psychiatric labels (Attention Deficit Hyperactivity Disorder, behavioral-variant Frontotemporal Dementia, High Functioning Autism, Borderline Intellectual Disability) led to significant beneficial effects on sentencing (less prison/rehabilitation support) as mediated by decreased stigmatization regarding lack of treatability, social acceptance, and personal responsibility. One biological “label” (Pedophilic Disorder) resulted in less prison support and was mediated by decreased stigmatization related to dangerousness. Data support effects of psychiatric labelling on sentencing under the focal concerns perspective. As no psychiatric labels resulted in increased discriminatory sentencing and, instead, led to decreased discriminatory sentencing behavior, psychiatric labelling may reduce punitiveness and bolster non-punitive sentencing beliefs. Biological “labelling,” aside from Pedophilic Disorder, may not affect sentencing.

4 The final, definitive version of this paper has been published as “Berryessa, C. M. (2018). The effects of psychiatric and “biological” labels on lay sentencing and punishment decisions. Journal of Experimental Criminology, 1-16” published by Springer Nature. All rights reserved. The final authenticated version is available online at: https://doi.org/10.1007/s11292-018-9322-x.
Introduction

Research shows that offender characteristics, including gender or race, extra-legally impact sentencing through how social control decision-makers evaluate blameworthiness, community protection, and bureaucratic constraints (Grattet, 2011). Focal concerns perspective on sentencing argues that decision-makers draw upon stereotypes associated with offender characteristics to formulate attributions of these criteria during sentencing (Ulmer, 1997). Blameworthiness and community protection reflect sentencing’s main principles. Blameworthiness reflects retributivism that the punishment should “fit the crime” based on offender responsibility; community protection reflects utilitarian goals of incapacitation and deterrence based on offender dangerousness (Steffensmeier et al., 1998; Ulmer, 1997).

One offender characteristic that likely affects sentencing through focal concerns, but which has not yet been directly applied to it in the focal concerns literature, is labelling with psychiatric illnesses. Evidence shows psychiatric labels can influence sentencing through affecting perceptions of blameworthiness and dangerousness. Barnett et al. (2004) and Edens, Colwell, et al. (2005) found labelling offenders with psychotic disorders mitigated mock jurors’ perceptions of blameworthiness and death penalty support. However, several psychiatric, particularly psychopathy, labelling studies using lay samples have found harsher punishment support for labelled offenders due to increased perceptions of dangerousness (e.g. Boccaccini et al., 2008; Edens et al., 2004; Scurich et al., 2016).

Yet how and why psychiatric labelling may affect sentencing beliefs remains
unclear. Recent literature has postulated that social cognitive theories of public stigma of mental health, channeling classic labelling theories (Goffman, 1963; Scheff, 1970), may help to explain why psychiatric labelling could affect sentencing. These theoretical frameworks analyze relationships between “discriminative stimuli” and “discriminatory behavior” by identifying cognitive mediators of these constructs (Figure 2.1; Corrigan, 2000). Dimensions of public stigma on the causes (personal responsibility), stability (lack of treatability/recovery), and controllability (dangerousness/social distance) of psychiatric illnesses are thought to potentially act as cognitive mediators resulting in discrimination (Corrigan et al., 2003).

Public understandings have also shifted to acknowledge biological influences to psychiatric diagnoses, which are thought to counter stigmatization and discrimination; regarding public stigma, literature has reported mitigation due to biological “labels” to psychiatric diagnoses (Pescosolido et al., 2010). Yet these labels can also increase stigmatization and discrimination, as individuals may be perceived as “flawed” or less treatable because of their illnesses’ biological influences (Phelan, 2005). A recent meta-analysis found that biological explanations for psychiatric illnesses often reduce perceptions of personal responsibility, prompt pessimism for recovery, treatability, and dangerousness, but do not affect social acceptance of diagnosed individuals (Kvaale et al., 2013). However, literature regarding how biological “labels” may affect sentencing is mixed. Some mock juror experiments report that biological “labels” to psychiatric diagnoses do not affect capital and non-capital sentencing (Appelbaum & Scurich, 2015; Schweitzer et al., 2011), while others find that they can mitigate perceptions of
blameworthiness, dangerousness, and punishment (Greene & Cahill, 2012; Saks et al., 2014). Thus, it is unclear if and why stigmatization of psychiatric illnesses, even if affected by biological “labels,” influences sentencing views.

This study, utilizing this framework and a lay sample, examines how psychiatric labels, and having diagnoses biologically “labelled,” affect sentencing beliefs. Dimensions of public stigma toward psychiatric illnesses are hypothesized to mediate sentencing views as influenced by social cognitive theories of public stigma of mental health. As judges predominantly determine sentencing, it is worth discussing how lay sentencing beliefs may be important. Although rare, jurors act as social control decision-makers in sentencing in six states, imposing over 4,000 non-capital felony sentences each year (King & Noble, 2005). Further, although unacceptable to legally consider, public opinion often extra-legally influences judicial sentencing, specifically related to judges’ concerns regarding reelection (Robinson et al., 2012). Finally, per democratization of punishment theory, punishment should reflect public intuitions of justice; research on lay attitudes toward sentencing is important to sustain legitimacy of the legal system (Robinson, 2013).

**Study**

This study has two research questions and general hypotheses:

1. If and why does an offender’s psychiatric label affect sentencing views?
2. Does a biological “label” to a diagnosis, compared to when a psychiatric label is used alone without information on the illness’s biological influences, affect sentencing views and why?
**Hypothesis 1:** Stigmas associated with the *causes, stability, and controllability* of psychiatric illnesses mediate the relationship between an offender’s psychiatric label and sentencing views, compared to controls with no psychiatric label.

**Hypothesis 2:** A biological “label” to an offender’s psychiatric diagnosis, compared to when the offender receives the same psychiatric label but there is no information on its biological influences, produces unique mediating effects of stigmas on sentencing, compared to those observed in Hypothesis 1.

For several reasons, ten psychiatric illnesses are studied (Antisocial Personality Disorder (APD), Attention Deficit Hyperactivity Disorder (ADHD), Fetal Alcohol Syndrome (FAS), Addictive Disorder, Pedophilic Disorder, High Functioning Autism (HFA), Borderline Intellectual Disability (Borderline ID), behavioral-variant Frontotemporal Dementia (bvFTD), Obsessive-Compulsive Disorder (OCD), Post-Traumatic Stress Disorder (PTSD)). There is significant research on biological influences to these illnesses (Linden, 2011). They are overrepresented in the justice system compared to general populations (see Appendix B; Fazel & Danesh, 2002). Further, offending by individuals diagnosed with these illnesses is often directly associated with their symptomatic presentations, and, therefore, sentencing may be extra-legal affected by stigmatization of the offenders’ illnesses (Blume & Leonard, 2005).

Finally, these psychiatric illnesses have associated biases that are positive or negative depending on the diagnosis (e.g. Heath, Stone, Darley, & Granneman, 2003; Jahnke & Hoyer, 2013; Payne & Wood, 2016; Von dem Knesebeck, Angermeyer, Lüdecke, & Kofahl, 2014). Further, biological “labels” may mitigate or exacerbate
existing biases toward illnesses (Kvaale et al., 2013). Thus, as discussed in Appendix B, this study also has specific hypotheses regarding how psychiatric labelling with certain illnesses may affect sentencing.

**Method**

**Research Design/Independent Variables**

This is a 2 (Psychiatric Label: inclusion/omission of information on offenders’ psychiatric diagnoses) x 2 (Biological: inclusion/omission of information on biological influences to Psychiatric Labels), partially-crossed between-participants multi-factorial experiment (Burstin, 1980). Participants were randomly presented with one of ten different vignette-stimuli (each with three levels, so 30 vignette conditions) that each described one case, followed by the same questions. The offense described in each vignette was one discussed in the literature as characteristic of offenders diagnosed with each psychiatric illness\(^5\) (see Appendix B). All participants were presented with a crime fact pattern and told a male offender had been found guilty (no defense given) (Control). Each vignette-stimulus varied in two ways, representing the independent variables:

**Psychiatric Label:** Some participants for each vignette-stimulus were additionally told that a psychiatrist testified during the offender’s trial and diagnosed him with the psychiatric illness associated with that vignette, followed by a description of symptoms.

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\(^{5}\) (1) ADHD (assault against an adult male), (2) FAS (assault against adult male), (3) Addictive Disorder (assault against adult male), (4) Pedophilic Disorder (sexual assault against female child), (5) HFA (sexual assault against adult female), (6) bvFTD (sexual assault against adult female), (7) OCD (assault against adult male), (8) PTSD (assault against adult male), (9) Borderline ID (assault against adult male), (10) APD (assault against adult male).
**Biological:** In addition to the crime fact pattern and psychiatric testimony, some participants that received vignettes that included the offender’s Psychiatric Label were given information from the psychiatrist that the illness has biological influences.

Analyses were done with between-participant manipulations for each vignette-stimulus: (1) Psychiatric Label vs. Control, or (2) Biological vs. Psychiatric Label.

**Outcome Variables**

Outcome variables include six measures on sentencing. Respondents were asked to render prison time for the offender (12 to 48 months) and how much they endorsed each purpose of punishment (retribution, rehabilitation, restoration, deterrence, incapacitation) in response to the offender’s behavior from 1 to 100 (see Appendix B).

**Mediating Variables**

Mediating variables measured dimensions of stigmatization of psychiatric illnesses. Respondents received 18 randomly-ordered questions measuring five stigma variables (rated 1 to 100) (see Appendix B):

**Lack of recovery:** modified 2-item factor ($a = 0.87$; loading: 0.81 - 0.87) measured support regarding whether individuals cannot recover from psychiatric illnesses (Day, Edgren, & Eshleman, 2007).

**Lack of treatability:** modified 3-item factor ($a = 0.86$; factor loading: 0.76 - 0.85) measured support regarding whether diagnosed individuals cannot be successfully treated (Day et al., 2007).

**Dangerousness:** modified 4-item factor ($a = 0.86$; loading: 0.78 - 0.87) measured
support regarding the association between psychiatric diagnoses and
dangerousness (Penn, Kommana, Mansfield, & Link, 1999).

**Social acceptance:** modified 5-item factor \((a = 0.93; \text{loading: } 0.90 - 0.93)\)
measured support for social acceptance of individuals with psychiatric diagnoses

**Personal responsibility:** modified 3-item factor \((a = 0.86; \text{loading: } 0.74 - 0.91)\)
measured support regarding the responsibility that individuals with psychiatric
illnesses have for their life outcomes (Corrigan et al., 2003).

**Participants**

The target population was U.S. adults. The sample was drawn from Amazon’s
Mechanical Turk. Around forty respondents were randomly administered one of thirty
different vignettes (paid $0.50US each).

After removing invalid data from five respondents, the sample was 1,213
respondents (51.4% female; \(M_{\text{age}} = 39.48\) years, \(SD = 12.18\); 81.8% white; 58.5%
college/post-graduate education; detailed demographics in Appendix B). An IP blocker
was used so respondents could take the survey once. “Check”/honesty questions ensured
respondents understood stimuli. Analyses revealed no significant demographic
differences between vignette conditions. The University of Pennsylvania Institutional
Review Board approved this study.

**Results**

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6 Descriptive statistics for outcome and mediating variables are available upon request. Results do not
include demographic controls, but models were run with controls for age, gender, education, income, race,
and jury-duty eligibility. Demographics did not significantly change any results. In order to maintain
parsimony in mediation models, these variables were not included in reported analyses.
Ordinary Least Squares (OLS) was used to identify main effects of psychiatric labels (independent variable) on sentencing views (outcome variables), compared to sentencing views in controls (Psychiatric Label vs. Control; Table 2.1). OLS was used to identify main effects of biological “labels” for psychiatric diagnoses (independent variable) on sentencing views (outcome variables), compared to sentencing views in vignette conditions wherein offenders received the same psychiatric labels but there was no information on biological influences (Biological vs. Psychiatric Label; Table 2.2).

For each diagnosis, mediational models were estimated for both experimental conditions (1) Psychiatric Label (vs. Control) and (2) Biological (vs. Psychiatric Label) (Figure 2.2). Three separate regression equations identified if and how main effects of independent variables on outcome variables were mediated by mediating variables (stigma variables). Mediation was established if four conditions held (see Baron & Kenny, 1986): (1) the experimental condition significantly affected the stigma variable in the first equation (path A; Tables 2.3 and 2.4); (2) the experimental condition significantly affected sentencing views in the second equation (path C; Tables 2.1 and 2.2); (3) the stigma variable significantly affected sentencing views (path B; results upon request); (4) path C became insignificant (path C’) when the stigma variable was included in the regression equation. Only results from mediation analyses are presented in which these conditions hold. Both unstandardized (presented below; Tables 2.1 through 2.4) and standardized (Figures 2.3 through 2.9) regression coefficients are presented.

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7 Results of main effects of demographic variables on sentencing views are available upon request.
Psychiatric Label (vs. Control)

**ADHD.**

The main effect of an ADHD label increasing support for rehabilitation was mediated by the offender’s decreased *Lack of Treatability* (Figure 2.3). The label significantly increased rehabilitation support (Path C: $b = 14.98, SE = 5.75, t = 2.6, p < 0.01$), but significantly decreased views on *Lack of Treatability* (Path A: $b = -8.84, SE = 3.76, t = -2.4, p < 0.05$). The pathway between ratings of *Lack of Treatability* and rehabilitation is significant (Path B: $b = -0.512, SE = 0.163, t = -3.2, p < 0.01$). Including *Lack of Treatability* in Path C results in non-significance (Path C’: $b = 11.17, SE = 5.75, t = 1.9, p = 0.06$).

**bvFTD.**

The main effect of an bvFTD label decreasing an offender’s prison sentence was mediated by his decreased *Personal Responsibility* (Figure 2.4). The label significantly decreased both prison support (Path C: $b = -8.14, SE = 3.25, t = -2.5, p < 0.05$) and views on *Personal Responsibility* (Path A: $b = -28.93, SE = 6.69, t = -4.3, p < 0.0001$). The pathway between ratings of *Personal Responsibility* and prison time is significant (Path B: $b = 0.282, SE = 0.034, t = 7.1, p < 0.0001$). Including *Personal Responsibility* in Path C results in non-significance (Path C’: $b = 0.087, SE = 2.92, t = 0.03, p = 0.976$).

**HFA.**

The main effect of an HFA label significantly decreasing an offender’s prison sentence was mediated by his increased *Social Acceptance* (Figure 2.5). The HFA label significantly decreased prison support (Path C: $b = -8.43, SE = 2.91, t = -2.9, p < 0.001$)
and increased views on *Social Acceptance* (Path A: $b = 21.11$, $SE = 4.89$, $t = 4.3$, $p < 0.0001$). The pathway between ratings of *Social Acceptance* and prison time is significant (Path B: $b = -0.195$, $SE = 0.059$, $t = -3.3$, $p < 0.001$). Including *Social Acceptance* in Path C results in non-significance (Path C’: $b = -5.33$, $SE = 3.15$, $t = -1.7$, $p = 0.10$).

The main effect of an HFA label significantly decreasing an offender’s prison sentence was also mediated by his decreased *Personal Responsibility* (Figure 2.6). The label significantly decreased both prison support (Path C: $b = -8.43$, $SE = 2.91$, $t = -2.9$, $p < 0.001$) and views on *Personal Responsibility* (Path A: $b = -34.40$, $SE = 5.41$, $t = -6.4$, $p < 0.0001$). The pathway between ratings of *Personal Responsibility* and prison time is significant (Path B: $b = 0.162$, $SE = 0.048$, $t = -3.4$, $p < 0.001$). Including *Personal Responsibility* in Path C results in non-significance (Path C’: $b = -4.29$, $SE = 3.50$, $t = -1.2$, $p = 0.22$).

The main effect of an HFA label significantly decreasing support for retribution was mediated by the offender’s decreased *Personal Responsibility* (Figure 2.7). The label significantly decreased both retribution support (Path C: $b = -26.22$, $SE = 7.40$, $t = -3.6$, $p < 0.001$) and views on *Personal Responsibility* (Path A: $b = -34.40$, $SE = 5.41$, $t = -6.4$, $p < 0.0001$). The pathway between ratings of *Personal Responsibility* and retribution is significant (Path B: $b = 0.613$, $SE = 0.115$, $t = 0.3$, $p < 0.0001$). Including *Personal Responsibility* in Path C results in non-significance (Path C’: $b = -7.74$, $SE = 8.40$, $t = -0.92$, $p = 0.36$).

**Borderline ID.**

The main effect of a Borderline ID label significantly decreasing support for
deterrence was mediated by the offender’s decreased *Personal Responsibility* (Figure 2.8). The label significantly decreased both deterrence support (Path C: $b = -15.30$, $SE = 6.93$, $t = -2.2$, $p < 0.05$) and views on *Personal Responsibility* (Path A: $b = -28.69$, $SE = 5.47$, $t = -5.3$, $p < 0.0001$). The pathway between ratings of *Personal Responsibility* and deterrence is significant (Path B: $b = 0.449$, $SE = 0.117$, $t = 3.8$, $p < 0.0001$). Including *Personal Responsibility* in Path C results in non-significance (Path C’: $b = -3.29$, $SE = 7.67$, $t = -0.43$, $p = 0.67$).

**Biological (vs. Psychiatric Label)**

**Pedophilic Disorder.**

A biological “label” for Pedophilic Disorder significantly decreasing an offender’s prison time was mediated by decreased views on his *Dangerousness* (Figure 2.9). The biological “label” significantly decreased both prison support (Path C: $b = -7.08$, $SE = 3.06$, $t = -2.3$, $p < 0.05$) and views on *Dangerousness* (Path A: $b = -10.60$, $SE = 5.26$, $t = -2.0$, $p < 0.05$). The pathway between ratings of *Dangerousness* and prison time is significant (Path B: $b = 0.342$, $SE = 0.054$, $t = 6.38$, $p < 0.001$). Including *Dangerousness* in Path C results in non-significance (Path C’: $b = -3.63$, $SE = 2.61$, $t = -1.4$, $p = 0.17$).

**Discussion**

Four psychiatric labels (ADHD, bvFTD, HFA, Borderline ID) significantly affected sentencing beliefs as mediated by stigmas regarding the *causes, stability*, and *controllability* of psychiatric illnesses. This suggests some stigmas link “discriminative stimuli” and “discriminatory behavior” in sentencing contexts, supporting
social cognitive theories of public stigma of mental health (Corrigan, 2000). However, no labels resulted in increased discriminatory sentencing behavior and instead led to positive/non-punitive sentencing. Further, some results for diagnoses significantly varied as hypothesized.

ADHD is often associated with stigma related to dangerousness (Pescosolido et al., 2010). However, in this study, an ADHD label led to significantly less stigmatization on perceptions of lack of treatability, which mediated increased support for rehabilitation. Although this label was hypothesized to exacerbate stigmatization, there is evidence of increasing public acceptance of ADHD and its treatability, stemming from literature and media on anxieties about treating pathologies that may negatively affect academic and professional performances (Hinshaw & Scheffler, 2014). Therefore, these results may show that the public is becoming more accepting of the treatability of ADHD, not only in clinical and school settings, but also in criminal justice contexts.

Aligning with hypotheses and previous research on dementia (Von dem Knesebeck et al., 2014), an bvFTD label led to significantly less stigmatization on perceptions of personal responsibility, which mediated decreased prison support. As perceptions of personal responsibility are associated with blameworthiness under the focal concerns perspective, it appears an bvFTD label may reduce discriminatory sentencing behavior related to retributivism (Ulmer, 1997). Indeed, retributivism has been associated with increased support for prison if crime severity is perceived to warrant it (Griset, 1991).

Focal concerns also appear to be relevant to HFA and Borderline ID. A HFA
diagnosis led to significantly less stigmatization on perceptions of personal responsibility and social acceptance. This supports hypotheses and evidence that autism often fosters social acceptance and reduces personal responsibility (Payne & Wood, 2016). Further, as an HFA label led to less prison support due to mitigated perceptions of personal responsibility, it may positively affect sentencing by reducing perceptions of blameworthiness often associated with retributivism (Ulmer, 1997).

A Borderline ID diagnosis also reduced perceptions of personal responsibility, resulting in less stigmatization and supporting previous literature (Heath et al., 2003). Yet decreased personal responsibility, often associated with perceptions of blameworthiness and retributivism, instead mediated decreased support for deterrence, which is traditionally associated with utilitarianism and dangerousness under focal concerns (Ulmer, 1997). How and why personal responsibility mediated this relationship is unclear, but it may be related to perceptions on the purposes of deterrence. Indeed, stronger perceptions of offender responsibility have been associated with higher levels of public support for deterrent strategies, as they are perceived to send a “message” to criminals to not freely choose to offend because of potential punishments (Weiner, Graham, & Reyna, 1997). Future research should investigate why personal responsibility may reduce utilitarianism.

Finally, there were no significant mediation models for OCD, APD, PTSD, FAS, and Addictive Disorder. This lack of effect was surprising, especially for diagnoses with known existing biases, and should be studied further.

A biological “label” for only Pedophilic Disorder led to significant effects on
sentencing as mediated by stigma. This label led to both significantly less prison support and stigmatization related to dangerousness, conflicting with research reporting negative feelings toward Pedophilic Disorder (Jahnke & Hoyer, 2013) and literature suggesting that biological “labels” often increase perceptions of dangerousness (Kvaale et al., 2013). Reduced support for prison, as mediated by beliefs on decreased dangerousness due to the biological “label,” also suggests decreased support for community protection and utilitarianism under focal concerns for Pedophilic Disorder (Ulmer, 1997). Although diverging from previous literature, these data do support the results of some experiments on lay sentencing views that have reported that biological explanations for psychiatric illnesses can mitigate perceptions of dangerousness and endorsed prison time (Greene & Cahill, 2012; Saks et al., 2014).

This research has potential implications. As the psychiatric labels studied only led to beneficial effects, offenders and their attorneys may be less worried that public attitudes and stigmatization toward psychiatric illnesses could result in discriminatory jury sentencing in states where it is utilized (King & Noble, 2005), or may extra-legally affect judges’ sentencing in cases involving diagnosed offenders (Robinson et al., 2012). As per democratization of punishment theory, research like this reporting public intuitions on how offenders should potentially be punished differently because of psychiatric diagnoses might spark conversations within legal communities about considering public opinion in punishment analyses (Robinson, 2013). Finally, retributive punishments for sex offenders appear to be largely ineffective for recidivism (Willis, Levenson, & Ward, 2010). If knowledge that Pedophilic Disorder is biologically
influenced helps to reduce perceptions of dangerousness and punitiveness, and instead reinforces support for rehabilitation and treatment, sentencing may better prevent offending associated with the diagnosis.

This study does have limitations. Mechanical Turk is limited to those who opt-in and it is unknown how demographics generalize to the American population. There were differences between vignettes not related to experimental manipulations (i.e. some vignettes described sexual assaults, while others involved violent assaults; the Pedophilic Disorder vignette included a child sexual assault victim). Although these differences should not have influenced the effects of the experimental manipulations for each illness, they may have affected responses and it is difficult to compare effects for one illness compared to another. Finally, scenario-based experiments have ecological validity concerns (Bieneck, 2009). Results should be replicated using other scenarios, descriptions of psychiatric illnesses, and crimes to increase confidence in results and to support that findings are due to symptomatic behaviors associated with offenses (versus severity or type of offenses).

Potential inquiries should examine labelling effects for other common diagnoses in the legal system and attempt to replicate these results with judges. Further, effects of labels on other justice outcomes, including parole or civil commitment hearings, should be examined using the focal concerns perspective.
### Table 2.1. Main Effect of Psychiatric Label (vs. Control) on Outcome Variables (Path C)‡

<table>
<thead>
<tr>
<th>Psychiatric Diagnosis</th>
<th>Prison Sentence (mos.)</th>
<th>Rehabilitation</th>
<th>Retribution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b (SE)</td>
<td>t</td>
<td>P&gt;</td>
</tr>
<tr>
<td>ADHD† (n = 82)</td>
<td>-0.43 (2.30)</td>
<td>-0.2</td>
<td>0.85</td>
</tr>
<tr>
<td>ASPD‡ (n = 74)</td>
<td>-4.51 (3.12)</td>
<td>-1.5</td>
<td>0.15</td>
</tr>
<tr>
<td>Addictive Disorder (n = 82)</td>
<td>-3.72 (3.24)</td>
<td>-1.2</td>
<td>0.25</td>
</tr>
<tr>
<td>FAS† (n = 87)</td>
<td>-2.65 (2.69)</td>
<td>-1.0</td>
<td>0.58</td>
</tr>
<tr>
<td>bvFTD‡ (n = 80)</td>
<td>-8.14 (3.25)</td>
<td>-2.5</td>
<td>0.02*</td>
</tr>
<tr>
<td>HFA§ (n = 82)</td>
<td>-8.43 (2.91)</td>
<td>-2.9</td>
<td>0.001***</td>
</tr>
<tr>
<td>Borderline ID§ (n = 79)</td>
<td>-4.80 (2.95)</td>
<td>-1.7</td>
<td>0.10</td>
</tr>
<tr>
<td>OCD† (n = 87)</td>
<td>-7.94 (3.07)</td>
<td>-2.6</td>
<td>0.01**</td>
</tr>
<tr>
<td>Pedophilic Disorder (n = 82)</td>
<td>-0.024 (2.97)</td>
<td>-0.1</td>
<td>0.99</td>
</tr>
<tr>
<td>PTSD§ (n = 72)</td>
<td>-2.59 (2.15)</td>
<td>-1.2</td>
<td>0.23</td>
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</table>

<table>
<thead>
<tr>
<th></th>
<th>Restoration</th>
<th>Deterrence</th>
<th>Incapacitation</th>
</tr>
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<tr>
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<td>b (SE)</td>
<td>t</td>
<td>P&gt;</td>
</tr>
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<td>0.56</td>
</tr>
<tr>
<td>ASPD‡ (n = 74)</td>
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<td>Addictive Disorder (n = 82)</td>
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<td>0.85</td>
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<td>FAS† (n = 87)</td>
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<td>0.57</td>
</tr>
<tr>
<td>bvFTD‡ (n = 80)</td>
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<td>0.61</td>
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<tr>
<td>HFA§ (n = 82)</td>
<td>1.74 (6.42)</td>
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<td>0.79</td>
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<td>Borderline ID§ (n = 79)</td>
<td>6.25 (6.38)</td>
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<td>OCD† (n = 87)</td>
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<td>0.45</td>
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<td>Pedophilic Disorder (n = 82)</td>
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<td>0.73</td>
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<td>PTSD§ (n = 72)</td>
<td>-1.71 (6.37)</td>
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<td>0.79</td>
</tr>
</tbody>
</table>

†Antisocial Personality Disorder, ‡Attention Deficit Hyperactivity Disorder, §Fetal Alcohol Syndrome, §High Functioning Autism, ¶Borderline Intellectual Disability, ‡behavioral variant Frontotemporal Dementia, †Obsessive-Compulsive Disorder, ‡Post-Traumatic Stress Disorder; *p < 0.05, **p < 0.01, ***p < 0.001; (use key and abbreviations for Tables 2.1 to 2.4).
Table 2.2. Main Effect of Biological (vs. Psychiatric Label) on Outcome Variables (Path C)†

<table>
<thead>
<tr>
<th>Psychiatric Diagnosis</th>
<th>Prison Sentence (months)</th>
<th>Rehabilitation</th>
<th>Retribution</th>
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<tbody>
<tr>
<td></td>
<td>b (SE)</td>
<td>t</td>
<td>P&gt;</td>
</tr>
<tr>
<td>ADHD (n = 80)</td>
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<td>ASPD (n = 76)</td>
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<td>0.94</td>
</tr>
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<td>Addictive Disorder (n = 86)</td>
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</tr>
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<td>0.87</td>
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</tr>
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<td>0.72</td>
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<td>Borderline ID (n = 82)</td>
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<td>0.41</td>
</tr>
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<td>OCD (n = 78)</td>
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<td>0.71</td>
</tr>
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<td>Pedophilic Disorder (n = 81)</td>
<td>-7.08 (3.06)</td>
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<td>PTSD (n = 79)</td>
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<th>Deterrence</th>
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<td>0.72</td>
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<td>HFA (n = 84)</td>
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<td>OCD (n = 78)</td>
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</tr>
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<td>Pedophilic Disorder (n = 81)</td>
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<td>PTSD (n = 79)</td>
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79
<table>
<thead>
<tr>
<th>Psychiatric Diagnosis</th>
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<th>Dangerousness</th>
<th>Lack of Recovery/Immutability</th>
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<td>0.74</td>
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<td>0.43</td>
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<td>0.69</td>
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<td>-2.37 (4.67)</td>
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<td>0.61</td>
</tr>
<tr>
<td>PTSD$^8$ ($n = 72$)</td>
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<table>
<thead>
<tr>
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<th>Personal Responsibility</th>
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<td>$t$</td>
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<tr>
<td>ADHD$^1$ ($n = 82$)</td>
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</tr>
<tr>
<td>ASPD$^2$ ($n = 74$)</td>
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</tr>
<tr>
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<tr>
<td>FAS$^1$ ($n = 87$)</td>
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</tr>
<tr>
<td>bvFTD$^4$ ($n = 80$)</td>
<td>0.98 (4.20)</td>
</tr>
<tr>
<td>HFA$^3$ ($n = 82$)</td>
<td>3.10 (3.57)</td>
</tr>
<tr>
<td>Borderline ID$^6$ ($n = 79$)</td>
<td>1.22 (3.86)</td>
</tr>
<tr>
<td>OCD$^7$ ($n = 87$)</td>
<td>-0.135 (3.29)</td>
</tr>
<tr>
<td>Pedophilic Disorder ($n = 82$)</td>
<td>1.38 (3.98)</td>
</tr>
<tr>
<td>PTSD$^8$ ($n = 72$)</td>
<td>-0.038 (3.32)</td>
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</table>
Table 2.4. Effect of Biological (vs. Psychiatric Label) on Mediating Stigma Variables (Path A)†

<table>
<thead>
<tr>
<th>Psychiatric Diagnosis</th>
<th>Social Acceptance</th>
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<th>Dangerousness</th>
<th></th>
<th>Lack of Recovery/Immutability</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b (SE)</td>
<td>t</td>
<td>P&gt;</td>
<td>t</td>
<td></td>
<td>b (SE)</td>
</tr>
<tr>
<td>ADHD¹ (n = 80)</td>
<td>-7.24 (5.72)</td>
<td>-1.3</td>
<td>0.21</td>
<td>3.62 (5.21)</td>
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<td>0.49</td>
</tr>
<tr>
<td>ASPD² (n = 76)</td>
<td>3.93 (5.85)</td>
<td>0.7</td>
<td>0.50</td>
<td>2.21 (4.62)</td>
<td>0.5</td>
<td>0.63</td>
</tr>
<tr>
<td>Addictive Disorder (n = 86)</td>
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<td>-0.1</td>
<td>0.90</td>
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<td>0.61</td>
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<td>-1.82 (4.43)</td>
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<tr>
<td>HFA³ (n = 84)</td>
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<td>-0.6</td>
<td>0.58</td>
<td>-1.96 (5.21)</td>
<td>-0.4</td>
<td>0.71</td>
</tr>
<tr>
<td>Borderline ID⁶ (n = 82)</td>
<td>-8.21 (5.45)</td>
<td>-1.5</td>
<td>0.14</td>
<td>7.96 (4.45)</td>
<td>1.8</td>
<td>0.08</td>
</tr>
<tr>
<td>OCD⁷ (n = 78)</td>
<td>5.40 (5.97)</td>
<td>0.9</td>
<td>0.37</td>
<td>0.209 (5.01)</td>
<td>0.04</td>
<td>0.97</td>
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<tr>
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<td>9.38 (4.92)</td>
<td>1.9</td>
<td>0.06</td>
<td>-10.60 (5.26)</td>
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<tr>
<td>PTSD⁸ (n = 79)</td>
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<td>1.9</td>
<td>0.06</td>
<td>-5.07 (4.41)</td>
<td>-1.2</td>
<td>0.25</td>
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<table>
<thead>
<tr>
<th></th>
<th>Lack of Treatability</th>
<th></th>
<th>Personal Responsibility</th>
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<tbody>
<tr>
<td></td>
<td>b (SE)</td>
<td>t</td>
<td>P&gt;</td>
<td>t</td>
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<tr>
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<td>ASPD² (n = 76)</td>
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<td>0.50</td>
<td>-4.57 (4.87)</td>
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<td>Addictive Disorder (n = 86)</td>
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<td>0.86</td>
<td>-2.45 (5.31)</td>
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<tr>
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<td>bvFTD⁴ (n = 87)</td>
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<td>0.14</td>
<td>-3.64 (5.82)</td>
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<td>HFA³ (n = 84)</td>
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<td>-1.3</td>
<td>0.21</td>
<td>0.695 (6.27)</td>
</tr>
<tr>
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<td>7.89 (3.58)</td>
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<td>5.87 (5.69)</td>
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<td>OCD⁷ (n = 78)</td>
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<td>1.9</td>
<td>0.07</td>
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<tr>
<td>Pedophilic Disorder (n = 81)</td>
<td>-4.92 (3.96)</td>
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<td>0.22</td>
<td>-6.10 (5.16)</td>
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<td>0.89</td>
<td>-4.58 (5.35)</td>
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Figure 2.1. Paradigm of Social Cognitive Theories of Public Stigma of Mental Health (Corrigan, 2000)

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<td>dangerousness</td>
<td>treatment</td>
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Figure 2.2. Mediation Pathways: (1) Psychiatric Label (vs. Control) and (2) Biological (vs. Psychiatric Label)

Psychiatric Label (vs. Control)

- Path A
- Path B

Biological (vs. Psychiatric Label)

- Path A
- Path B

Stigma Variable (Mediating Variable)

Sentence or Punishment Objective (Outcome Variable)
Figure 2.3. Mediation Pathway: ADHD Label (vs. Control) on Rehabilitation Support

Figure 2.4. Mediation Pathway: bvFTD Label (vs. Control) on Prison Time
Figure 2.5. Mediation Pathway: HFA Label (vs. Control) on Prison Time (Social Acceptance as mediator)

Figure 2.6. Mediation Pathway: HFA Label (vs. Control) on Prison Time (Personal Responsibility as Mediator)
Figure 2.7. Mediation Pathway: HFA Label (vs. Control) on Retribution Support

Figure 2.8. Mediation Pathway: Borderline ID Label (vs. Control) on Deterrence Support
Figure 2.9. Mediation Pathway: Biological (vs. Psychiatric Label) for Pedophilic Disorder on Prison Time
PAPER 3: JUDICIAL STEREOTYPING ASSOCIATED WITH GENETIC ESSENTIALIST BIASES TOWARD MENTAL DISORDERS AND NEGATIVE EFFECTS ON SENTENCING

Abstract

This research, utilizing qualitative methodology and grounded theory analysis, develops a model that illuminates a process by which judicial stereotyping associated with genetic essentialist biases may negatively affect judges’ views regarding the sentencing of offenders with psychiatric diagnoses known or thought to be genetically influenced. Data, collected through interviews with a sample of 59 Pennsylvania state court judges who hear criminal matters, suggest that judges exhibit stereotyping behavior by linking the relationships between three particular genetic essentialist biases (immutability, informativeness, and uniformity) and three types of stigmatization (pessimism, dangerousness, and family stigma) associated with each bias. When judges exhibited this stereotyping behavior without the effects of intervening factors, they then expressed how knowledge of the genetic influences to an offender’s mental disorder would negatively influence their views on punishment, specifically related to more restrictive sentences and support for deterrence and incapacitation. Three intervening conditions associated with judges’ personal characteristics (personal experiences involving genetics, strength of views on scientific determinism compared to free will, and having no personal experiences with mental disorders) influenced whether judges’ sentencing views were negatively influenced by such knowledge of genetics. Implications related to therapeutic jurisprudence are also discussed.
Introduction

U.S. judges have immense power, invoking societal principles of equality, fairness, and unbiased application of the law (Glendon, 1996; Wistrich, 2010). The goal of equality before the law depends upon judges setting aside their biases. Indeed, judicial codes of ethics mandate that judges disregard any consideration of race, gender, or other offender characteristics in their decision-making (McKee, 2006). Stereotyping behavior, which is largely an unconscious process, is common and widespread among most members of the U.S. public; although judges hold themselves to a high standard, literature provides evidence that judges are not immune from such behavior and that judges can fall short of the goal of equality before the law, especially during sentencing (Steen, Engen, & Gainey, 2005).

Judges often stereotype offenders based on certain characteristics during sentencing, particularly related to making attributions of blameworthiness and community protection (Spohn, 2007). Research supports that judges’ sentencing views and practices appear to be particularly affected by the stereotyping of offender characteristics that have been defined in the literature as essential characteristics, which are viewed to be deep, unchangeable properties of an individual that dictates a person’s identity (Haslam et al., 2002; Norenzayan & Heine, 2005). People often shape their views by stereotyping and categorizing individuals into groups by their essential characteristics and extending beliefs that outcomes are determined for a person if he exhibits that “essence” (Adriaens & De Block, 2013). Although judicial stereotyping of essential characteristics can have both positive and negative effects on sentencing, race, gender,
and mental disorder diagnoses have been identified as essential characteristics that often negatively affect judges’ views on sentencing certain individuals through stereotyping (Doerner & Demuth, 2010; Jones & Cauffman, 2008; Steffensmeier et al., 1998).

However, one topic in this arena that has not yet been empirically examined is when essential characteristics are described or thought to be genetically influenced, and how and why this knowledge may produce judicial stereotyping behavior and negatively affect judges’ views on sentencing offenders with such characteristics. This is especially interesting given that a number of cases in U.S. criminal courts have had behavioral genetics evidence introduced and considered in recent years (Denno, 2011; Farahany, 2016). Generally, adding knowledge of genetic influences to essential characteristics can result in additional unconscious, psychological biases that may amplify existing stigmatization of such characteristics (Haslam & Ernst, 2002). These additional psychological biases have been termed genetic essentialist biases, encompassing the reductionist view that genetic makeup is an added immutable characteristic that further determines how aspects of a person’s character and behavior should be judged (Dar-Nimrod & Heine, 2011).

Genetic essentialist biases are guided by a cluster of distinct areas: immutability (“a person’s genetics cannot be changed”), discreteness (“a person either has certain genetic attributes or they do not”), inherence (“beneath the surface, people with similar genetics are all inherently the same”), invariance (“certain genetic characteristics exist and will always exist”), uniformity (“people with similar genetic characteristics are very similar to each other.”), necessary features (“all people with similar genetic
characteristics have certain attributes that if they did not have, they would not have those
genetic characteristics”), and informativeness (“knowing that a person has certain
genetic characteristics tells us a lot about a person”) (Haslam, 2011). Although thought to
be a common psychological practice, genetic essentialist biases often have adverse effects
on how the traits of individuals in certain social groups are judged and can lead to
discriminatory and negative outcomes for those individuals being stereotyped (Bastian &
Haslam, 2006).

There is evidence of genetic essentialist approaches to legal decision-making in
other legal contexts besides sentencing, such as privacy (Kaye, 1999), employment
discrimination (Pagnatarro, 2001), and health insurance (Launis, 2000). Specifically,
decision-making on standing in parenthood and reproductive law cases has been argued
to almost exclusively default to genetic relatedness over other factors based on genetic
essentialist thinking (Caulfield, 2001; Melo-Martin, 2014). Thus, as genetic essentialist
thinking is already present in other areas of legal decision-making and judicial sentencing
practices are known to be negatively affected by the stereotyping of essential
characteristics, it is reasonable to think that genetic essentialist biases may negatively
affect judges’ views on sentencing if an offender’s essential characteristics are known to
be genetically influenced. The current study looks to understand the process of judicial
stereotyping related to genetic essentialist biases and its potential negative effects on
sentencing with regard to one particular essential characteristic: mental disorder
diagnoses.

This research, utilizing qualitative methodology and grounded theory analysis,
develops a model that examines if and how judicial stereotyping may negatively affect judges’ views toward the sentencing and punishment of offenders with mental disorders known or thought to be genetically influenced. A sample of Pennsylvania state judges is used as the research sample. First, previous literature on the stereotyping of essential characteristics in sentencing is reviewed, followed by a discussion on genetic essentialist biases toward mental disorders and why it has been chosen as the essential characteristic examined in this inquiry. After presenting the current study and method, the remainder of the article is devoted to the empirical development and discussion of a model suggesting that judges exhibit stereotyping behavior toward offenders with mental disorders known or thought to be genetically influenced by linking relationships between three particular genetic essentialist biases (immutability, informativeness, and uniformity) and three types of stigmatization (pessimism, dangerousness, and family stigma). Such stereotyping behavior, without the effects of three intervening conditions that were found to potentially disrupt this model, correspondingly negatively affects judges’ views on sentencing and punishment related to incapacitation and deterrence. Finally, these findings and their implications, specifically for the therapeutic jurisprudence movement, are considered.

**Judicial Stereotyping of Essential Characteristics**

Judicial behavior in sentencing still remains something of a mystery and still has little ties to theory (Rachlinski & Wistrich, 2017). Yet research, some but not all of which falls under the *focal concerns perspective on sentencing*, suggests that certain offender characteristics impact sentencing decisions through how judges evaluate
blameworthiness, community protection, and bureaucratic constraints of the justice system, particularly relying on the first two criteria (Spohn, 2007). Blameworthiness reflects the past-oriented, retributivist approach that the punishment should fit the crime if an offender is perceived to be responsible for his actions; community protection reflects the forward-looking, utilitarian sentencing goals of incapacitation, deterrence, and sometimes rehabilitation in which judges use sentencing practices to protect society by assessing and preventing future dangerousness in relation to offender characteristics (Steffensmeier et al., 1998). When assessing these criteria in sentencing, judges seldom have complete information to make fully informed decisions and often develop unconscious “patterned responses” of stereotyping, based upon past experiences and societal stigmas, toward offender characteristics to aid in their evaluations of dangerousness and blameworthiness during sentencing (Albonetti, 1991; Ulmer, 1997). Ultimately, judges’ “automatic biases” influence a much broader range of decisions than have been previously considered (Levinson, Bennett, & Hioki, 2016).

Judges’ views on sentencing appear to be particularly affected by the stereotyping of offender characteristics that have been defined in the literature as essential, such as gender, race, and mental disorder diagnoses, that dictate how a person’s identity is perceived and what behavior or outcomes are expected of him. Often, this stereotyping leads to negative influences on sentencing for certain categories of offenders. Male offenders often receive less preferential treatment in sentencing, particularly resulting from cultural stereotypes associated with potential dangerousness and violence, compared to females (Johnson, 2003; Rodriguez, Curry, & Lee 2006; Simon & Ahn-Redding,
In some studies, average sentences for male defendants have been found to be almost 300% greater than that of females in cases with similar facts (Mustard, 2001). Cultural stereotypes associated with paternalism are also thought to result in more lenient sentences for women compared to men; women may be seen by judges as weaker, helpless, not capable of making responsible decisions, and less dangerous than men, and, therefore, more in need of being protected rather than being punished (Mustard, 2001; Nagel & Johnson, 1994; Rodriguez et al., 2006). Judges have also often been thought to adhere to negative social stereotypes associated with race in sentencing, particularly leading to harsher sentences for African-Americans (Blair, Judd, & Chapleau, 2004; Jordan & Freiburger, 2010). For example, judges may believe that black defendants cannot afford to pay fines because they are more likely to be poor because of their race, using the “impoverished” status of a black offender to rationalize beliefs that he should receive a more punitive sentence (Starr, 2014). Walker, Spohn, and Delone (2012) also argue that judges sometimes stereotype African-Americans as more dangerous or likely to commit more serious crimes, which can result in longer prison sentences related to fears that black offenders have more potential for violence.

Most pertinent to this paper, judges also often stereotype offenders with mental disorders during sentencing, which has been found to have negative influences on their punishment views and decisions (Jones & Cauffman, 2008; Parry, 2005). Sometimes such stereotyping also interacts with the stereotyping of other essential characteristics, like gender and race (see Perlin & Cuolo, 2017). Although there is some evidence that mental disorders can positively influence judges’ views on sentencing (e.g. Berryessa,
research has shown that offenders with psychiatric diagnoses can be perceived as less amenable to treatment and more dangerous compared to offenders without diagnoses, leading judges to choose more restrictive sentences based on fears related to future violence or lack of rehabilitation potential (Batastini, Lester, & Thompson, 2017; Jones & Cauffman, 2008; Scheff, 1974).

Particularly, the socio-legal literature on *sanism* has argued that judicial stereotyping of offenders with mental disorders is a common, every-day practice, leading to negative, anti-therapeutic effects to judges’ sentencing views (Perlin, 1992; Perlin, 2013). Sanism has been defined as the negative treatment of individuals with psychiatric diagnoses by those in the legal system, resulting from “a disease of stigmatizing attitudes” toward the diagnosed based upon false assumptions about their character, behavior, and potential outcomes (Perlin, 2013). An intrinsic part of sanism is that people with mental disorders or disabilities are perceived by legal actors as “essentially” different from the rest of society and are categorized into a social group with expected outcomes by legal actors (Lewis, 2012; Perlin, 2000). Thus, sanist decision-making in cases involving mental disorders reflects the same kinds of bias- and stigma-driven stereotypes exhibited in decision-making in cases involving other essential characteristics, such as gender or race (Mossman, 1999; Perlin, 2013). Sanism infects all areas of the legal system, and judges are not immune (Perlin, 1992).

The particular process by which judges stereotype essential characteristics and how that process may negatively affect sentencing for certain groups remains unknown from the existing literature. However, social psychological literature has suggested that
stereotyping related to essential characteristics may result from linking relationships between specific unconscious biases toward the essentialist characteristic and stigmatization of individuals resulting from such biases (Heatherton, 2003; Yzerbyt et al., 1997). Biases in stereotyping are automatic, unconscious attitudes outside of one’s control, shaped by previous experiences and societal views, in which one’s brain makes quick judgments and assessments of people and situations (Yzerbyt et al., 1997). For example, essential characteristics can lead to biases related to homogeneity, meaning all individuals with an essential characteristic are perceived to have similar characteristics to each other because of their shared “essence” (McGill, 1998). Such biases lead to group-level stigmatization in which whole groups of people with certain characteristics are stigmatized or thought to possess certain attributes or behaviors (Corrigan, 2000; Heatherton, 2003). Goffman (1963) argues that stigma is a perceived characteristic of an individual that is “deeply discrediting” and reduces an individual’s identity to this stigma.

Ultimately, discrimination or other punishing behavior, such as isolation or concealing help, is a behavioral response based on stereotyping (stemming from stigmatization) that may result in harm toward the members of a group defined by an essential characteristic (Corrigan, 2000; Crocker, Voelkl, Testa, & Major, 1991). Thus, although the process by which judicial stereotyping of essential characteristics may negatively influence sentencing remains unknown, this literature suggests that this process and punishing behavior related to stereotyping, such as negative effects to judges' views on sentencing and punishment, may be connected to the relationships between biases toward essentialist characteristics and stigmatization resulting from such biases.
Genetic Essentialist Biases Toward Mental Disorders

Genetic essentialist biases, guided by sentiments related to immutability, discreteness, inherence, invariance, uniformity, necessary features, and informativeness, arise from knowledge that an essential characteristic has genetic influences and amplify existing stigmatization of that characteristic (Dar-Nimrod & Heine, 2011; Haslam, 2011). As specified above, the current study looks to understand if and how stereotyping related to genetic essentialist biases toward one particular essential characteristic, mental disorders, negatively affects judicial views toward sentencing and punishment. In addition to evidence on how judges’ sentencing views can be negatively affected by the stereotyping of offenders with psychiatric diagnoses (Batastini et al., 2017; Jones & Cauffman, 2008; Scheff, 1974), there are three other reasons for studying genetic essentialist biases toward mental disorders in this inquiry.

First, contrary to other essential characteristics, there is a significant amount of empirical literature on genetic essentialist biases specifically toward mental disorders, suggesting that such biases result in negative stereotyping and treatment of individuals with mental disorders. Existing literature supports that the majority of the U.S. public already perceive mental disorders as essential characteristics, which often leads to the stigmatization of diagnosed individuals related to dangerousness, lack of treatability, social distance, and family stigma (Ahn, Flanagan, Marsh, & Sanislow, 2006; Haslam & Ernst, 2002). As the U.S. public has been increasingly exposed to research on genetic influences to common psychiatric illnesses (Conrad, 1997), researchers have begun to examine how traditional stigmas associated with mental disorders may be either
mitigated or exacerbated by this growing knowledge of their genetic “essences” (Phelan, Cruz-Rojas, & Reiff, 2002; Schnittker, 2008).

Numerous studies have provided support for genetic essentialist biases toward mental disorders amongst the U.S. public and linked them with enhanced stigmatizing attitudes, including increased negative beliefs related to social distance, unpredictability, dangerousness, and lack of treatability or recovery, that result in discrimination toward those with mental disorders if their illnesses are known to be genetically influenced (e.g. Angermeyer, Holzinger, Carta, & Schomerus, 2011; Angermeyer & Matschinger, 2005; Bag, Yilmaz, & Kirpinar, 2006; Bastian & Haslam, 2006; Lam & Salkovskis, 2007; Pescosolido et al., 2010; Phelan, 2005; Phelan et al., 2002; Phelan, Yang, & Cruz-Rojas, 2006). Overall, the literature has identified four main dimensions of the stigmatization of mental disorders that are significantly exacerbated by genetic essentialist biases (social distance, dangerousness, pessimism for outcomes/treatability, blame) and two other common forms of stigma (family stigma and self-stigma) (see Haslam, 2011). Ultimately, the exhibition of these stigmas as a consequence of these biases often results in the stereotyping of, negative treatment of, and punishing behavior toward individuals with mental disorders in different social situations (Haslam, 2011).

Although a few existing studies have examined judges’ sentencing views on aspects of behavioral genetics related to psychiatric diagnoses (e.g. Aspinwall et al., 2012; Berryessa, 2016; Fuss, et al., 2015), no literature has specifically examined or provided direct empirical evidence for judges’ genetic essentialist biases toward mental disorders and their effects on judges’ views on sentencing. However, based on the
evidence discussed thus far, it is reasonable to believe that some judges, like other members of U.S. society, likely exhibit stereotyping behavior associated with genetic essentialist biases toward mental disorders, and that this behavior may result in the negative treatment of offenders during sentencing. This assumption is further supported by the fact that most U.S. judges are thought to have no specialized knowledge of or background in genetics, and, similar to the U.S. public, are believed to exhibit lay conceptualizations of genetics, both generally and toward mental disorders (Appelbaum, 2005; Berryessa & Cho, 2013; Dreyfuss & Nelkin, 1992; Rothstein, 1999).

Second, judges appear to be increasingly likely to be presented with or have knowledge that mental disorders are genetically influenced. There have been a number of cases in recent years in which behavioral genetics evidence related to an offender’s predisposition to or family history of a mental disorder has been presented and considered in U.S. criminal courts (Denno, 2011; Farahany, 2016). Pyun (2016) argues that, as this evidence is increasingly admitted in court cases, unconscious biases associated with the genetics of mental disorders will become more prevalent in court, as the nature of the genetic evidence provides a concrete, physical cause for the diagnosis and may be overly convincing to those interpreting the evidence. What might be more influential to judges and their decision-making on a larger scale, however, is the number of media reports on the genetics of mental disorders, which has continued to grow in recent years (Conrad, 1997). Media is the platform by which most members of society learn about genetics, and through this exposure, members of U.S. society now commonly understand and accept that many common mental disorders are influenced by genetics.
Thus, like other members of U.S. society, judges likely have some basic knowledge that many mental disorders are in some way genetically influenced. Even if genetics evidence is not presented during trial, basic knowledge of the genetic influences to mental disorders might be integrated into judges’ views during sentencing and lead to stereotyping behavior related to genetic essentialist biases.

Third, mental disorders are being studied in this research in order to add a new area of inquiry to the therapeutic jurisprudence literature. The therapeutic jurisprudence movement, in which the law and the judge specifically are viewed as “therapeutic agents” intended to improve the treatment and well-being of offenders (Winick & Wexler, 2003), helps to promote cognitive awareness and illuminate how the actions and words of judges can affect individuals with mental disorders and either promote or hinder treatment and rehabilitative efforts (Kaiser & Holtfreter, 2016). Therapeutic jurisprudence proposes that judges be cognizant that their actions and decisions have therapeutic or anti-therapeutic consequences for offenders, especially those with psychiatric diagnoses (Wexler, 2000). Wexler (2000) argues it is important to empirically explore “psycho-judicial soft spots” in order to examine how judges’ unconscious biases may lead to potential anti-therapeutic outcomes. By identifying “psycho-judicial soft spots,” knowledge can be provided in order to examine how biases can best be addressed or overcome (Rottman & Casey, 2000). Thus, if judges do indeed exhibit stereotyping behavior associated with genetic essentialist biases that results in the negative treatment of offenders with mental disorders during sentencing, this study adds to the knowledge base of potential
therapeutic jurisprudence issues. Further, this research may also be instrumental in promoting judges’ cognitive awareness on “psycho-judicial soft spots” related to genetic essentialist biases and how judges’ own biases in cases involving mental disorders and genetics may hinder an offender’s treatment opportunities and rehabilitative efforts.

**Present Study**

Building upon this framework and utilizing grounded theory methods (Strauss & Corbin, 1990; 1998), this research attempts to develop a model that illuminates a process by which judicial stereotyping associated with genetic essentialist biases may negatively affect judges’ views toward the sentencing and punishment of offenders with mental disorders known or thought to be genetically influenced. The process by which judges stereotype essential characteristics remains unknown from the existing literature, as well as how that process may negatively affect sentencing. However, the model of stereotyping related to essential characteristics from the social psychological literature provides a promising potential framework for studying the negative effects of judicial stereotyping related to genetic essentialist biases toward mental disorders on sentencing. As discussed above, such literature suggests that stereotyping may result from the linking of relationships between specific biases toward the essentialist characteristic and stigmatization of individuals resulting from such biases (Heatherton, 2003; Yzerbyt et al., 1997). Correspondingly, this stereotyping then may lead to discrimination or punishing behavior toward individuals with the essential characteristic (Corrigan, 2000; Crocker et al., 1991). Thus, by adopting this framework, this study’s research questions can be dissected into two inquiries:
1. If and how does judicial stereotyping of offenders with mental disorders known or thought to be genetically influenced arise from the relationships between judges’ genetic essentialist biases and potential stigmatization arising from such biases?

2. How and in what ways could this form of judicial stereotyping negatively influence judges’ views on sentencing and punishment toward these offenders?

Ultimately, this research attempts to develop a model from the collected data that links these two inquiries in order to explain the relationships between these phenomena.

Additionally, it is important to identify if and what may influence whether some judges do not exhibit stereotyping, or, even if exhibited, what may influence whether or not this thinking indeed results in negative effects on their sentencing views. In grounded theory, these factors are called intervening conditions, referring to factors that can “bear down” or influence the research’s developed model, “mitigate[ing] or otherwise impact[ing] causal conditions on phenomena” being studied (Strauss & Corbin, 1998, p. 131). Thus, this research will seek to identify intervening conditions that influence whether or not some judges exhibit the model developed in this research. Although this research did seek to identify any emergent intervening conditions from the data, three intervening conditions were identified during the research design process and are ultimately those examined:

1. **Judges’ personal experiences related to genetics.** This factor was studied as a potential intervening condition because lack of background or knowledge of
genetics has been argued to reinforce and be connected to the negative effects of genetic essentialist biases (Condit et al., 1998; Dar-Nimrod & Heine, 2011). Thus, judges’ previous exposure or experiences with genetics may affect the ways in which they exhibit stereotyping behavior related to genetic essentialist biases and the other aspects of the model developed in this research.

2. **Judges’ personal experiences with or exposure to individuals with mental disorders.** This factor was studied as a potential intervening factor because judges’ personal experiences with mental disorders, such as in their own families or in previous employment contexts, have been shown to affect their views and potentially influence decisions in legal contexts, especially related to more positive or sympathetic views toward diagnosed offenders (Berryessa, 2014; Hochstedler, 1987). Thus, it is possible that judges’ personal experiences with mental disorders may affect the model developed in this research.

3. **Judges’ views on scientific determinism compared to their views on free will.** This factor was studied as a potential intervening condition because individuals’ strength of views on free will, which can be defined as the ability to act at one’s own discretion, is negatively associated with the exhibition of genetic essentialist biases (Ogletree & Archer, 2011). Further, strength of views on scientific determinism, which can be defined as the idea that human behavior and characteristics are determined by biological attributes, is known
to be intrinsically intertwined and positively associated with the exhibition and negative effects of genetic essentialist biases (Wachbroit, 2000). Support for the concept of free will is also a construct known to permit blame for and punishment of criminal acts; particularly a larger degree of perceived free will, and therefore responsibility, can lead to more retributive punishments (Clark, Luguri, Ditto, Knobe, Shariff, & Baumeister, 2014). Conversely, when an offender is described to have little control over his behavior due to deterministic influences, this leads to more support for utilitarian punishments based on deterring and preventing future transgressions (Weiner, Graham, & Reyna, 1997). Thus, it is possible that judges’ views toward free will and scientific determinism might affect this research’s developed model.

**Method**

This research uses qualitative methodology, which allows for multifaceted descriptions, detailed understandings and contextualization of the phenomena being studied (Maxwell, 2013). A grounded theory approach was used to analyze the data because it allows for the development of theoretical models from data and the examination of relationships between the phenomena being studied (Strauss & Corbin, 1990). In the remainder of this section, the methods of this study will be fully detailed. First, the study’s participant selection and interview protocol will be discussed, followed by data collection and analysis.

**Participant Selection**

Purposeful random sampling was used for this research, allowing for the
deliberate selection of particular individuals who can provide valuable information relevant to a study’s research questions (Maxwell, 2013). The purposeful sample for this study is a random selection of judges who sit on the Minor Courts and the Court of Common Pleas in the state of Pennsylvania. Judges from these courts have been chosen because they either decide whether criminal cases go to the Court of Common Pleas (in the case of Minor Courts) or hear and rule in almost all criminal cases in the state of Pennsylvania (Court of Common Pleas) (Pennsylvania Courts, 2016). Judges that interact with and make decisions on behalf of criminal offenders are participants best able to provide valuable information to this study’s research questions. Having previous experiences with offenders with mental disorders was not an element of the study selection criteria, as not having previous case experience involving offenders with mental disorders does not mean that a judge could not interact with or preside over a case involving such an offender in the future.

This population was also targeted in order to maximize potential participation from judges. Judges are known to be a difficult population to garner as a research sample; decisions surrounding methodology and participant selection when judges are sought as a research sample must be partially made based on the goal of maximizing response rates, participation, and access (Dobbin, Gatowski, Ginsburg, Merlino, Dahir, & Richardson, 2001). Thus, the reason to target a sample of judges in the state of Pennsylvania was based on the assumption that judges in the state of Pennsylvania would be more likely to be exposed to the author’s research institution and be willing to participate.

For this research, the initial goal for the research sample was 40 to 60 judges,
which is the ideal size for a grounded theory study in order to reach theoretical saturation (Mason, 2010). Purposeful random sampling was used to garner this sample because there are over 1,000 judges who sit on these courts in the state of Pennsylvania (Pennsylvania Courts, 2016), meaning that every judge who fit the selection criteria could not be interviewed. A random sample of 800 judges from these courts was chosen to target for participation based on the fact that the interview request response rate in previous research interviewing state court judges has been around 5% (Berryessa, 2014; Berryessa, 2014a; Berryessa, 2016; Berryessa, 2016a). In all, the participation of 59 judges was secured, resulting in a 7.4% response rate.

Data Collection

Sources of data include semi-structured interviews with judges fitting the selection criteria described above. The courthouse mailing addresses of all sitting judges \((n = 1,124)\) from the Pennsylvania state Minor Courts and the Court of Common Pleas, which are publically available on the Pennsylvania Courts website, were collected and a random selection of 800 were chosen to be contacted via U.S. mail to request a 30-minute interview. The interview request included a letter with information on the study and contact information for the author, including email address and phone number. Interviews were conducted via telephone, audio-recorded and transcribed from June 2016 to August 2016. The University of Pennsylvania Institutional Review Board approved this study.

Interview Protocol

Interviews lasted on average approximately 45 minutes (protocol found in Appendix C) and included areas of questions that allow for qualitative model
development in grounded theory research (see Patton, 2015). Judges were asked “opinion and values” questions so they could describe their thoughts about sentencing offenders with mental disorders, as well as their thoughts on sentencing if an offender’s mental disorder was known to be genetically influenced. Further, questions were asked in order to identify potential intervening conditions that may influence the theory developed in this research. “Knowledge” questions were asked to seek an understanding of judges’ levels of knowledge of and personal experiences with genetics. An “experience and behavior” question was asked to explore past personal experiences with mental disorders.

In order to examine judges’ general views of free will and determinism, an “opinion and value” question was asked to measure judges’ views on free will and scientific determinism. This question included seven validated measures, scored from 1-5, selected from the Free Will and Determinism Plus scale (FAD Plus) (Paulhus & Carey, 2011) that measures both views on free will (3 items) and scientific determinism (4 items) (see Appendix C). Both free will and scientific determinism scores (each on a scale from 1-5) for each judge were calculated by adding together the values of free will and determinism items respectively and dividing by the number of items for each score. Higher scientific determinism scores represent higher support for how influential biological forces are on behavior and outcomes (e.g. “Your genes determine your future”), while higher free will scores represent higher support for people being responsible for and in control of their actions (e.g. “People can overcome obstacles if they truly want to”) (Paulhus & Carey, 2011). Finally, “background and demographic” questions were asked to capture judges’ basic demographics that could have influenced
their perceptions and beliefs as they relate to the current research.

**Data Analysis**

A grounded theory analytical approach was used to analyze the data, in which theory is “discovered, developed, and provisionally verified through systematic data collection and analysis of data pertaining to that phenomenon” (Strauss & Corbin, 1990, p. 23). Even though this study’s research goals/design and some codes were influenced by existing literature, the developed model in this research, and the relationships between the phenomena being studied, emerged from the data; although often portrayed as an inductive process, researchers admit that this interaction of deductive framing of the research from existing theory and inductive reasoning in model development is common, accepted, and, often, encouraged in grounded theory research (Goulding, 2017; Strauss & Corbin, 1990).

Dedoose software was used to organize, store, and code the data in a multi-step process. First, open coding was used, which is the initial process of iteratively organizing data into preliminary themes observed in the data, after twelve interviews were conducted (Strauss & Corbin, 1990). Definitions of codes, which are added, deleted and modified throughout the open coding process, were drafted (Strauss & Corbin, 1990). As it is common in qualitative research, a combination of data-driven, inductive and theory-driven, deductive codes was established, based on the emergent themes in the data, this study’s research questions, and previous literature on genetic essentialist biases and stigma (Creswell, 1998). Next, following full data collection, axial coding was used, described by Strauss and Corbin (1998) as the process of “reassembling data that were
fractured during open coding” (p. 124). During this stage, themes established during open coding were grouped into categories by examining the data to determine how categories should be organized (Strauss & Corbin, 1990). Finally, selective coding was, in which primary theoretical schemes were developed by comparing and interpreting categories of data to explain the ways in which categories from axial coding relate to each other, in order to identify the process that best explains the emerging theoretical model from the data related to the study’s research questions (Strauss & Corbin, 1990).

Further, interrater reliability of the coding scheme was calculated during the coding process to validate the internal consistency of the coding scheme. Interrater reliability involves multiple coding of data by multiple individuals during data analysis and helps to establish the rigor of a qualitative study’s coding scheme and model development (Guba, 1981). Three independent co-coders coded and analyzed a random sample of one-third of conducted interviews (19 transcripts) and calculated high interrater reliability of the coding scheme (87% coder agreement).

Results

Demographics

Basic demographics of the 59 interviewed Pennsylvania State Court judges can be found in Table 3.1. None of the demographics collected in this study appeared to be connected to or influence any specific themes observed in the data related to this study’s research questions. All judges handled criminal offenses, with the large majority of judges handling a general array of criminal offenses not specific to one type or area of offense (e.g. juvenile delinquency, homicide). Other demographics, such as specific court
served upon, unique aspects of judges’ educational backgrounds, specific types of cases handled, and previous professional training experiences on mental disorders or genetics, which did not have any bearing on the results presented here but may be noteworthy to interested parties, are available upon request.

**Results of the Theoretical Model**

As a reminder, the purpose of this study was to examine if and how judicial stereotyping may negatively affect judges’ views on the sentencing and punishment of offenders with mental disorders known or thought to be genetically influenced. Three overarching axial coding categories (*genetic essentialist biases, stigma, and effects on sentencing/punishment*) were recognized and organized during the coding process, as influenced by the aims of this study.

Ultimately, by positioning the relationships that emerged in the axial coding categories during selective coding in order to develop a theoretical “story” based around this study’s research questions (Creswell, 1998), findings support the model presented in Figure 3.1 representing how judicial stereotyping may negatively affect sentencing of offenders with mental disorders known or thought to be genetically influenced. As discussed below, judges exhibited stereotyping behavior by linking the relationships between three particular genetic essentialist biases (*immutability, informativeness, and uniformity*) and three types of stigmatization (*pessimism, dangerousness, and family stigma*) associated with each bias when exhibited. When judges exhibited this stereotyping without the effects of the intervening conditions also discussed below, judges expressed how knowledge of the genetic influences to an offender’s mental
disorder would negatively influence their views on sentencing and punishment, specifically related to more restrictive sentences and support for deterrence and incapacitation. Three intervening conditions (personal experiences with genetics, higher scientific determinism scores vs. free will scores, and no personal experiences with mental disorders) influenced whether judicial stereotyping associated with genetic essentialist biases resulted in either positive or no effects, rather than negative effects, on judges’ sentencing views.

Each part of the developed model is presented in the following sections. First, data are presented to illustrate how results from the two axial coding categories, genetic essentialist biases and stigma, relate to each other as a form of judicial stereotyping. Then, results associated with the axial coding category, effects on sentencing/punishment arising from knowledge than an offender’s mental disorder is genetically influenced, are then presented. Although this research and model development focused on how stereotyping may negatively influence judges’ views on sentencing, all three effects on sentencing/punishment (negative, positive, and no effect) are discussed, as intervening conditions were found to influence whether judicial stereotyping associated with genetic essentialist biases resulted in either positive or no effects on judges’ sentencing views. Finally, intervening conditions and how they influenced the model, specifically focusing on how they disrupted judges’ negative views on sentencing, will be presented.

Stereotyping.

As listed in Table 3.2, forty-nine judges exhibited nine different types of genetic essentialist biases, which were identified during open coding and organized during axial
coding. No genetic essentialist biases were coded in the interviews of ten judges. However, the majority of observed biases, such as *discreteness* or *necessary features*, were only exhibited by a few judges in their responses rather than across the entire sample. Arising from the exhibition of these biases, forty-seven judges exhibited five different types of *stigma* toward offenders, which were identified during coding (see Table 3.3). However, two stigmas (blame/personal responsibility and social distance) were only exhibited by a small number of judges and not found to be consistently associated with the exhibition of any particular genetic essentialist biases. No stigmas were coded in the interviews of twelve judges, and nine of these judges were those whose interviews did not include codes for genetic essentialist biases.

Overall, this data support patterns of judicial stereotyping, particularly the consistent relationships between judges’ exhibition of three genetic essentialist biases and three types of stigmatization. *Immutability, informativeness,* and *uniformity* were observed during open coding as genetic essentialist biases present in more than half of the responses of the forty-nine judges who exhibited biases and were each consistently associated with the exhibition of three stigmas (*pessimism, dangerousness, and family stigma*) in unique ways. As such, the data here are organized by a description of each exhibited bias, followed by discussions of how each stigma arose from that bias. Positioning data in this way illustrate how different aspects of stigmatization are uniquely linked with each genetic essentialist bias in judges’ responses.

**Immutability.** Thirty-five judges discussed the immutable or deterministic nature of the genetic influences to an offender’s mental disorder, largely focusing on how an
offender’s psychiatric illness is not as malleable if it is genetically influenced. One characteristic response related to this sentiment was as follows: “To what extent can behavior be modified regarding someone with a genetic disorder as opposed to a non-genetically acquired disorder? I’d like to see the comparisons between the two and say okay, well, this guy is screwed because he’s got genetic disorder. I just don’t know to what extent behavior can be modified” (Judge 41). Judges also likened the genetic influences to an offender’s illness to genetic physical characteristics, like eye or hair color or height, that they perceived to be predestined or unchangeable characteristics. For example, one judge said, “Certainly if it’s a genetic disorder it would weigh in on a sentence because it’s like having blue eyes. There’s nothing you can do about it, but you have it, would have to deal with it” (Judge 15).

Additionally, judges also discussed how the genetics of an offender’s mental disorder determines an offender’s behavior and his identity, which cannot be “overridden” because of how strong the genetic influences are on the offender’s characteristics, specifically impulse control. One judge commented that, “I’d say that if [offenders with mental disorders known to be genetically influenced] know right from wrong, then they shouldn’t let the genetic disposition use as an excuse. Now, I’m going to say that with a caveat. There are some genetic dispositions obviously that override a person’s willpower, override a person’s ability to control it” (Judge 41). Many judges also connected this idea of genetically determined behavior to inevitable recidivism: “[Those] people are just wired differently. They’re DNA is different. I don’t know if there’s any cure for it, whatsoever. So, really, what can you do? You leave them out on
the street? [Do they come back], which they will. That’s what the statistics show and that’s certainly what I’ve seen in my court room” (Judge 56). Another judge stated that, “I believe that [genetics] takes over. I mean it becomes who that person is, in the negative way, actually. With no impulse control, sometimes there’s a break with reality. And because of that, I think it overshadows what the person’s real personality, real behavior” (Judge 31).

Stigmas arising from Immutability

Pessimism: Twenty-eight judges who exhibited biases related to immutability discussed pessimism for offenders and their outcomes because the genetic influences to their mental disorders have potentially unchangeable influences on those individuals’ lives. Judges specifically related how the genetic influences to diagnoses may minimize the potential for successful treatment amenability. One judge said that, “[genetics] is not an excuse but certainly, it gives you some idea about how you’re going to handle someone because that’s not something they can usually help” (Judge 11). Commenting on lack of available and potentially successful services for these offenders, a judge stated, “I have read some studies on the fact that maybe they don’t have as much control over things that as we think they do but…still there has got to be a way to take care of this and I am not sure that services are out there to help them” (Judge 25).

Dangerousness: Twenty judges who exhibited immutability discussed how the genetic influences to an offender’s mental disorder makes an offender more likely to be dangerous or violent toward others in the future; this was specifically
associated with the offender’s perceived impaired ability to control his behavior
due to the immutable qualities of the disorder attributable to its genetic influences.
One judge commented that, “I think that we all have the ability to make choices,
but if we have some sort of [genetic mental health problem] …that affects our
ability to check our impulses – that that deprives us of the capacity to make
choices or at least it impairs the ability for us to make choices” (Judge 1).

**Family Stigma:** Fifteen judges whose responses were associated with *immutability*
related how genetic influences to an offender’s behavior, as dictated by his
familial lineage, may unavoidably predispose him to certain antisocial outcomes.
Particularly, judges described how parents’ ill raising of an offender is also
influenced by genetics, potentially resulting in or preordaining an offender’s
inevitable or *immutable* criminality. For example, one judge stated, “We all make
mistakes obviously and some take longer than others to get around and some
make such mistakes they never recover from…kids who get into [bad
things]…now how much of that is an extension of a genetic issue versus your
sucky parents, suck parents usually make kind of sucky kids and good parents
usually make good kids, so how much of that is genetic, well, they’re good
parents because they got good genes and they pass these good genes onto their kid
and sucky parents have sucky genes” (Judge 20).

**Informativeness.** Forty-two judges who exhibited genetic essentialist biases
discussed the informativeness of knowing that an offender’s mental disorder has genetic
influences, commenting on how knowing an offender’s psychiatric illness is genetically
influenced can tell judges a lot about an offender’s behavior, characteristics, and potential outcomes. Judges considered how knowing that an offender’s mental disorder has genetic influences informs judges about the reason why an offender has entered the criminal justice system, rather than other factors. For example, one judge commented that, “Someone with a mental disorder more genetically prone…[does] their disorder push them into the criminal justice system rather than their societal conditions? Probably, yes” (Judge 53). Similarly, judges discussed how knowledge of the genetic influences to an offender’s psychiatric illness provides information on his likelihood or potential for criminality or antisocial outcomes: “It’s pretty easy to see that genetics plays a very large role in crime in general as well as in mental illness and crime…I think that determining whether or not somebody lives an honest life free of criminal activity or whether somebody lives a life with criminal actions, I think that genetics plays the biggest role in that. I’m sad about that because I don’t want it to be that way. I don’t like the idea of punishing people for bad genes. I like the idea of punishing people for bad choices” (Judge 1). Another judge commented that, “Being genetic, it means that it’s going to keep happening again because it’s in the genes for a lack of better phrase” (Judge 32).

**Stigmas arising from Informativeness**

**Pessimism:** Twenty-six judges who exhibited informativeness connected such sentiments to their pessimism for an offender’s ability to be treated, exhibit positive traits, or ability to live a productive life. Specifically, judges commented that an offender’s mental disorder with known genetic influences informs them to how likely a person makes bad decisions and his likelihood to be unable to control
behavior. For example, one judge commented that, “There may be tendencies or…impulses that may not necessarily be able to be turned off or…I don’t know. Deliberated in a way that would not be able to be deliberated in a way by a person not having a [mental disorder with genetic influences]. Somebody without one may be able to deliberate and make a decision between right or wrong more easily” (Judge 39). Similarly, another judge stated, “I definitely think it does affect their ability to make choices. I think that they are hardwired to behave in a certain manner. I think it can be changed a little bit but they also do fall back to that behavior if that’s what they are programmed to do” (Judge 25).

**Dangerousness:** Twenty-eight judges who exhibited *informativeness* connected their views on how the genetic influences to an offender’s mental disorder *informs* them on the offender’s potential dangerousness related to public safety and containing or regulating dangerousness to prevent future offending. For example, one judge stated that “[genetics] might make me be more concerned about public safety because – I would draw the inference that the defendant might not have as much control over the mental illness if it was for example, a genetic mutation” (Judge 49). Judges also commented that the genetic influences to an offender’s mental disorders also *informs* them that the offender may pose a danger to himself, which often can go hand in hand with public safety concerns and containing dangerousness. For example, as one characteristic response, one judge stated, “I would have to say there are times then I put bail on somebody because of their condition, either they’re so toxic, they got to stay somewhere and it’s for
general safety… I think there’s not only society but they’re safer in jail than they are outside” (Judge 20).

**Family Stigma**: Twenty-two judges who exhibited *informativeness* discussed how knowing that an offender’s mental disorder is genetically influenced *informs* them about the families of these offenders and how they may have similar anti-social behavioral and character outcomes. Particularly, this idea of family stigma extended to their judgments or perceptions on the future children of an offender with a mental disorder, including informing them on these future generations’ likelihood for criminality. Judges vocalized such with responses like the following: “I think it comes from natural logic… you see several generations of [offenders with mental disorders] around us where obviously there is huge genetic component that passes through the family and you can’t help but occasionally ask that question, ‘why are we allowing those people to have children and continuing on to the next generation?’… We combat that and say there got to be a better way. But it’s a temptation that comes into play I think with every judge I’d ever talked to quite frankly about this subject… it is a temptation and it comes to mind and one has to fight it off like any other simplistic, perceived cure to what is already a complex problem” (Judge 46).

**Uniformity**. Twenty-eight judges discussed how offenders with similar types of mental disorders known to be genetically influenced have similar character and behavioral attributes, based on the fact that individuals with similar genetic characteristics are very similar to each other. “The older I get, I see confirmed that the
apple doesn’t fall far from the tree. It’s kind of a layman’s assessment. But I think it explains a lot of things, especially mental health” (Judge 21), one judge commented. Similarly, one judge stated “I think the genetic component is life and well unfortunately. We all can see that. With multi-generational families, you will see lot of the same characteristics” (Judge 13). Judges also grouped offenders with similar mental disorders with similar genetic influences by pronouns such as “they” and “them,” and discussed uniform outcomes for these offenders: “I think it makes them more inclined to, first of all be present, to come into the justice system. And unfortunately, it makes it that much harder for them to leave our criminal justice system. Because it’s so challenging, so difficult to treat. They’re more likely to return or remain in our criminal justice system” (Judge 8).

Judges also grouped offenders with similar genetic influences to their mental disorders into a uniform group and directly compared it to a uniform “non-genetically influenced” group of offenders with mental disorders. For example, one judge stated, “There are some people that have a diminished capacity [due to genetic influences] … they are the ones who’re getting to the most trouble and cause the most problems in our community, and it’s not entirely fair to lump them in the same category with somebody who would consciously choose to do an evil act. But on the practical side of things, even if we shouldn’t say that they’re bad people, we need to make sure that society is safe from them because they are an increased danger, or I should say they do pose an increased danger to the public safety [compared to] somebody who has the ability to calmly reflect upon something during a stressful situation or a bad time” (Judge 1).
Stigmas arising from Uniformity

Pessimism: Twenty judges who exhibited sentiments related to uniformity reported some degree of pessimism for any offender with a mental disorder known to be genetically influenced, as individuals with similar genetic characteristics are very similar to each other. Judges particularly commented on how similar negative life outcomes and effects on society are expected for the great majority of offenders with genetically influenced mental disorders, focusing on how the genetic influences to disorders affects the potential treatability regardless of the exact diagnoses. For example, one characteristic response was the following: “We can figure out if this person has this illness that is genetically-based. But unfortunately, there is no way to lessen the effects of it on the individual and change the individual’s actions on society” (Judge 52).

Dangerousness: Eighteen judges who exhibited uniformity in their responses connected such sentiments to fears that genetic influences to offenders’ mental disorders, regardless of the specific diagnosis, helps to provide them information on the potential dangerousness of offenders and ways to regulate their behavior to prevent future offending. Judges not only focused on regulation by incarceration, but other methods as well, such as civil commitment. Judges particularly focused disentangling if and how much they can attribute genetic influences as an underlying or dominant reason for an offender’s behavior, regardless of other offender characteristics or influences. One characteristic response related to this sentiment was as follows, “I’ve had at least one discussion with an attorney, not in
court but outside the court around the cooler about how if [I think] genetics is the main player in determining why somebody commits a crime, that it would seem to me that in those situations that we should be focusing on the civil commitments where nobody’s saying the person is bad, we’re saying the person is dangerous” (Judge 1).

**Family Stigma:** Thirteen judges who exhibited *uniformity* discussed how knowledge that an offender’s mental disorder is genetically influenced affects how they view the background and character of that individual’s entire familial lineage, because of their shared genetics background. One characteristics response related to these sentiments is as follows: “I’ve prosecuted families: grandfathers, then the sons and then the grandchildren. I’ve seen the same families for twenty-five years coming through the system. I had the grandfather, the son and then I had the grandchild for a crime. Clearly, genetics play a vital role in how people interact with the criminal justice system: I can see the same families over and over then…part of that is they’re predisposed…from the families, from their genetics” (Judge 22). Further, after identifying “families of offenders,” judges also commented that they sometimes look into the background of an offender with a mental disorder with known genetic influences. “If you have a family that always seems to be in trouble, or in my office or you know, I look into the background” (Judge 9), said one judge. This can also lead to negative influences regarding how and what outcomes judges might expect from an offender’s family.

**Effects on Sentencing/Punishment.**
All fifty-nine judges exhibited three types of effects on their sentencing and punishment views when discussing the relationship between sentencing offenders with mental disorders and known genetic influences to an offender’s psychiatric illness; these themes were identified during open coding and organized during axial coding (see Table 3.4). These effects on sentencing and punishment, discussed below, include negative, positive, and no effects.

**Negative.** Twenty-four judges discussed how the genetic influences to an offender’s mental disorder would in some way negatively affect their views on sentencing. These judges primarily focused on discussing sentencing as a way to protect the public from the potential *dangerousness* of an offender related to their *pessimism* on his treatment amenability associated with his disorder’s perceived *immutability* due to its genetic influences. Judges discussed making sentencing more restrictive for these types of offenders to contain future *dangerousness*. For example, one judge stated, “The person may not have the ability to rehabilitate themselves…if it’s something which pose a threat to the community then my sentencing might be more restrictive because if it’s a genetic problem then maybe nothing that I do in terms treatment is going to change their behavior” (Judge 3). Judges also discussed their increased concerns on containing or regulating an offender’s behavior to protect the public if they know his psychiatric diagnosis has genetic influences as related to *family stigma*. For example, one judge, discussing how more restrictive punishments may be warranted for those with mental disorders with genetic influences, stated, “If you have a family that has a mentally ill parent or mentally ill child and they could both be adults, we kind of know going forward
when the case comes in that this person came from that tree and there is a good chance that they have some genetic predisposition that warrants handling the case a little differently than kicking them in the ass with fines and costs” (Judge 14).

In these discussions regarding protection of the public, judges who exhibited negative effects on their sentencing views largely focused on increased emphasis regarding the potential deterrence and incapacitation of offenders with mental disorders known to be genetically influenced. Regarding deterrence, nineteen judges discussed using sentencing to deter future recidivism in order to protect the public, particularly focusing on more restrictive policies to prevent offending and regulate behavior: “My initial reaction to be finding out that someone…that they’re disorder’s, you know, is caused by genetics…[is I would] empathize a little more but my main concern would be public safety and making sure that they won’t make the same mistake twice…being genetically predisposed, it would have much of a bearing on my decision” (Judge 53). Regarding incapacitation, fifteen judges discussed potentially needing to incapacitate offenders away from the public in order to protect the safety of the community: “It is what it is and I still would just look at the danger to the community and the chance for…medication and rehabilitation…protecting the community is always of the utmost importance. It’s something that we use in considering bail. It’s something that we use in considering whether to release someone back into the community” (Judge 15).

Positive. Thirteen judges discussed how the genetic influences to an offender’s mental disorder would positively affect their views on sentencing the offender, largely associated with wanting to use sentencing to provide future treatment opportunities for an
offender to help minimize future contact with the criminal justice system. As one characteristic response, one judge said, “Sometimes when there is awareness that there is a genetic influence, there may be some treatment possibilities for the person that the person hasn’t tried yet, so I suppose if I knew that then I would enquire what…since we know this about this illness, what are the treatment possibilities for someone with this illness” (Judge 52).

The judges who exhibited positive effects on their sentencing views focused on getting offenders with mental disorders known to be genetically influenced access to rehabilitative sentencing in order to prevent future contact with the criminal justice system. Judges discussed wanting to use community corrections, types of medical or psychological therapies, or other treatment-oriented sentences as a first line of defense in helping to curb the potential reoffending of these offenders: “Well, I think I’m a proponent of treatment no matter what…I think that it’s helpful. Obviously, it has to be helpful. People that come in, especially in our system, in the criminal justice system, that do have diagnosable [mental disorders with genetic influences] …they’re not receiving treatment. So, treatment is better than no treatment. And I think you have to start somewhere” (Judge 39). Judges also discussed their feelings of sympathy, which help to fuel their desire to search for treatment opportunities and rehabilitative sentencing alternatives for offenders with mental disorders known to be genetically influenced. For example, one judge stated, “We are not supposed to have sympathy. We are not supposed to have prejudice. But we are human. It kind of generates some sympathy; it’s going to generate a search for alternatives. You are going to be thoughtful as to what you can do
and how do all the sentencing criteria fit together for this individual” (Judge 13).

**No Effect.** Twenty-two judges discussed how the genetic influences to an offender’s mental disorder would have no effect on their views on sentencing or punishing such an offender. These judges described the origin or influences of the disorder as being unimportant to sentencing and perceptions of responsibility. One judge said, commenting how it may affect sentencing practices, said, “I’m not sure it does. It is what it is. If you have it…No matter, no matter whether it’s something that just happens because it’s chromosomal or it’s something that just happens because someone makes a conscious decision to alter reality, it happens” (Judge 15). Another judge, commenting about an offender’s responsibility, stated, “I don’t know that it changes a whole lot, only because people can do horrific things that they need to be held accountable for even though they’re genetically predisposed to do it” (Judge 36).

Finally, these judges discussed how the genetics of a mental disorder are unimportant to how they view different aspects of punishment. For example, commenting on sentencing as a way to ensure public safety, “I’m not sure that that [genetics] really has a lot of bearing on the public safety question. Again, whatever the cause of the illnesses, if the individual presents danger to others, we need to take that pretty seriously. I don’t know whether the root of cause has much to do with public safety. Again, except to the extent that it can be controlled. If the situation can be controlled then that’s different. But whether it’s because it was genetic or because of drugs that they were taking or a traumatic experience or whatever might have caused it, if they’re dangerous, then they’re dangerous and then you need to take the next best precautions” (Judge 47).
Intervening Conditions.

In the development of this research, several intervening conditions, referring to factors that can “mitigate or otherwise impact causal conditions on phenomena” being studied (Strauss & Corbin, 1998, p. 131), were examined. Three intervening conditions ultimately influenced if and how judges exhibited the developed model in this research: personal experiences with genetics, higher scientific determinism scores vs. free will scores, and no personal experiences with mental disorders. Particularly, these conditions influenced whether judicial stereotyping associated with genetic essentialist biases resulted in either positive or no effects, rather than negative effects, on judges’ sentencing views. Some judges exhibited more than one intervening condition (i.e. some judges may have had personal experiences with genetics and also had higher scientific determinism vs. free will scores).

Intervening Condition #1: Personal Experiences with Genetics. Sixteen judges reported that they had personal experiences with genetics in different contexts, which acted as an intervening condition; for example, five judges had said that they undergone the process of genetic testing to see if they or their children would inherit different disorders, such as muscular dystrophy, or genetic mutations, such as the BRCA1 gene that has been connected to breast cancer. Another judge had a child with a genetic metabolic disorder which had led him to read many books on genetics. Another judge had worked previously as a pharmaceutical sales representative, and therefore, had been educated on genetics through that experience. Another judge was married to a biomedical engineer that uses genetics in his research, while another judge has a child doing a
doctoral degree in genetics.

As illustrated in Figure 3.2, these personal experiences with genetics were found to act as an intervening condition regarding whether or not these judges expressed negative views on sentencing the offender and a focus on deterrence or incapacitation. Judges that reported having personal experiences with genetics did exhibit the same stereotyping behavior as other judges in this research that did not have personal experiences with genetics. However, these personal experiences were found to act as an intervening condition that influenced if and how this stereotyping affected or led to judges’ views on sentencing. Specifically, judges with personal experiences with genetics almost entirely exhibited positive, rather than negative, effects on their sentencing views regarding knowledge of genetic influences to an offender’s mental disorder (with a few judges with personal experiences with genetics exhibiting no effects on sentencing). In fact, even while exhibiting these biases and stigmas, these judges largely focused on using sentencing to attain treatment for offenders, rather than other punishment objectives. Thus, personal experiences with genetics appears to be an intervening condition that may disrupt whether stereotyping related to genetic essentialist biases leads to negative effects on punishment views.

**Intervening Condition #2: Higher Scientific Determinism Scores vs. Free Will Scores.** As illustrated in Figure 3.3, judges’ higher scores on items related to scientific determinism compared to their scores on items related to free will, as measured by administering selected items from the FAD plus, acted as an intervening condition in this research. Fourteen judges reported higher scientific determinism scores (scored from 1 to
5), measuring support on the extent to which biological forces are influential on behavior and outcomes, compared to their free will scores (scored from 1 to 5), measuring support on the extent to which people are in control of their own actions and outcomes. Of these judges, all but two judges expressed that the genetic influences to an offender’s mental disorder would not affect their views on sentencing. Similar to judges with personal experiences with genetics, judges with higher scientific determinism scores also exhibited the stereotyping behavior that other judges did, meaning that they exhibited the same genetic essentialist biases and stigmas as judges in this research who reported higher free will scores (compared to their scientific determinism scores). However, judges with higher scientific determinism scores exhibited no effects on sentencing regarding the genetic influences to an offender’s mental disorder. Thus, judges’ higher scores on items related to scientific determinism, compared to their scores on items related to free will as measured by the FAD plus, appears to be an intervening condition that may disrupt whether stereotyping related to genetic essentialist biases leads to negative effects on sentencing.

**Intervening Condition #3: No Personal Experience with Mental Disorders.** As illustrated in Figure 3.4, not having personal experiences with individuals with mental disorders, either in their own lives, in their families, friendships, or in other personal contexts, was a powerful intervening condition that completely disrupted the model developed in this research from the beginning of the theoretical process. There were seventeen judges who reported no personal experiences with mental disorders. Generally, these were the judges who exhibited little or no stereotyping, and correspondingly,
exhibited no negative effects on sentencing views. As noted above, ten judges exhibited no genetic essentialist biases in their interviews, and nine of those did not have personal experiences with mental disorders. Correspondingly, twelve judges exhibited no stigmatization (nine of them not having exhibited genetic essentialist biases), and eight of those judges did not have personal experiences with mental disorders. Further, only two of the judges with no personal experiences with individuals with mental disorders expressed negative sentencing views, while the remaining fifteen expressed either positive effects or no effects on their sentencing views. Thus, not having personal experiences with mental disorders appears to be an intervening condition that can disrupt whether stereotyping is exhibited, and correspondingly, if judges express negative sentencing views from the beginning of the model developed in this research.

**Discussion**

The model developed in this research illustrates a process by which judicial stereotyping, arising from the relationships between specific genetic essentialist biases and stigmatization arising from such biases, may negatively affect sentencing views toward offenders with mental disorders known or thought to be genetically influenced. Previous literature has supported that judges exhibit stereotyping behavior toward offender essential characteristics during sentencing (Doerner & Demuth, 2010; Jones & Cauffman, 2008; Steffensmeier et al., 1998). Yet this study offers the first empirical support of its kind suggesting that some judges may exhibit stereotyping toward certain essential characteristics when they are known to be genetically influenced and that such behavior has the potential to negatively affect sentencing, specifically related to
deterrence and incapacitation. Relatedly, as sanist decision-making in cases involving mental disorders is thought to reflect the same type of stereotyping behavior exhibited in judicial decision-making in cases involving other essential characteristics (Mossman, 1999), this study also offers support for judicial sanism and how such a “disease of stigmatizing attitudes” may result in judges’ negative treatment of individuals with psychiatric diagnoses known or thought to be genetically influenced (Perlin, 2013).

Further, although the process by which judges stereotype essential characteristics and how it affects sentencing is unknown, this research supports that judicial stereotyping, at least related to mental disorders and genetic essentialist biases, may fit the model of stereotyping related to essential characteristics provided by the social psychological literature (Heatherton, 2003; Yzerbyt et al., 1997). As this literature suggests, judges in this research exhibited stereotyping behavior by linking the relationships between biases toward mental disorder diagnoses with known genetic influences and stigmas arising from such biases. This then led to judges’ increased discrimination and punishing behavior, in the form of negative influences on their views on sentencing, toward offenders with that essential characteristic.

In addition, during stereotyping, judges appear to exhibit similar kinds of genetic essentialist biases and stigmatization toward mental disorders as those often exhibited by the general public (Dar-Nimrod & Heine, 2011; Phelan, 2005; Phelan et al., 2002; Schnittker, 2008). The three main genetic essentialist biases (immutability, informativeness, and uniformity) exhibited by judges have been discussed by Haslam & Ernst (2002) as those commonly exhibited by the lay public toward mental disorders.
Further, the three main ways in which judges stigmatized offenders (*dangerousness, pessimism, and family stigma*) also align with stigmas known to be commonly elicited by genetic essentialist biases toward mental disorders (Haslam, 2011). Although supported in the literature, judges’ focus on family stigma was a more surprising finding than the other two stigmas, which are considered two of the four main dimensions of stigmatization elicited by genetic essentialist biases (Haslam, 2011). Judges’ discussions of family stigma, particularly the few judges who vocalized thoughts on whether or not offenders with genetic characteristics related to mental health should have children, touched upon aspects of the eugenics-based arguments put forth in *Buck v. Bell* (1927). This landmark case permitted compulsory sterilization of the “feeble minded” and has been seen as an attempt to improve the human race by eliminating “defectives” from the gene pool (Lombardo, 2008). Although the intergenerational transmission of intellectual disability, feeblemindedness, and eugenics-based arguments have been discredited in the last century (Lombardo, 2008), these results suggest that aspects of such beliefs may still be held by certain members of the judiciary.

Regarding views on punishment, research has supported that judicial stereotyping of offender essential characteristics often affects sentencing by influencing attributions of two criteria: offender blameworthiness and need for community protection (Albonetti, 1991; Spohn, 2007). These two criteria respectively reflect the principles of retributivism and utilitarianism in sentencing (Steffensmeier et al., 1998). In this research, without the effects of the intervening conditions, stereotyping associated with genetic essentialist biases negatively influenced judges’ views on community protection and more support
for restrictive sentencing, deterrence, and incapacitation that could potentially curb future dangerousness and recidivism. Conversely, judges in this study generally did not discuss how the genetic influences to an offender’s psychiatric diagnosis would negatively (or even positively) affect their perceptions of an offender’s blameworthiness for his crimes.

Thus, these data suggest that the effects of judicial stereotyping associated with genetic essentialist biases toward mental disorders may primarily negatively influence judges’ sentencing views on community protection, rather than affect their views on blameworthiness, and, therefore, principally influence their utilitarian, rather than retributivist, sentiments regarding sentencing. Indeed, utilitarianism often focuses on sentencing goals related to incapacitation and deterrence if an offender is perceived to be dangerous in the future in order to protect the public (Ulmer, 1997), which echoes judges’ views expressed in this research. Retributiveness, in which views of punishment are affected by perceptions of an offender’s blameworthiness and responsibility for his past actions (Steffensmeier et al., 1998), was not found to be affected in this developed model, either positively or negatively. Although this research only examines mental disorders, it is possible that adding genetic knowledge to essential characteristics may primarily negatively affect judges’ utilitarian sentiments regarding sentencing (Albonetti, 1991; Spohn, 2007). Future research should examine if and how adding knowledge of genetic influences to other essential characteristics may influence judges’ utilitarian or retributivist views on sentencing, or if this finding is only specific to mental disorders.

One other interesting thing to note is that these findings also provide perspective on how knowledge of the genetic influences to an offender’s mental disorder could
positively affect judges’ utilitarian sentiments. Several judges, particularly those with personal experiences with genetics and/or no personal experiences with mental disorders that may have intervened in the presented model, commented on how such knowledge would positively affect their support for treatment opportunities to rehabilitate an offender in order to prevent future offending. Community protection is often associated with deterrence and incapacitation, but it is also known to reflect the goal of rehabilitation in which judges use sentencing practices to protect society by preventing future dangerousness via treatment of an offender’s offending behavior rather than traditional deterrent or incapacitating policies (Steffensmeier et al., 1998). Thus, these data suggest that judges’ perceptions of community protection related to rehabilitation, and correspondingly utilitarianism, have the potential to be positively affected by knowledge that an offender’s psychiatric diagnosis has genetic influences.

The intervening conditions observed to influence the exhibition of the model presented in this study also provide valuable data on judicial characteristics that appear to affect whether or not judges express negative influences to their sentencing views. Judges who had personal experiences with genetics, although still exhibiting stereotyping behavior associated with genetic essentialist biases, largely demonstrated positive effects on sentencing views and a focus on treatment, rather than negative effects and a focus on deterrence and incapacitation. This may lend support to the idea that experiences that increase knowledge of genetics and genetics-related research may counteract some of the negative effects of genetic essentialist biases even when they are exhibited (Condit et al., 1998; Dar-Nimrod & Heine, 2011), as well as help to alter the focus of specific
punishment philosophies.

Further, it was surprising that judges’ higher scores on items related to scientific determinism compared to their scores on items related to free will, as measured by administering selected items from the FAD plus, acted as an intervening condition in this research. Of course, views measured by the administration of items from this instrument do not take into account the potential intervening effects of judges’ beliefs on other concepts, such as social determinism, which may also be influential on judges’ overall punishment views. However, these results suggest that stronger beliefs toward scientific determinism may be able to disrupt negative sentencing views specifically related to deterrence and incapacitation in cases involving mental disorders, even when judicial stereotyping related to genetic essentialist biases is exhibited. As deterministic views of outcomes of those with mental disorders are known to be intrinsically intertwined with the negative effects of genetic essentialist biases (Wachbroit, 2000), it was unexpected that judges with stronger beliefs toward scientific determinism would show no effects on their punishment views regarding offenders with mental disorders with known genetic influences. Indeed, when an individual believes that an offender’s behavior is affected by some kind of “deterministic influences,” such as genetics, this often leads to more support for utilitarian punishments based on deterring future transgressions (Weiner et al., 1997). This study does not support this previous literature.

Why this may be the case should be systematically examined in future inquiries, but there is one potential possibility. As noted above, these data indicate that negative effects on punishment primarily surround utilitarian sentiments and community
protection through deterrence and incapacitation. It is possible that judges with stronger beliefs toward scientific determinism may hold some negative views on utilitarianism and community protection that would be potentially expected (Weiner et al., 1997), but they also may have separate beliefs on the utility or fairness of retributive punishments for these offenders, even though they did not explicitly discuss them during this research.

Specifically, judges who subscribe to stronger beliefs toward scientific determinism may be more likely to believe that an offender with a mental disorder is less blameworthy because he is unduly influenced or “determined” by the genetics of his disorder, which may mean his punishment should be mitigated; this would align with literature reporting that when individuals perceive an offender to have a lower degree of free will, and therefore responsibility, it often leads them to render less retributive punishments (Clark, Luguri, Ditto, Knobe, Shariff, & Baumeister, 2014). Therefore, it is possible that these judges may hold some negative views on community protection, as well as some mitigated perceptions on retributivism of offender responsibility. These views could potentially be producing countervailing effects that ultimately result in judges (with stronger beliefs toward scientific determinism) reporting that a mental disorder’s genetic influences would lead to no effects on their punishment views.

That fact that judges’ lack of personal experiences with mental disorders acted as an intervening condition that disrupted the entire model developed in this research was also a surprising finding that conflicts with previous literature. Judges’ personal experiences with mental disorders have been shown to often positively affect their views and decisions in legal contexts related to sympathy toward diagnosed offenders.
(Berryessa, 2014; Hochstedler, 1987). Thus, having personal experiences with mental disorders, rather than not having those experiences, might have been anticipated to be an intervening factor that would have hindered stereotyping and its negative effects on sentencing. It is possible that judges with no personal experiences with mental disorders may be exhibiting certain biases or stigmas, but they may not be those identified in this research. Nonetheless, future research should thoroughly and specifically examine why no personal experiences with mental disorders might hinder stereotyping related to genetic essentialist biases and its negative effects in legal and punishment contexts, as well as try to replicate this finding with other samples.

This research does have limitations. The sample size is large for qualitative research of this type, but it still does not allow for generalizability of these results to all Pennsylvania state judges or all U.S. judges. There are also certain characteristics of the Pennsylvania judiciary which may affect whether or not these views could be seen as typical of other judicial populations. For example, although judges in the state of Pennsylvania were sampled in order to maximize participation, it is possible this may have affected what judges responded or what views they expressed. Additionally, Pennsylvania judges are elected, not appointed. Therefore, such views may be different from judges who are appointed, as judges who are elected may be more likely to take public opinion into account in their sentencing views due to fears related to reelection (Burnside, 1999; Roberts & Doob, 1990). Further, Pennsylvania is a sentencing guidelines state, in which judges are given a set range for sentencing decisions, and judges in jurisdictions with untrammeled discretion may have other views (see
Commonwealth v. Sessom, 1998). Finally, Pennsylvania is one of the few states in which judges who have not previously served as lawyers may sit on misdemeanor cases in the Minor Courts (see Crane, 2016). In this sample, eight judges without Juris Doctorates who sit on the Pennsylvania Minor Courts participated in this study. Although this difference in training did not have any bearing on the results presented here, this demographic difference from other judicial populations should be noted.

Keeping these potential limitations in mind, future research should examine other judicial populations in other jurisdictions to help substantiate these results and see if they differ from those judges in the state of Pennsylvania, as well as extend these findings by systematically exploring these issues using positivist research designs. Pairing qualitative and quantitative data in research of this type will allow for methodological triangulation to support these results and provide an overall view of the issues from different methodological, theoretical and disciplinary perspectives.

Additionally, it is important to note that showing biases, especially related to essential characteristics, and stereotyping behavior are among the most human of attributes and have been considered common human psychological practices that transcend cultural, social, economic, educational, and age backgrounds (Norenzayan & Heine, 2005). Bias does not make an individual prejudiced; it makes him human (Devine, 1989). Therefore, judges should not be faulted or villainized for exhibiting stereotyping related to genetic essentialist biases or stigmas. Instead, the fact that these biases exist and may affect interactions and decision-making in different societal realms, including in the legal system, should be acknowledged and understood.
This research represents implications related to the existence of genetic essentialist biases toward mental disorders in the legal system, specifically for “therapeutic judging” associated with the therapeutic jurisprudence movement. In the past, the law, particularly in the form of punishment, has often had harmful consequences for defendants with psychiatric illnesses (King, Freiberg, Batagol, & Hyams, 2014). The therapeutic jurisprudence movement has attempted to remedy these harmful consequences in part by helping judges to acknowledge and accept that defendants with mental disorders have unaddressed problems of which they can be helped to “overcome” with personalized attention and therapeutic treatment provided by the court (Hunter, Anleu, & Mack, 2016). Rather than believing the defendant should attune their future behavior to regulations set by punishments based on traditional forms of social-control, therapeutic judges must motivate offenders to engage in treatment and to develop plans in order to actually eliminate or reduce criminal behavior (Wiener, Winick, Georges, & Castro, 2010).

However, this study suggests that knowledge of genetic influences to an offender’s psychiatric diagnosis may not always intuitively further the goals of therapeutic jurisprudence. Although the views of some judges in this research were positively affected by knowledge that an offender’s psychiatric diagnosis has genetic influences, particularly related to rehabilitation, these data support that genetic essentialist biases toward mental disorders may lead many judges to consider more traditional, regulatory punishments associated with incapacitation and deterrence. Judges consideration of these punishments is based on their assumptions that such offenders are
more dangerous and less likely to be successfully treated or helped to “overcome” their circumstances or behavior due their mental disorders’ immutability. Thus, instead of helping judges to acknowledge and accept that offenders with psychiatric diagnoses should be therapeutically treated by the court, such knowledge of genetics may in fact increase perceptions that traditional regulatory punishments are warranted to prevent reoffending.

As this research suggests that knowledge of genetic influences to psychiatric diagnoses has the potential to produce anti-therapeutic effects counter to the goals of the therapeutic jurisprudence movement, illuminating ways to both integrate and counteract genetic essentialist biases into “therapeutic judging” is imperative. First, one such way to integrate such biases into therapeutic judging may be reshaping or reorienting the concept of therapeutic jurisprudence as a form of social control to judges. Although therapeutic jurisprudence implicitly adopts a treatment model of an offender being “sick” and requiring treatment provided by the court, this authority is still based on social control, while also providing diagnosis and treatment (Hunter et al., 2016). The treatment provided within the therapeutic process still operates as a form of legal regulation and the judge exercises social control over the offender’s criminal behavior by understanding and treating such behavior through their legal authority (Hunter et al., 2016; Moore, 2006; Moore, Freeman, & Krawczyk, 2011). If the principles of therapeutic jurisprudence are framed not only as treatment but also as effective modes of legal regulation and exercising social control of an offender’s behavior through treatment, judges may be more likely to utilize therapeutic judging in cases involving offenders with mental
disorders known to be genetically influenced because it is not perceived to compromise the potential for social control.

Finally, in order to counteract genetic essentialist biases, this research can be used to develop therapeutic training opportunities and interventions for judges. Kaiser and Holtfreter (2016) argue that if a positive therapeutic shift is to occur in the legal system to reduce bias- and stigma-driven stereotyping and decreased discrimination of those with psychiatric illnesses, it first requires an understanding of such behavior. The current study helps to provide some initial understanding of how judicial stereotyping associated with genetic essentialist biases may produce harmful outcomes for offenders with psychiatric diagnoses known or thought to be influenced by genetics. By developing such knowledge, therapeutic interventions to disrupt this behavior can be identified in order to potentially help judges better understand the complexities of genetic influences on behavior and reduce anti-therapeutic outcomes for offenders with psychiatric diagnoses.

Indeed, a main objective of therapeutic jurisprudence is that judges must become aware that their actions and decisions have therapeutic or anti-therapeutic consequences for diagnosed offenders (Wexler, 2000). Thus, these results can be a first step in helping to develop workshops, educational opportunities, and other interventions to help judges reflect on their own unconscious biases in order to disrupt stereotyping behavior and mitigate subsequent negative effects on punishment that may be elicited by genetic essentialist biases. For example, workshops may want to tailor materials to specifically counteract judges’ views on the perceived informativeness, uniformity, and immutability of genetic influences on behavior, rather than tailoring materials toward other biases.
By identifying intervening conditions that influence how and why judges exhibit these biases and their effects on sentencing, therapeutic training methods tailored to judges with certain backgrounds or worldviews, or methods utilizing certain types of learning experiences or materials, can also be formulated to help judges confront their own unique “psycho-judicial soft spots,” prevent the stigmatization of offenders with psychiatric diagnoses, and prevent sentencing disparities that might result from it (Wexler, 2000). For example, as personal experiences with genetics were shown to hinder the negative effects of stereotyping associated with genetic essentialist biases on sentencing views, potentially bolstering judges’ knowledge of genetics through both anecdotal and personal stories, as well as through other informational or educational sources, may help judges better understand the complexities of genetic influences on human outcomes and help to mitigate the negative implications of genetic essentialist biases toward mental disorders in the courtroom. By conducting research such as this, judges can start to amend their perspectives on and styles of judging in order to secure more therapeutic outcomes for offenders with psychiatric illnesses (Popovic, 2002).
Paper 3 Tables and Figures

Table 3.1. Judge Demographics ($n = 59$).

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>17 (28.9%)</td>
</tr>
<tr>
<td>Male</td>
<td>42 (71.1%)</td>
</tr>
<tr>
<td>Age</td>
<td>Average: 56.27 years old ($SD = 8.15$; from 33 to 70 years old)</td>
</tr>
<tr>
<td>Years as a Judge</td>
<td>Average: 12.24 years ($SD = 9.02$; from 6 months to 35 years)</td>
</tr>
<tr>
<td>Cases Handled Per Day</td>
<td>Average: 19.51 cases per day ($SD = 20.22$; from 1 to 100 cases a day)</td>
</tr>
<tr>
<td>Juris Doctorate</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>51 (86.4%)</td>
</tr>
<tr>
<td>No</td>
<td>8 (13.6%)</td>
</tr>
</tbody>
</table>

Table 3.2. Open Codes and Definitions in the “Genetic Essentialist Biases” Axial Coding Category

<table>
<thead>
<tr>
<th>Genetic Essentialist Bias</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immutability</td>
<td>“A person’s genetics cannot be changed or cured”</td>
</tr>
<tr>
<td>Discreteness</td>
<td>“A person either has certain genetic attributes or they do not”</td>
</tr>
<tr>
<td>Inherence</td>
<td>“Beneath the surface, people with similar genetics are all inherently the same”</td>
</tr>
<tr>
<td>Invariance</td>
<td>“Certain genetic characteristics exist and they always will exist”</td>
</tr>
<tr>
<td>Uniformity</td>
<td>“People with similar genetic characteristics are very similar to each other”</td>
</tr>
<tr>
<td>Necessary Features</td>
<td>“All people with similar genetic characteristics have certain attributes that if they did not have, they would not have those genetic characteristics”</td>
</tr>
<tr>
<td>Informativeness</td>
<td>“Knowing that a person has certain genetic characteristics tells us a lot about a person”</td>
</tr>
<tr>
<td>Specific Etiology</td>
<td>“Genes are the fundamental reason that a behavior or outcome has occurred for an individual”</td>
</tr>
<tr>
<td>Naturalistic Fallacy</td>
<td>“Black or white judgments (e.g., it is either totally right or totally wrong) of an outcome or behavior of an individual (offender) depending on how natural the characteristic underlying the behavior or outcome is perceived to be”</td>
</tr>
</tbody>
</table>
Table 3.3. Open Codes and Definitions in the “Stigma” Axial Coding Category

<table>
<thead>
<tr>
<th>Stigma</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Distance</td>
<td>Perceived or desired degree of remoteness/distance between a person and other people/society.</td>
</tr>
<tr>
<td>Dangerousness</td>
<td>Individual poses a risk of endangering self/others now or in future</td>
</tr>
<tr>
<td>Pessimism</td>
<td>Anticipated poor life outcomes and possibility for recovery or treatment</td>
</tr>
<tr>
<td>Blame/Personal Responsibility</td>
<td>Holds person responsible for how they are, their life outcomes or having their disorder and/or genetics</td>
</tr>
<tr>
<td>Family Stigma</td>
<td>Behavior/life outcomes for individual is similar to those in one’s family (exhibit behavior/outcomes because they are a part of a family with those attributes/outcomes)</td>
</tr>
</tbody>
</table>

Table 3.4. Open Codes and Definitions in the “Effects on Sentencing/Punishment” Axial Coding Category

<table>
<thead>
<tr>
<th>Effect on Sentencing/Punishment</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative</td>
<td>Negative punishment effects of knowledge about genetic aspects of mental disorders on judges’ decision to sentence or how to sentence</td>
</tr>
<tr>
<td>Positive</td>
<td>Positive punishment effects of knowledge about genetic aspects of mental disorders on judges’ decision to sentence or how to sentence</td>
</tr>
<tr>
<td>No Effects</td>
<td>No punishment effects of knowledge about genetic aspects of mental disorders on judges’ decision to sentence or how to sentence</td>
</tr>
</tbody>
</table>
Figure 3.1. Developed Model of How Judicial Stereotyping Associated with Genetic Essentialist Biases Toward Mental Disorders Negatively Influences Judges' Views on Sentencing and Punishment

**Stereotyping**

![Diagram showing the relationship between Genetic Essentialist Biases (Immutability, Informativeness, Uniformity) and Stigma (Dangerousness, Pessimism, Family Stigma) leading to Negative Effects on Sentencing and Punishment (Deterrence, Incapacitation).]
Figure 3.2. The Role of “Personal Experiences with Genetics” Acting as an Intervening Mechanism Disrupting This Study’s Developed Model

**Stereotyping**

- **Genetic Essentialist Biases**
  - Immutability
  - Informativeness
  - Uniformity

- **Stigma**
  - Dangerousness
  - Pessimism
  - Family Stigma

Negative Effects on Sentencing and Punishment (Deterrence, Incapacitation)

Personal Experiences with Genetics
Figure 3.3. The Role of “Higher Scores on Scientific Determinism vs. Free Will” Acting as an Intervening Mechanism Disrupting This Study's Developed Model

**Stereotyping**

- **Genetic Essentialist Biases**
  - Immutability
  - Informativeness
  - Uniformity

- **Stigma**
  - Dangerousness
  - Pessimism
  - Family Stigma

---

Higher Scores on Scientific Determinism vs. Free Will

Negative Effects on Sentencing and Punishment (Deterrence, Incapacitation)
Figure 3.4. The Role of “No Personal Experiences with Mental Disorders” Acting as an Intervening Mechanism Disrupting This Study's Developed Model

**Stereotyping**

- **Genetic Essentialist Biases**
- **Inmutability**
- **Informativeness**
- **Uniformity**

**Stigma**

- **Dangerousness**
- **Pessimism**
- **Family Stigma**

**Negative Effects on Sentencing and Punishment**

(Deterrence, Incapacitation)
GENERAL DISCUSSION

The three papers in this dissertation add to the growing body of literature on how and why research on the biological influences to human behavior and related attributes may philosophically and practically influence views on sentencing and punishment (e.g. Appelbaum & Scurich, 2014; Appelbaum et al., 2014; Aspinwall et al., 2012; Fuss et al., 2015; Kim, et al., 2015; Remmel et al., 2018; Schweitzer et al., 2011; Saks et al., 2014), and specifically provide inquiries on aspects of punishment and types of biological evidence that have not yet been studied in the existing literature. This dissertation particularly focuses on empirically examining how the presentation of biological evidence in court or knowledge of the biological influences to behavior may act as extra-legal and discretionary factors in sentencing.

The first paper of this dissertation examines how the discretion and perceptions of the jury-eligible death-qualified public toward biological risk factors for criminality could affect capital sentencing contexts. This study found that the presentation of evidence on biological risk factors for criminality may not affect whether or not the use of the death penalty is endorsed for an offender by the jury-eligible public, regardless of the offender’s social background. However, such evidence does have at least some significant mitigating effect on perceptions of an offender’s overall level of moral responsibility in capital contexts. Although perceptions of cruel and unusual punishment are not affected, certain biological risk factors (lower physiological reactivity, reduced testosterone levels, brain damage, mutations of MAO-A) do aggravate the jury-eligible public’s views of future dangerousness, which could potentially increase the likelihood
that the death penalty is endorsed for an offender (Blume et al., 2001).

The second paper examines how and why lay perceptions of psychiatric labels, and having diagnoses biologically “labelled,” may extra-legally affect sentencing views and preferences for punishments. This research hypothesized that dimensions of public stigma toward psychiatric illnesses mediate such sentencing views. Ultimately, this study found that labels for Attention Deficit Hyperactivity Disorder, behavioral-variant Frontotemporal Dementia, High Functioning Autism, and Borderline Intellectual Disability led to significant beneficial effects on sentencing (less support for prison and more support for rehabilitation), as mediated by decreased stigmatization regarding lack of treatability, social acceptance, and personal responsibility. However, only one biological “label,” for Pedophilic Disorder, resulted in less prison support as mediated by decreased views on dangerousness. This suggests that biological “labelling” of psychiatric illnesses, aside from Pedophilic Disorder, may not affect views on sentencing.

The third paper of this dissertation develops a model that illuminates a process by which judicial stereotyping associated with genetic essentialist biases might negatively affect sentencing views surrounding criminal offenders with mental disorders known or thought to be genetically influenced. The model suggests that judges exhibit stereotyping behavior by linking relationships between three particular genetic essentialist biases (immutability, informativeness, and uniformity) and three types of stigmatization (pessimism, dangerousness, and family stigma) associated with each bias, which correspondingly negatively affects judges’ views on punishment related to incapacitation and deterrence. Although previous literature has supported that judges exhibit
stereotyping toward offender essential characteristics during sentencing (e.g. Steffensmeier et al., 1998; Jones & Cauffman, 2008; Doerner & Demuth, 2010), this study offers the first empirical support of its kind suggesting that judges may exhibit stereotyping toward certain essential characteristics if they are known to be genetically influenced and that such behavior has the potential to negatively affect sentencing.

Ultimately, in addition to what has been discussed in each paper, the findings of this dissertation support the existing literature suggesting that biological research on behavior represents a potentially significant area of extra-legal and discretionary factors in sentencing (Barth, 2007; Berryessa 2016; Farahany, 2016; Glenn & Raine, 2014; Hart, 2008; Jones & Shen, 2012; Rothstein, 1999). Further, similar to the limited body of existing empirical studies showing mixed effects on if and how biological evidence on behavior might influence discretion in sentencing (Appelbaum & Scurich, 2014; Appelbaum et al., 2014; Aspinwall et al., 2012; Fuss et al., 2015; Kim, et al., 2015; Schweitzer et al., 2011; Saks et al., 2014), results of this dissertation also demonstrate that biological research on behavior can positively, negatively, or in no way influence views on punishment, depending on the evidence being presented and the sentencing context.

For example, in the first paper, certain biological risk factors were found to significantly increase perceptions of an offender’s dangerousness, which was then significantly correlated with support for the death penalty. This supports previous literature reporting that capital jurors’ heightened perceptions of an offender’s likelihood of future dangerousness can significantly increase the potential endorsement of the death
penalty for an offender (Blume et al., 2001; Edens et al., 2005). However, in the second paper, a biological “label” for Pedophilic Disorder decreased lay perceptions of a diagnosed offender’s dangerousness, which not only conflicts with previous literature (Jahnke et al., 2013; Kvaale et al., 2013), but also mediated decreased support for the offender’s prison sentence. Thus, knowledge of the biological influences to different behaviors appears to have a “double-edged effect” on perceptions of dangerousness, in so much that it can either have positive or negative effects on punishment views depending on the context and evidence (Jones & Shen, 2012).

Results also support how certain areas of biological evidence in different types of cases can influence different powers of sentencing discretion. For example, jurors are given discretionary roles in capital cases in deciding whether presented evidence actually mitigates their perceptions of an offender’s blameworthiness (Garvey, 1998; Tiersma, 1995). The first paper of this dissertation demonstrates how the general presentation of biological risk factor evidence can affect perceptions of an offender’s blameworthiness as a mitigating factor, but potential capital jurors did not appear to perceive any of the specific risk factors as strongly mitigating. Even so, brain damage was viewed as significantly more mitigating to blameworthiness than the other examined risk factors, while other factors such as prenatal nicotine and alcohol exposure were viewed as significantly less mitigating. Previous literature has argued that one of the main discretionary aspects of a juror’s role in capital sentencing is that perceptions of blameworthiness may be viewed differently based on individual juror perceptions of what should or should not be considered mitigating (Haney, 1995). Thus, these results suggest...
that biological risk factor evidence may influence capital jurors’ powers of sentencing discretion in death penalty cases.

As a second example from this dissertation, punishment decisions in non-capital cases are often influenced by sentencers’ views on what the purposes of punishment should be, either more generally or for an offender in a specific case (Frase, 2005; Miller, 1992; Von Hirsch, 1983; Von Hirsch, 1983a). The third paper of this dissertation suggests that knowledge of the genetic influences to an offender’s mental disorder can negatively influence judges’ perceptions regarding the purposes of an offender’s punishment. Specifically, knowledge of genetic influences can increase support for deterrence, incapacitation, and, correspondingly, restrictive sentencing. Ultimately, as varying perceptions on the goals that punishment should serve are one of the most supported extra-legal factors that influence judicial sentencing practices (Austin & Williams, 1977; Frase, 1997; Frase, 2005; Von Hirsch, 1983; Von Hirsch, 1983a), these results suggest that knowledge of the genetic influences to an offender’s psychiatric diagnosis may influence judicial discretion in sentencing in cases involving mental disorders.

Finally, this dissertation also demonstrates ways in which the legal principles of proportionality and uniformity in sentencing may be undermined by the consideration and utilization of biological research on behavior in sentencing (Frase, 2005). For example, providing a biological “label” to Pedophilic Disorder, compared to when the psychiatric label was used alone, resulted in a significantly decreased prison sentence for a diagnosed offender in the second paper of this dissertation, even when the harm of the
offender’s criminal action and information on his basic level of culpability for the action were held constant. Thus, even though the equal harm and blameworthiness should have resulted in proportional and uniform punishments (Frase, 2004; Von Hirsch, 1993), the biological “label” had an extra-legal and discretionary influence that undermined these principles and led to a significantly decreased prison sentence compared to when the psychiatric label was used alone. Results such as these indicate that certain types of biological evidence on behavior may extra-legally result in sentencing disparities, even when the harm incurred by and the blameworthiness of two offenders are presented as equal (Robinson et al., 2012).

In conclusion, the papers in this dissertation advance our understanding of how biological research on behavior may act as extra-legal and discretionary factors in sentencing. The overall presentation of biological evidence on behavior in court is increasing (Denno, 2011; Farahany, 2016), along with the public’s exposure to neuroscience and genetics research (Pescosolido et al. 2010). Future research efforts replicating these and other similar studies, as well as undertaking empirical inquiries that examine the legal effects of different types of evidence or aspects of knowledge regarding the biological influences to pathologies that have not yet been studied, will be critical to anticipating and advancing our understanding of the potential philosophical and practical effects of such knowledge on sentencing discretion and decisions moving forward.
APPENDICES

Appendix A

Vignette

The italicized sections of the vignette vary across conditions in which biological risk factor evidence is presented, and the underlined section is the control condition of the vignette.

Instructions: Please read the following newspaper excerpt. For your reference, the paragraphs are labeled 1 through 4. Below, definitions are also provided for important terms found in the excerpt and questions.

1. **Dallas, TX** – Anthony Thomas, convicted of murder in 2009, is appealing to the U.S. Supreme Court to overturn his death penalty sentence. In 2009, then 23-year old Anthony Thomas called Darren’s Donuts and placed an order for delivery. He attempted to rob the delivery man when he arrived. When he refused to give Thomas any money, Thomas killed him with a baseball bat. After Thomas had killed him, he then stole the delivery man’s car, cellphone and money. Thomas stated that he had planned the robbery because of intense pressure from his family and his girlfriend to earn money to help take care of his 3-week-old daughter, but he had no intention of killing anyone. As an adult, he had been arrested twice previously, but not for any violent offenses.

2. There is no doubt that Thomas committed the crime. He fully and willingly confessed to police. “I struck him in the head two times,” Thomas stated in his confession. “After the second strike, I realized what I was doing and that I had really screwed up badly, so I dropped the bat and started to clean up the blood.” What remains
in doubt, according to court filings, is whether Thomas’s responsibility is influenced by “factors outside his control,” reads an appeal filed late last year with the U.S. Supreme Court by Thomas’s attorney. This evidence was not presented at his 2009 trial and should be considered in determining whether he should be executed.

3. According to medical records, Anthony Thomas has had reduced skin conductance and low resting heart rate since childhood. Skin conductance and resting heart rate are bodily responses in which the brain releases certain chemicals. They are used to measure levels of bodily excitement, such as sweating or racing pulse, in response to emotional, psychological, or physical experiences, such as fights or fearful events. Reduced skin conductance and low resting heart rate may indicate less excitement and less responsivity to events that normally solicit emotional, psychological, or physical responses, such as the criminal event for which Thomas has been convicted.

4. According to court records, Anthony Thomas was raised in a single-parent household and grew up in poverty.

Factors Varied Across Vignettes

Biological Risk Factors.

1. According to medical records, Anthony Thomas has had reduced skin conductance and low resting heart rate since childhood. Skin conductance and resting heart rate are bodily responses in which the brain releases certain chemicals. They are used to measure levels of bodily excitement, such as sweating or racing pulse, in response to emotional, psychological, or physical experiences, such as fights or fearful events. Reduced skin conductance and
low resting heart rate may indicate less excitement and less responsivity to
events that normally solicit emotional, psychological, or physical responses,
such as the criminal event for which Thomas has been convicted.

2. According to medical records, Anthony Thomas was born with several minor
physical anomalies, including low-seated ears, an under-sized jaw, and deep
grooves on the tongue. Minor physical anomalies are characteristics
associated with brain development before birth and are usually associated
with pregnancy disorders. Minor physical anomalies indicate that a baby did
not develop normally near the end of the first or the beginning of the second
trimester of pregnancy.

3. According to medical records, Anthony Thomas’s mother smoked cigarettes
and drank during her pregnancy, resulting in prenatal nicotine and alcohol
exposure. Nicotine and alcohol can pass easily from a mother’s bloodstream
into her developing baby’s blood. Nicotine is considered to be one of the
most harmful substances to fetuses and can cause problems with
development. Alcohol present in a developing baby’s bloodstream can affect
with the development of critical organs and body parts, including the brain.

4. According to medical records, Anthony Thomas suffered brain damage in an
accident when he was 6 years old. The brain damage affected the brain area
involved in processing shame, guilt, risk, fear, stopping impulses, decision-
making, empathy, compassion, emotion regulation, impulsivity, and
planning. This brain area is called the to the ventromedial prefrontal cortex.
Damage to this part of the brain affects social interactions and emotions, but intelligence is not affected.

5. According to school and psychiatric records, Anthony Thomas has lower intelligence, specifically low overall I.Q. scores on tests administered at the ages of 6, 12, and 18. An intelligence quotient, or IQ, is a score from tests designed to measure human intelligence. The average I.Q. score is 100. A score of 70 to 75, or below, is considered intellectually disabled. Anthony Thomas scored 78, 79, and 77 on the I.Q. tests he has taken in the past, indicating a borderline I.Q.

6. According to medical records, Anthony Thomas has high levels of testosterone since childhood and has not received any treatment for it. Testosterone is a hormone linked to development of the male gender, male physique, male reproductive tissue, and sexual arousal. Testosterone is linked to many of the changes seen in males during puberty, such as an increase in height, body hair growth, and changes in sexual and aggressive behavior.

7. According to medical records, Anthony Thomas has a mutation of the Monoamine Oxidase A (MAO-A) gene, resulting in lower levels of the MAO-A enzyme. The MAO-A enzyme breaks down chemicals such as serotonin, which is important to mood, impulses, aggression, learning, sleeping, eating, and memory. Lower levels of the MAO-A enzyme can lead to too much serotonin and other chemicals in the blood and reduce the normal function of these chemicals. Indeed, medical records state Thomas
has reduced normal function of serotonin.

**Social Background.**

1. According to court records, Anthony Thomas was raised in a single-parent household and grew up in poverty.
2. According to court records, Anthony Thomas was raised in a typical household with average income.

**Questionnaire**

Please answer the following questions based on the newspaper excerpt you have just read:

1. What do you believe the sentence should be for this crime? *Death, Life without parole, Life with chance of parole in 40 years*

2. On a scale of 1 (not at all) to 100 (completely), rate how much you agree with the following statement: Sentencing this individual to death would be considered cruel and unusual punishment.

3. On a scale of 1 (not at all) to 100 (completely), how well does the statement “He is likely to be violent in the future” describe the defendant?

4. Considering all the information provided, rate the defendant’s moral responsibility for his crime from 1 (not at all responsible) to 100 (completely responsible).

5. On a scale of 1 (completely disagree) to 100 (completely agree), rate how much you agree with the following statement: I believe the defendant’s responsibility is mitigated by the evidence discussed in paragraph 3 of the
newspaper article.

6. On a scale of 1 (do not agree at all) to 100 (completely agree), rate how much you agree with the following statement: I would consider the evidence discussed in paragraph 3 of the newspaper article as a risk factor for the development of criminal behavior.

Descriptive Statistics of Variables in Analysis (Organized by Specific Risk Factor and Inclusion of Social Background)

<table>
<thead>
<tr>
<th>Social Background (n = 268)</th>
<th>Biological Risk Factor (n for each factor, within each social background group)</th>
<th>n of Respondents Supporting the Death Penalty (compared to non-death)</th>
<th>Future Dangerousness (Mean rating, SD)</th>
<th>Total Level of Moral Responsibility (Mean rating, SD)</th>
<th>Cruel or Unusual Punishment (Mean rating, SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low physiological reactivity (n = 36)</td>
<td>14</td>
<td>72.77 (SD = 26.42)</td>
<td>92.91 (SD = 12.96)</td>
<td>28.21 (SD = 35.6)</td>
<td></td>
</tr>
<tr>
<td>Minor physical anomalies (n = 40)</td>
<td>12</td>
<td>60.49 (SD = 29.57)</td>
<td>89.05 (SD = 16.55)</td>
<td>39.76 (SD = 36.37)</td>
<td></td>
</tr>
<tr>
<td>Prenatal nicotine and alcohol exposure (n = 38)</td>
<td>9</td>
<td>58.94 (SD = 25.36)</td>
<td>92.60 (SD = 12.94)</td>
<td>41.97 (SD = 36.93)</td>
<td></td>
</tr>
<tr>
<td>Brain Damage (n = 40)</td>
<td>14</td>
<td>68.06 (SD = 22.64)</td>
<td>87.04 (SD = 18.28)</td>
<td>42.12 (SD = 34.50)</td>
<td></td>
</tr>
<tr>
<td>Lower IQ (n = 38)</td>
<td>16</td>
<td>57.42 (SD = 29.79)</td>
<td>90.90 (SD = 14.71)</td>
<td>37.48 (SD = 35.57)</td>
<td></td>
</tr>
<tr>
<td>High levels of testosterone (n = 39)</td>
<td>11</td>
<td>74.21 (SD = 26.27)</td>
<td>92.33 (SD = 18.05)</td>
<td>35.12 (SD = 36.71)</td>
<td></td>
</tr>
<tr>
<td>Low expressing alleles of the MAO-A gene (n = 38)</td>
<td>10</td>
<td>72.71 (SD = 24.44)</td>
<td>94.03 (SD = 11.23)</td>
<td>33.29 (SD = 32.15)</td>
<td></td>
</tr>
<tr>
<td>Neutral Social Background (n = 264)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low physiological reactivity (n = 37)</td>
<td>10</td>
<td>63.88 (SD = 22.63)</td>
<td>84.97 (SD = 22.23)</td>
<td>50.58 (SD = 38.82)</td>
<td></td>
</tr>
<tr>
<td>Minor physical anomalies (n = 39)</td>
<td>14</td>
<td>68.82 (SD = 26.21)</td>
<td>92.92 (SD = 12.94)</td>
<td>36.82 (SD = 35.38)</td>
<td></td>
</tr>
<tr>
<td>Prenatal nicotine and alcohol exposure (n = 38)</td>
<td>13</td>
<td>62.29 (SD = 23.04)</td>
<td>92.97 (SD = 14.93)</td>
<td>32.42 (SD = 31.02)</td>
<td></td>
</tr>
<tr>
<td>Brain Damage (n = 35)</td>
<td>10</td>
<td>73.68 (SD = 23.72)</td>
<td>87.71 (SD = 15.80)</td>
<td>37.03 (SD = 29.31)</td>
<td></td>
</tr>
<tr>
<td>Lower IQ (n = 36)</td>
<td>11</td>
<td>60.67 (SD = 27.46)</td>
<td>84.81 (SD = 23.74)</td>
<td>35.36 (SD = 33.66)</td>
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</tr>
<tr>
<td>High levels of testosterone (n = 39)</td>
<td>11</td>
<td>65.26 (SD = 20.32)</td>
<td>92.85 (SD = 12.36)</td>
<td>30.64 (SD = 33.45)</td>
<td></td>
</tr>
<tr>
<td>Low expressing alleles of the MAO-A gene (n = 40)</td>
<td>10</td>
<td>66.63 (SD = 21.36)</td>
<td>89.54 (SD = 21.01)</td>
<td>40.65 (SD = 36.09)</td>
<td></td>
</tr>
<tr>
<td>None (Control)</td>
<td>10</td>
<td>57.08 (SD = 24.43)</td>
<td>96.51 (SD = 5.90)</td>
<td>42.77 (SD = 32.16)</td>
<td></td>
</tr>
</tbody>
</table>

Descriptive Statistics of Variables in Analysis (Presentation of Biological Risk Factor Evidence Generally Regardless of Factor vs. Control)

<table>
<thead>
<tr>
<th>Biological Risk Factor Evidence (n = 532)</th>
<th>% of Respondents Supporting the Death Penalty (compared to non-death)</th>
<th>Future Dangerousness (Mean rating, SD)</th>
<th>Total Level of Moral Responsibility (Mean rating, SD)</th>
<th>Cruel or Unusual Punishment (Mean rating, SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30.6%</td>
<td>66.23 (SD = 25.23)</td>
<td>90.31 (SD = 16.85)</td>
<td>37.35 (SD = 34.8)</td>
<td></td>
</tr>
<tr>
<td>Control (n = 39)</td>
<td>25.7%</td>
<td>57.08 (SD = 24.43)</td>
<td>96.51 (SD = 5.90)</td>
<td>42.77 (SD = 32.16)</td>
</tr>
</tbody>
</table>
## Appendix B

### Psychiatric Illness Prevalence in General vs. Criminal Justice Populations†

<table>
<thead>
<tr>
<th>Psychiatric Illness</th>
<th>Estimated Prevalence in General Populations</th>
<th>Estimated Prevalence in Criminal Justice Populations</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASPD†</td>
<td>3.63%</td>
<td>47%b</td>
</tr>
<tr>
<td>ADHD‡</td>
<td>4.4%c</td>
<td>25.5%d</td>
</tr>
<tr>
<td>FAS§</td>
<td>1-5%e</td>
<td>10.9-21.0%f</td>
</tr>
<tr>
<td>Addictive Disorder</td>
<td>12% (alcohol); 2-3% (drugs)g</td>
<td>18-30% (alcohol); 10-48% (drugs)h</td>
</tr>
<tr>
<td>Pedophilic Disorder</td>
<td>3-5%i</td>
<td>20% (of sex offenders)</td>
</tr>
<tr>
<td>HFA§</td>
<td>1-2.24% (for all autism disorders)k</td>
<td>3-27% (for all autism/pervasive developmental disorders)l</td>
</tr>
<tr>
<td>Borderline ID§</td>
<td>1%m</td>
<td>4-10%p</td>
</tr>
<tr>
<td>bvFTDü</td>
<td>15-22 people per 100,000o</td>
<td>Unknown (incidence of offending history for diagnosed individuals diagnosed is 20-37)%p</td>
</tr>
<tr>
<td>OCD†</td>
<td>1%o</td>
<td>3.7-10.2%q</td>
</tr>
<tr>
<td>PTSD‡</td>
<td>3.5%r</td>
<td>4-21%t</td>
</tr>
</tbody>
</table>

†1 Antisocial Personality Disorder, ‡ Attention Deficit Hyperactivity Disorder, § Fetal Alcohol Syndrome, ¶ High Functioning Autism, † Borderline Intellectual Disability, µ behavioral variant Frontotemporal Dementia, †† Obsessive-Compulsive Disorder, †‡ Post-Traumatic Stress Disorder.

†References for Psychiatric Illness Prevalence in General vs. Criminal Justice Populations


d Young, S., Moss, D., Sedgwick, O., Fridman, M., & Hodgkins, P. (2015). A meta-
analysis of the prevalence of attention deficit hyperactivity disorder in incarcerated populations. *Psychological Medicine, 45*, 247-258.


Statistics Reports, (87), 1-20.


Reputation. *Archives of general psychiatry*, 62, 617-627.


### Specific Hypotheses (“+” = added support, “-” = decreased support, “?” = unclear)

<table>
<thead>
<tr>
<th>Psychiatric Illness</th>
<th>Psychiatric Label</th>
<th>Biological</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Punitive (Support for Retribution, Deterrence, Incapacitation, Increased Prison)</td>
<td>Non-Punitive (Support for Rehabilitation Restoration, Decreased Prison)</td>
</tr>
<tr>
<td>Antisocial Personality Disorder</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Attention Deficit Hyperactivity Disorder</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Fetal Alcohol Syndrome</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Addictive Disorder</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Pedophilic Disorder</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>High Functioning Autism</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Borderline Intellectual Disability</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>behavioral variant Frontotemporal Dementia</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Obsessive-Compulsive Disorder</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Post-Traumatic Stress Disorder</td>
<td>-</td>
<td>+</td>
</tr>
</tbody>
</table>

Since autism, Borderline ID, FAS, dementia, and PTSD have been shown to solicit positive and mitigating perceptions amongst the public, including increased optimism for treatability, social acceptance, reduced personal responsibility, and other positive outcomes (e.g. Heath et al., 2003; Payne & Wood, 2016; Von dem Knesebeck et al., 2014), this study hypothesizes that diagnosis with these disorders will lead to less support for punitive sentences (mitigated sentence length, more support for rehabilitation,
less support for retribution), mediated by mitigated views toward lack of treatability and personal responsibility. As discussed, biological explanations for psychiatric diagnoses have been shown to increase treatment pessimism, but decrease views on personal responsibility (Kvaale et al., 2013). As such, it is unclear how a biological “label” for any of these diagnoses, if they are mediated by views on treatability and personal responsibility, may affect sentencing decisions.

ADHD has been largely associated with negative stigma, especially related to unpredictability, fear of potential violence, and personal responsibility, amongst the public (Pescosolido et al., 2010). This study hypothesizes that diagnosis with ADHD will lead to aggravated sentence length and more support for incapacitation to protect the public from a diagnosed offender’s dangerousness, with mediation by dangerousness and personal responsibility as they are previously associated stigmas with ADHD. Previous research on biological explanations for adults and children with ADHD have shown that biological explanations for the disorder aggravate views on lack of treatability (Lebowitz et al., 2012). Thus, this study hypothesizes that biological “labels” for the disorder may have similar aggravating effects for treatability as a mediator and may correspondingly further aggravate views toward punitive sentences.

Pedophilic Disorder has been related to significant negative feelings of moral disgust, fear, dangerousness, and lack of treatability (Jahnke & Hoyer, 2013). This study therefore hypothesizes that diagnosis with Pedophilic Disorder will lead to support for punitive sentences (aggravated sentence length and more support for retribution, incapacitation, and deterrence) and less support for rehabilitation. Based on the existing
stigmas associated with Pedophilic Disorder (Jahnke & Hoyer, 2013), punishment outcomes may be mediated by aggravated views toward lack of treatability, recovery/immutability, dangerousness, and lack of social acceptance. As biological explanations for psychiatric illnesses have been shown to increase views on dangerousness, lack of treatability, and lack of recovery, but not affect views on social acceptance (Kvaale et al., 2013), a biological “label” for Pedophilic Disorder may aggravate these stigmas as mediators and add further support for retribution, incapacitation, and deterrence to contain the offender’s perceived dangerousness and immutability.

APD has been associated with dangerousness, recidivism, and fear (McCallum, 2001). This study therefore hypothesizes that diagnosis with APD will lead to more support for punitive sentences (including aggravated sentence length and more support for retribution, incapacitation, and deterrence) rather than non-punitive sentences. Based on the dangerousness associated with APD, these punishment outcomes may likely be mediated by aggravated views toward dangerousness. As biological explanations for psychiatric illnesses have been shown to increase views on dangerousness (Kvaale et al., 2013), a biological “label” for APD may aggravate dangerousness as a mediator and add further support for longer prison sentences, retribution, incapacitation, and deterrence.

Finally, Addictive Disorder and OCD have produced both positive and negative attitudes toward diagnosed individuals regarding treatability, personal responsibility, dangerousness, and other stigmas (Barnett et al., 2004; Simonds & Thorpe, 2003). Given the mixed evidence, it is unclear how sentencing decisions rendered when an offender is
psychiatrically and/or biologically labelled with either of these two disorders might be expected to be influenced by such labels, as well as how and what stigmas may act as mediators in sentencing decisions.

**Vignettes**

**Key.**

Control Stimulus

Psychiatric Label

Biological

**ADHD Stimulus.**

Tyler, the defendant, has just been found guilty for impulsively assaulting a coworker, John. The two had been working together on a pitch for an important client. When they found out the client was dissatisfied, they were understandably upset and a heated argument broke out between them. Frustrated with the situation and with John’s persistent accusations about his intelligence and ability, Tyler says that he snapped and, without thinking, punched John until he loses consciousness.

During the trial, Dr. Shepard, a licensed psychiatrist, testifies as an expert witness. Dr. Shepard presents evidence that Tyler has been diagnosed with Attention Deficit Hyperactivity Disorder (ADHD), a disorder marked by impulsive behavior, hyperactivity, and inattention. Dr. Shepard testifies that due to these characteristics of the disorder, Tyler’s ADHD impairs his ability to control his emotions, to exercise self-control, and to exercise appropriate judgments.

Dr. Shephard also discusses that ADHD is influenced by genetic and brain-based
factors. ADHD can be genetically influenced and ADHD has affected many of Tyler’s immediate and extended family members. He also discusses findings that show that people with ADHD show abnormalities associated with the prefrontal cortex, a brain area associated with impulse control and decision-making. Tyler exhibits these biological characteristics associated with ADHD.

**APD Stimulus.**

Cody, the defendant, has just been found guilty for assaulting a Geoff, a minor-league baseball teammate. Cody’s coach had told the team that major league scouts would be coming to their games for the next week. Outraged at being outperformed by Geoff at the first game, Cody decided that he needed to eliminate him as a competitor and came up with a plan of attack. After their next practice, Cody asked Geoff if he would like to stay behind for some extra practice. Geoff agreed. As Geoff headed toward the batting cages, Cody grabbed a baseball bat and hit him repeatedly. The altercation resulted in Geoff receiving a concussion, two broken ribs, and a broken leg.

During the trial, Dr. Jacobs, a licensed psychiatrist, testifies as an expert witness. Dr. Jacobs presents evidence that Cody has been diagnosed with Antisocial Personality Disorder (ASPD), a disorder marked by impulsiveness, aggressiveness, callousness, risk-taking and reckless disregard for safety of self and others. Dr. Jacobs testifies that due to these characteristics of the disorder, Cody’s ASPD impairs his ability to conform to social, moral and legal norms and behaviors.

Dr. Jacobs also discusses that ASPD is influenced by genetic and brain-based factors. Dr. Jacobs tells the court that ASPD can be genetically influenced, and ASPD has
affected many of Cody’s immediate and extended family members. He also discusses findings that show that people with ASPD show abnormal function and structure of the amygdala, a brain area associated with emotional learning and fear. Cody exhibits these biological characteristics associated with APSD.

**Addictive Disorder Stimulus.**

Jordan, the defendant, has just been found guilty for robbing a pharmacy and assaulting the pharmacist. Jordan’s doctor had refused to continue prescribing him oxycodone, an opioid pain medication, and he was experiencing serious withdrawal symptoms. After a few days, he found a new doctor that would prescribe it to him. He rushed to a nearby pharmacy to fill the prescription, but did not realize that it closed early on Sundays. He arrived just as the pharmacist was locking up. Jordan begged the pharmacist to help him, but the man refused. Jordan, who says he was incapable of waiting any longer for the oxycodone because of his withdrawals and without thinking, picked up a rock and shattered the glass door. He then stepped into the pharmacy, knocked out the pharmacist, collected all the oxycodone he could find, and fled.

**During the trial, Dr. Flynn, a licensed psychiatrist, testifies as an expert witness.** Dr. Flynn presents evidence that Jordan has an addictive disorder, a disorder marked by a strong desire for an addictive substance (like oxycodone), an inability to control use of the addictive substance, and withdrawal symptoms, such as anxiety and insomnia. Dr. Jacobs testifies that due to these characteristics of the disorder, Jordan’s addictive disorder impairs his ability to control his cravings and, therefore, to think and act rationally.
Dr. Flynn also discusses that addictive disorders are influenced by genetic and brain-based factors. Dr. Flynn tells the court that addictive disorders are genetically influenced and have affected many of Jordan’s immediate and extended family members. He also discusses that people with addictive disorders show brain abnormalities in the orbitofrontal cortex and anterior cingulate cortex, brain areas involved in motivations to obtain rewards and regulating impulse control. Jordan exhibits these biological characteristics associated with addictive disorder.

FAS Stimulus.

David, the defendant, has just been found guilty for assaulting his next-door neighbor, Steve. Steve was cleaning out his attic one evening and found a box of small fireworks leftover from a prior New Year’s Eve party. Tending his garden, David doesn’t notice Steve bring the fireworks outside and light one. The ensuing noise frightens David, and shaken up, he yells for Steve to stop. Steve ignores David, and continues lighting the fireworks. David retreats inside his home, but even that doesn’t do much to stifle the noise. Just wanting the noise to stop, David goes outside, picks up his shovel, and hits Steve over the head, which leaves him with a nasty concussion.

During the trial, Dr. Kaplan, a licensed psychiatrist, testifies as an expert witness. Dr. Kaplan presents evidence that David has Fetal Alcohol Syndrome, a disorder marked by impulsivity, aggression, poor judgment, and impaired cognitive and social skills. Dr. Kaplan testifies that due to these characteristics of the disorder, David’s Fetal Alcohol Syndrome impairs his ability to control his emotions and, therefore, to think and behave rationally.
Dr. Kaplan also discusses that Fetal Alcohol Syndrome is influenced by genetic and brain-based factors. Dr. Kaplan tells the court that the alcohol a mother consumes while her child is in her womb causes the child to experience oxygen deprivation, which in turn causes brain damage. In this disorder, the brain damage generally occurs to the prefrontal cortex, a brain area important for social skills, decision-making, mental abilities, and impulse control. Dr. Kaplan also tells the court that Fetal Alcohol Syndrome can be genetically influenced. David exhibits these biological characteristics associated with Fetal Alcohol Syndrome.

**FTD Stimulus.**

Walter, the defendant, has just been found guilty for sexually assaulting a nurse. Walter had been exhibiting odd behavior recently, such as making distasteful sexual comments and shoplifting small items from the store, and his concerned daughter decided to take him to the clinic nearby. In the waiting room, Walter announced that he had to use the bathroom, and he wandered off to find it. On his way, he passed a room in which a nurse was making an empty bed. Impulsively, Walter dashed into the room, locked the door, and pinned the nurse to the bed; he was attempting to rip off her scrubs when a doctor found him.

During the trial, Dr. Levy, a licensed psychiatrist, testifies as an expert witness. Dr. Levy presents evidence that Walter suffers from Frontotemporal Dementia, a disorder that has its onset in middle age and is marked by impulsivity, lack of empathy, and often hypersexuality. Dr. Levy testifies that due to these characteristics of the disorder, Walter’s Frontotemporal Dementia impairs his decision-making and his ability to
regulate his social, moral, and emotional behaviors.

Dr. Levy also discusses evidence that Frontotemporal Dementia is influenced by genetic and brain-based factors. Dr. Levy tells the court that Frontotemporal Dementia involves the deterioration of brain areas, particularly the amygdala, frontal cortex, and temporal lobe. Problems with these brain areas can cause an inability to empathize, obey social norms, control impulses, and regulate sexual appetite. Dr. Levy also tells the court that Frontotemporal Dementia can be genetically influenced. Walter exhibits these biological characteristics associated with Frontotemporal Dementia.

**High-Functioning Autism Stimulus.**

Peter, the defendant, has just been found guilty for sexually assaulting a woman on a train. Peter entered the train car in which the woman was sitting. Despite many empty seats, he sat in the seat right next to her. After a few minutes, he rubbed his calf on hers. The woman tried to move her leg away, but out of fright, did not protest aloud. Peter, unaware of her discomfort, continued to rub his calf on hers and put his hands on her knees. Still frightened, she frantically shook her head. Finally, as he rubbed her leg, inner thighs, and buttocks, she mustered the courage to scream and run out of the car.

During the trial, Dr. Gray, a licensed psychiatrist, testifies as an expert witness. Dr. Gray presents evidence that Peter suffers from High-Functioning Autism Spectrum Disorder, a disorder marked by lack of empathy, difficulty understanding social rules, and an inability to read verbal and nonverbal social cues. Dr. Gray testifies that hat due to these characteristics of the disorder, Peter’s High-Functioning Autism Spectrum Disorder impairs his ability to understand social norms, read social behavior, and to behave
appropriately in social situations.

Dr. Gray also discusses that High-Functioning Autism Spectrum Disorder is influenced by genetic and brain-based factors. Dr. Grays tells the court that High-Functioning Autism Spectrum Disorder is influenced by specific genes. He also discusses findings that people with High-Functioning Autism Spectrum Disorder show brain abnormalities to the medial prefrontal cortex, a brain area associated with social and cognitive decision-making, emotional responses, and understanding other people’s perspectives. Peter exhibits these biological characteristics associated with High-Functioning Autism Spectrum Disorder.

**Intellectual Disability Stimulus.**

Saul, the defendant, has just been found guilty for assaulting a customer at a convenience store. After Saul had made a purchase at the store, he spotted another item he really wanted, a new flavor of his favorite candy. He had no more money, but he felt an overwhelming desire to try this flavor, so he added it to his bag. Another customer, noticing this behavior, walked over to Saul and yelled at him for attempting to steal. He loudly lectured Saul about the immorality of theft, and curious customers started to gather. Upset and overwhelmed by all the onlookers, Saul impulsively pushed the man into a nearby freezer, shattering the glass and leaving the man with serious injuries.

**During the trial, Dr. Roberts, a licensed psychiatrist, testifies as an expert witness.** Dr. Roberts presents evidence that Saul has an IQ of 71 and has a borderline intellectual disability. Borderline intellectual disability is marked by problems with reasoning, problem solving, planning, communication, social skills, and self-control. Dr. Roberts
testifies that due to these characteristics of the disorder, Saul’s borderline intellectual disability impairs his judgment and decision-making.

Dr. Roberts also discusses that borderline intellectual disability is influenced by genetic and brain-based factors. Dr. Roberts tells the court that many cases of borderline intellectual disability are influenced by genetic causes, and intellectual disability has affected many of Saul’s immediate and extended family members. He also discusses findings that people with intellectual disabilities show abnormalities in the frontal lobes of the brain, a brain area involved in problem solving, reasoning, and impulse control. Saul exhibits these biological characteristics associated with borderline intellectual disability.

**OCD Stimulus.**

Frank, the defendant, has just been found guilty for assaulting a waiter. After getting off work late, Frank went for a quick bite to eat in a nearby diner. He finished his meal just as the customers and staff were leaving. By the time he received his change, it was just him and the waiter responsible for closing. Lately, Frank has been imagining the sensation of strangling someone. Terrified of acting on these thoughts, he has invented a number of strategies to prevent this. Frank has always liked the number three, and when he feels overwhelmed by these thoughts, he counts each piece of change in his wallet three times. The waiter, ready to go home for the night, tells Frank that he needs to leave. Frank still has a lot of change left to count, and he asks the waiter to give him a minute. Impatient, the waiter walks over to his table and continues to insist that he leave, causing Frank to lose count. Overwhelmed by his thoughts and feeling he has no way to distract
from them, he impulsively grabs the waiter’s neck, who sustains serious damage to his neck and windpipes.

During the trial, Dr. Murray, a licensed psychiatrist, testifies as an expert witness. Dr. Murray presents evidence that Frank suffers from Obsessive Compulsive Disorder, a disorder marked by persistent, unwanted thoughts and impulses, and the use of repetitive behaviors to cope with these thoughts. Dr. Murray testifies that due to these characteristics of the disorder, Frank’s Obsessive-Compulsive Disorder impairs his judgment, his ability to control his behavior, and therefore, his ability to behave rationally.

Dr. Murray also discusses that Obsessive-Compulsive Disorder is influenced by genetic and brain-based factors. Dr. Roberts tells the court that there is evidence that Obsessive Compulsive Disorder is genetically influenced and has affected many of Frank’s immediate and extended family members. He also discusses findings that people with Obsessive Compulsive Disorder show brain abnormalities of the supramarginal gyrus of the frontal lobes, a brain area involved in impulse control and the regulation of thoughts and behaviors. Frank exhibits these biological characteristics associated with Obsessive Compulsive Disorder.

Pedophilic Disorder Stimulus.

Jerry, the defendant, has just been found guilty for engaging in inappropriate sexual behavior with a child. Jerry is a talented pianist, and began advertising lessons on a coffee shop bulletin board. Parents from a local suburb responded enthusiastically, and Jerry has been teaching five lessons a day. Jerry had not found himself in the frequent
company of children until now, and he has found that he is sexually attracted to them. In one lesson, a young pupil he found particularly enthralling finally managed to play a challenging piece she had been working on for weeks. She was so excited that she thanked Jerry and gave him a big hug. Impulsively, Jerry holds her against him and slides his hands under her shirt and underwear, and fondles her.

During the trial, Dr. Cohen, a licensed psychiatrist, testifies as an expert witness. Dr. Cohen presents evidence that Jerry suffers from Pedophilic Disorder, a disorder marked by a strong desire to engage in sexual acts with children. Dr. Cohen testifies that due to these characteristics of the disorder, Jerry’s Pedophilic Disorder impairs emotional evaluation, impulse control, sexual regulation, and cognitive decision-making.

Dr. Cohen also discusses that Pedophilic Disorder is influenced by genetic and brain-based factors. Dr. Cohen tells the court that pedophilic disorder can be genetically influenced and has affected many of Jerry’s immediate and extended family members. He discusses findings that people with Pedophilic Disorder show abnormal structure and function of the amygdala and the prefrontal cortex, brain areas involved in evaluating emotions, decision-making, impulse control, and regulating sexual appetite. Jerry exhibits these biological characteristics associated with Pedophilic Disorder.

PTSD Stimulus.

Bo, the defendant, has just been found guilty for assaulting a fellow concertgoer. Bo recently got out of the hospital after he was in a car crash caused by another driver, who then severely beat him when they pulled over on the side of the road to check damage. Bo has always been a big fan of classic rock. As a welcome home present from
the hospital, his fiancé surprised him with tickets to an Aerosmith concert. Their seats happened to be near some heavy cables, that shifted halfway through the concert and made a loud crashing noise. The combination of the crashing sound, crowd, and adrenaline caused Bo to have a flashback to the car crash and the beating after it. Bo, convinced he was face to face with the man who had assaulted him after the car crash, then proceeded to beat the man closest to him until someone was able to pull them apart.

During the trial, Dr. Showalter, a licensed psychiatrist, testifies as an expert witness. Dr. Showalter presents evidence that Bo suffers from Posttraumatic Stress Disorder (PTSD), a disorder marked by flashbacks, intense distress, and a loss of conscious awareness in response to reminders of trauma. Dr. Showalter testifies that due to these characteristics of the disorder, Bo’s PTSD causes him to lose conscious awareness of his surroundings and, therefore, to behave inappropriately.

Dr. Showalter also discusses that PTSD is influenced by genetic and brain-based factors. He discusses findings that people with PTSD show abnormal function and reactivity in the amygdala and the frontal areas, brain areas involved in fear, emotion regulation, decision-making, and behavioral regulation. Dr. Showalter also tells the court that PTSD can be genetically influenced. Bo exhibits these biological characteristics associated with PTSD.

Questions

1. In the state in which the defendant has been found guilty, the sentencing guidelines state that the defendant must be sentenced to jail time for a period
between 12 and 48 months. Based upon these guidelines, from 12 to 48 months, what sentence would you give the defendant?

Often punishment is used to achieve a goal. Below, various goals of punishment are listed and defined. Now, on a scale from 1 (not at all support) to 100 (completely support), please rate your support for each of the following goals of punishment based on the type of punishment you would prefer to be undertaken specifically in response to the defendant and his behavior described in the scenario above.

- **Rehabilitation** seeks ways to actively reform and address the underlying reasons for an offender’s criminal behavior so that an individual will not reoffend.
- **Restoration** emphasizes the achievement of justice through reconciliation between offenders, victims, and often the community.
- **Deterrence** attempts to prevent the future committal of crimes through the threat of future punishments which outweigh an individual’s motivation to commit future criminal acts.
- **Retribution** relies on the idea that for justice to be served, an offender deserves to be punished in a manner that is proportionate to the severity and moral heinousness of the committed crime.
- **Incapacitation** aims to remove offenders from society in order to protect the general public from future unlawful behavior.

On a scale from 1 (completely disagree) to 100 (completely agree), how much do you agree with the following statements:
• I would not mind becoming relatives by marriage with the defendant.

(Social acceptance)

• The defendant is unpredictable. (Dangerousness)

• The defendant will never be able to fully recover. (Lack of recovery/immutability)

• Regardless of interventions or treatment, the defendant will remain this way for the rest of his life. (Lack of recovery/immutability)

• There are no effective treatments for the defendant. (Lack of treatability)

• The defendant is dangerous. (Dangerousness)

• One can’t tell what the defendant will do from one moment to the next. (Dangerousness)

• If we worked at the same job, I would work closely together with the defendant. (Social acceptance)

• The defendant is responsible for his present situation. (Personal responsibility)

• I would live next door to the defendant. (Social acceptance)

• There are effective treatments or medications for the defendant that would allow him to return to a normal and productive life. (Lack of treatability)

• I would socialize together with the defendant for one evening. (Social acceptance)

• There is little that can be done to control the defendant. (Lack of treatability)

• I would be friends with the defendant. (Social acceptance)
• I think it is the defendant’s fault that he is in his current situation. (*Personal responsibility*)

• It would put one's safety at risk to forget for one moment that the defendant is dangerous. (*Dangerousness*)

• I think the cause of the defendant’s situation can be controlled by the defendant. (*Personal responsibility*)

Manipulation check: _____ is on trial for the following crime:

- Violent assault
- Sexual assault
- Arson
- Homicide

Honesty question: Were you honest and attentive when taking this survey? Y/N

Demographics

- Please enter your age __________
- Are you eligible for jury duty? Y/N
- What is your gender? (circle one)
  - Male
  - Female
  - Prefer not to identify
- What is your ethnicity? (circle one)
  - Asian/Pacific Islander
  - Black/African American
- Hispanic/Latino
- White
- Other ________

○ Highest level of education attained? (circle one)
  - Some high school
  - High school degree
  - Some college
  - College or university degree
  - Some post-graduate education
  - Post-graduate degree

○ What is your income? (circle one)
  - Less than $22,500
  - $22,500 - $39,999
  - $40,000 - $59,999
  - $60,000 - $89,999
  - $90,000 or more
  - Prefer not to respond
### Sample Demographics ($n = 1,213$)

<table>
<thead>
<tr>
<th>Demographic ($n = 1,213$)</th>
<th>$n$ (%)</th>
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<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>587 (48.4%)</td>
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<tr>
<td>Female</td>
<td>623 (51.4%)</td>
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<tr>
<td>Prefer not to identify</td>
<td>3 (0.003%)</td>
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<tr>
<td><strong>Age</strong></td>
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<tr>
<td>19-25 years</td>
<td>131 (10.8%)</td>
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<tr>
<td>26-39 years</td>
<td>560 (46.2%)</td>
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<td>40-54 years</td>
<td>358 (29.5%)</td>
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<td>55-64 years</td>
<td>131 (10.8%)</td>
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<tr>
<td>65-87 years</td>
<td>33 (2.7%)</td>
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<tr>
<td><strong>Race</strong></td>
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<tr>
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<td>984 (81.1%)</td>
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<tr>
<td>Black/African American</td>
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<tr>
<td>Asian/Pacific Islander</td>
<td>36 (3.0%)</td>
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<tr>
<td>Hispanic/Latino</td>
<td>80 (6.6%)</td>
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<tr>
<td>Other</td>
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<td><strong>Education</strong></td>
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<td>Some high school</td>
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<tr>
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<tr>
<td>Some College</td>
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<tr>
<td>College</td>
<td>491 (40.5%)</td>
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<tr>
<td>Some post-graduate education</td>
<td>50 (4.1%)</td>
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<tr>
<td>Post-graduate degree</td>
<td>169 (13.9%)</td>
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<tr>
<td><strong>Income</strong></td>
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<tr>
<td>&lt;$22,500</td>
<td>315 (26.0%)</td>
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<td>$22,500 - $39,999</td>
<td>302 (24.9%)</td>
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<td>$40,000 - $59,999</td>
<td>243 (20.0%)</td>
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<td>$60,000 - $89,999</td>
<td>201 (16.6%)</td>
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<tr>
<td>$90,000 or more</td>
<td>127 (10.5%)</td>
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<td>Prefer not to respond</td>
<td>25 (2.1%)</td>
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<td><strong>Jury Duty Eligibility</strong></td>
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<tr>
<td>Yes</td>
<td>1,176 (96.9%)</td>
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<tr>
<td>No</td>
<td>37 (3.1%)</td>
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</table>
Appendix C

Interview Protocol

1. As a judge, please tell me your thoughts on sentencing or factors that you may consider in punishment decisions in cases involving offenders with mental disorders.
   a. Now imagine you’ve been presented with evidence or knowledge that an offender’s mental disorder is influenced by genetics. Does this change your sentencing or punishment views you just discussed in any way? Why?

2. Describe your initial reactions if you were to hear that a criminal offender has a mental disorder that is influenced by genetics.

3. Describe your thoughts or opinions about research on genetic influences or explanations for mental disorders.
   a. Does this research make you think about mental disorders differently? In what ways?

4. How do you think the genetics of a criminal offender with a mental disorder influences his behavior and his character attributes?

5. What are your personal experiences with mental disorders (i.e. in your personal life, in legal contexts)? Any personal experiences with genetics?

6. Do you have any background in genetics?
   a. On a scale from 1 to 10, how would you rate your knowledge of genetics?
   b. Whatever your background, describe where has your current genetics come from (e.g. media, workshops, high school biology, etc.)?

7. Now I am going to read you seven short statements. Please rate them 1 to 5, with 1
being completely disagree and 5 being completely agree.

a. Your genes determine your future.
b. People can overcome any obstacles if they truly want to.
c. Bad behavior is caused by bad life circumstances.
d. No matter how hard you try, you can’t change your destiny.
e. People must take full responsibility for any bad choices they make.
f. People’s biological makeup influences their talents and personality.
g. People have complete control over the decisions they make.

8. Please describe:
   a. Your age.
   b. How many years you have been a judge.
   c. Your educational background.
   d. How many cases you handle per day.
   e. The general nature of cases over which you preside.

9. Have you attended any education seminars, conferences or related training on genetics or mental disorders? If so, please describe.
   a. Do you think you and your judicial peers would benefit from training opportunities on mental disorders and genetic research?
   b. If so, what are some of the most important things that you would want you and your judicial peers to learn in these training opportunities?
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