

FROM ACES TO FETAL TRAUMA: HOW SLIPPERY IS THE SLOPE OF DISCRETIONARY SENTENCING FACTORS?

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I. INTRODUCTION

We often ignore sentencings. Television shows and movies with trials end with either an acquittal or a finding of guilt. In the latter instance, the viewer seldom glimpses what comes after—the sentencing. For defendants, however, this is one of the most important days in their lives. For judges, it is one of the most essential functions they serve, and the processes by which it plays out are crucial. After all, a sentencing often results in the removal of a defendant’s liberty.

Scholars and judges argue whether sentencing should be a strict process governed by bright-line rules or a more fluid, human process in the hands of each judge.¹ Within the latter system, a major sub-issue is

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¹ See generally Paul J. Hofer, *Federal Sentencing After Booker*, 48 CRIME & JUST. 137 (2019); Benjamin J. Priester, *Apprendi Land Becomes Bizarro World: “Policy Nullification” and Other Surreal Doctrines in the New Constitutional Law of Sentencing*, 51 SANTA CLARA L. REV. 1 (2011); Frank O. Bowman, III, *Debauch: How the Supreme Court has Mangled American Sentencing Law and How It Might Yet Be Mended*, 77 U. CHI. L. REV. 367 (2010); Mary Kreiner Ramirez, *Into the Twilight Zone: Informing Judicial Discretion in Federal Sentencing*, 57 DRAKE L. REV. 591 (2009); Rachel E. Barkow, *The Court of Life and Death: The Two Tracks of Constitutional Sentencing Law and the Case for Uniformity*, 107 MICH. L. REV. 1145 (2009); David Yellen, *Saving Federal Sentencing Reform After*

what judges should and should not consider in imposing a sentence. Some factors do not even pose a question; for example, we would not want judges to consider a defendant's clothing in determining whether and how long to imprison a defendant. But it is generally accepted that a judge should be able to consider a defendant's remorse and acceptance of responsibility.² This conversation implicates questions related to the goals of sentencing—rehabilitation, deterrence, incapacitation, and retribution³—as well as philosophical questions of free will, culpability, and determinism.

These questions become even more complicated with the introduction of science. Science and law have a complicated relationship. Lawyers often try to introduce scientific research into the legal process with mixed results.⁴ But “scientists do not assert that they know what is immutably ‘true’—they are committed to searching for new, temporary, theories to explain, as best they can, phenomena.”⁵ Much of this scientific evidence comes in as part of the criminal adjudication process. Although much of it is used during trial—e.g., DNA evidence to prove identity; diagnoses to support an insanity defense—it has also been used to support an increase or decrease in a defendant's sentence—e.g., mental illness to preclude the imposition of the death sentence.⁶

Accepting the current system as it is—a system with advisory rules that leaves some discretion with the judge⁷—this Comment examines how judges use scientific evidence at sentencing and argues whether and to what extent judges should consider a defendant's experience of fetal trauma.⁸ While sentencing schemes differ from state to state, this Comment will focus on the federal sentencing system. Part II of this Comment will discuss the history of sentencing in the United States and examine the Federal Sentencing Guidelines (the “Guidelines”) and how they work today. Part III details the role of behavioral science research

Apprendi, Blakely and Booker, 50 VILL. L. REV. 163 (2005); Myron H. Thompson, Opinion, *Sentencing and Sensibility*, N.Y. TIMES (Jan. 21, 2005), <https://www.nytimes.com/2005/01/21/opinion/sentencing-and-sensibility.html>.

² See U.S. SENTENCING GUIDELINES MANUAL §§ 3E1.1, 5K2.16 (U.S. SENTENCING CMM'N 2018) [hereinafter USSG].

³ FEDERAL SENTENCING: THE BASICS 3 (U.S. SENTENCING CMM'N 2018) [hereinafter THE BASICS].

⁴ See *infra* Part III.

⁵ *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 590 (1993) (quoting Brief for Nicolaas Bloembergen et al. as Amici Curiae 9).

⁶ See generally *Atkins v. Virginia*, 536 U.S. 304 (2002).

⁷ See *infra* Section II.B.

⁸ That is, trauma experienced by the defendant's mother while the defendant is in utero.

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in the legal system in general and at sentencing. Specifically, it will analyze the research on Adverse Childhood Experiences (ACEs) and criminal behavior and examine how judges use ACEs at sentencing. Part IV discusses the current research on fetal trauma and how, if at all, it connects fetal traumatic experience to criminal behavior. Finally, Part V applies the research on fetal trauma to the current sentencing scheme and compares this to the research and use of ACEs to argue whether judges should be considering fetal trauma to the same extent or even at all. In sum, this Comment will argue that judges, although perhaps justified in their exercise of discretion at sentencing, should stop short of considering a defendant's traumatic experience while in utero.

II. *UNITED STATES V. BOOKER* AND DISCRETIONARY SENTENCING

The United States has a long and complicated history with sentencing. Over the last two and a half centuries, we have bounced around from nearly unlimited discretion in sentencing to a system that restricted judges' ability to consider certain factors to a system that is now somewhere in between.⁹ This Part begins with a brief history of sentencing in the United States and its evolution into the system we use today. It then discusses the Guidelines, how judges use them, and the impact they have on sentences. Although this Part will recognize the various arguments and principles behind both the more discretionary and more limited systems, the answer to which is superior is beyond the scope of this Comment. This Comment accepts the current scheme and applies its principles to evidence of fetal trauma.

A. *A Brief History of Sentencing*

Even those outside the legal world recognize the phrase "beyond a reasonable doubt." This is the burden of proof the prosecutor bears in a criminal case.¹⁰ Any evidence that a prosecutor puts forth to satisfy this burden, and establish a defendant's guilt, is strictly regulated by the rules of evidence "to the end of ascertaining the truth and securing a just determination."¹¹ For example, hearsay¹² is not admissible at trial unless it falls into an exception provided by the rules or other federal

⁹ See *infra* Section II.A.

¹⁰ MARC L. MILLER ET AL., *CRIMINAL PROCEDURES PROSECUTION AND ADJUDICATION: CASES, STATUTES, AND EXECUTIVE MATERIALS* 467 (Wolters Kluwer Legal, 6th ed. 2019).

¹¹ FED. R. EVID. 102.

¹² Hearsay is an out-of-court statement "offer[ed] in evidence to prove the truth of the matter asserted in the statement." FED. R. EVID. 801(c). To illustrate, when proving the color of a traffic light at the time of an accident, it would be inadmissible hearsay for a witness to testify that "my friend saw the accident and told me 'the light was green for Driver A.'"

statutes.¹³ The Constitution also governs the admissibility of evidence at trial. For example, the Confrontation Clause of the Sixth Amendment provides a defendant with a right to confront any witness brought to testify against him.¹⁴ This ensures a fair adversarial process and protects defendants from unreliable testimony by allowing them to challenge any testimony offered against them.¹⁵ These protections, however, apply to evidence admitted at trial to prove a defendant's guilt.¹⁶

In contrast, sentencing judges historically exercised "wide discretion in the sources and types of evidence used . . . in determining the kind and extent of punishment to be imposed."¹⁷ Sentencing judges even used hearsay, which is presumptively not allowed to prove a defendant's guilt,¹⁸ in determining an appropriate sentence.¹⁹ During this time, limitations on sentencing consisted of federal statutes setting a maximum fine or term of years and "permitting the sentencing judge to impose any term of imprisonment and any fine up to the statutory maximums."²⁰ The two primary guiding principles of this indeterminate sentencing system were rehabilitation²¹ and individualism.²²

As with many well-intentioned practices, this system had unintended consequences.²³ Bipartisan criticism of indeterminate sentencing peaked in the 1960s and 1970s due to increased crime rates, high recidivism, and sentencing disparities by class and race.²⁴ After concluding that rehabilitation should be de-emphasized and that individualized sentences led to unwarranted sentencing disparities, reformers proceeded in two directions: they passed laws with mandatory penalty schemes (such as mandatory minimums for

¹³ FED. R. EVID. 802.

¹⁴ U.S. CONST. amend. VI.

¹⁵ See generally *Crawford v. Washington*, 541 U.S. 36 (2004).

¹⁶ While there are Constitutional limitations on information offered at sentencing in a few special situations, the bulk of regulation is on evidence at trial. See *infra* Section II.A.

¹⁷ *Williams v. New York*, 337 U.S. 241, 246 (1949) (noting this system was in place "since the American colonies became a nation").

¹⁸ See FED. R. EVID. 802.

¹⁹ *Williams*, 337 U.S. at 253 (Murphy, J., dissenting) (noting that much of what the sentencing judge used to decide the proper sentence would have been inadmissible at trial as hearsay).

²⁰ Kate Stith & Steve Y. Koh, *The Politics of Sentencing Reform: The Legislative History of the Federal Sentencing Guidelines*, 28 WAKE FOREST L. REV. 223, 225 (1993).

²¹ *Id.* at 240; see also Bowman, *supra* note 1, at 370.

²² Bowman, *supra* note 1, at 370; see also *Williams*, 337 U.S. at 247 ("[T]he punishment should fit the offender and not merely the crime.").

²³ Yellen, *supra* note 1, at 165.

²⁴ Yellen, *supra* note 1, at 165-66.

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narcotics and weapons offenses) and established the Guidelines through the 1984 Sentencing Reform Act.²⁵ This complex set of federal sentencing guidelines “severely restrict[ed] the ability of judges to consider individual offender characteristics.”²⁶ Despite these restrictive guidelines, Supreme Court jurisprudence was still hands-off with regards to procedural and substantive fairness in sentencing.²⁷ Until 2000, any facts introduced at sentencing “did not need to be determined by more than a preponderance of the evidence.”²⁸

Beginning in 2000, with *Apprendi v. New Jersey*,²⁹ the Court began to impose greater limits on fact-finding at sentencing.³⁰ In *Apprendi*, the Court held that “any fact that increases the penalty for a crime beyond the prescribed statutory maximum must be submitted to a jury, and proved beyond a reasonable doubt.”³¹ Two years later, the Court held that if a state statute provides for an increase in punishment that is contingent on a finding of fact, “that fact—no matter how the State labels it—must be found by a jury beyond a reasonable doubt.”³² This played out in 2004 when the Court hinted at the future advisory nature of the Guidelines with its decisions in *Blakely v. Washington*.³³ The sentencing judge, applying the procedures in Washington’s Sentencing Reform Act, imposed a punishment that exceeded the statutory range after finding by a preponderance of the evidence that the defendant acted with “deliberate cruelty.”³⁴ Although “deliberate cruelty” was not a factor listed in the statute,³⁵ state law authorized an increase above the

²⁵ Yellen, *supra* note 1, at 166–67.

²⁶ Yellen, *supra* note 1, at 168.

²⁷ *Id.* (noting that the Court was “both highly deferential to legislative choices and very tolerant of procedural informality”); see also *Williams* 337 U.S. at 245 (holding that a “sentencing judge may consider such information even though obtained outside the courtroom from persons whom a defendant has not been permitted to confront or cross-examine”).

²⁸ Yellen, *supra* note 1, at 168.

²⁹ 530 U.S. 466 (2000).

³⁰ These limits were alluded to in Justice Murphy’s dissent in *Williams*. *Williams*, 337 U.S. at 253 (Murphy, J. dissenting) (“[A judge] should be willing to increase” a jury prescribed penalty of life to a penalty of death “only with the most scrupulous regard for the rights of the defendant.”).

³¹ *Apprendi*, 530 U.S. at 490 (invalidating a New Jersey statute that allowed judges to increase an already established statutory maximum penalty if the judge found by a preponderance of the evidence a motivation of racial animus).

³² *Ring v. Arizona*, 536 U.S. 584, 586 (2002).

³³ 542 U.S. 296 (2004).

³⁴ *Id.* at 299–301.

³⁵ Conversely, the factors in *Apprendi* (racial animus as part of a “hate crime” law) and *Ring* (“aggravating factors” set forth by Arizona law) were explicitly required by state law. *Apprendi*, 530 U.S. at 468–69; *Ring*, 536 U.S. at 588.

statutory maximum after a finding of a “substantial and compelling reason.”³⁶ The Court, however, held that the state’s sentencing procedure violated the Sixth Amendment and invalidated the defendant’s sentence.³⁷

This seemed to contradict the Guidelines—which allowed for similar upward departures—and ultimately set the stage for the Court’s inevitable decision to nullify their mandatory nature.³⁸ Like the Washington guidelines, the federal guidelines mandated increases to sentencing ranges based on facts that did not need to be proved beyond a reasonable doubt.³⁹ Soon after *Blakely*, these mandates led to the Court’s holding in *Booker* that the Guidelines violated the Sixth Amendment.⁴⁰ In fashioning a remedy, the Court struck the provisions of the Guidelines that made them mandatory, making them effectively advisory.⁴¹ As a result, sentencing courts were required to “consider guidelines ranges” but permitted to “tailor the sentence in light of other statutory concerns.”⁴² The Court also ruled that the standard of review for sentencing appeals would be a “review for unreasonableness.”⁴³ This standard affords a high level of deference to the sentencing judge, including the judge’s consideration of various factors in determining the appropriate sentence.⁴⁴

B. *The Guidelines and How They Work Today*

The Guidelines are long and complicated.⁴⁵ This Comment focuses on a judge’s discretion to sentence a defendant within the Guidelines range, depart from that range, or vary from that range. To understand these concepts, it is first important to understand how defendants are sentenced under the Guidelines. Since *Booker*, the Court has adopted a three-step process for sentencing: the judge should (1) properly determine the Guidelines range, (2) determine whether to depart based on the Sentencing Commission’s policy statements, and (3) determine

³⁶ *Blakely*, 542 U.S. at 299.

³⁷ *Id.* at 305.

³⁸ Yellen, *supra* note 1, at 172.

³⁹ *Id.*

⁴⁰ *United States v. Booker*, 543 U.S. 220, 244–45 (2005).

⁴¹ *Id.* at 246.

⁴² *Id.* at 245.

⁴³ *Id.* at 261 (citations omitted).

⁴⁴ *See Rita v. United States*, 551 U.S. 338, 351 (2007) (explaining that the *Booker* “reasonableness” standard “asks whether the trial court abused its discretion”).

⁴⁵ The Guidelines Manual is over 600 pages consisting of eight chapters with over 100 parts and sub-parts. *See generally* USSG, *supra* note 2.

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whether to vary based on statutory factors.⁴⁶ Although *Booker* still requires sentencing courts to consider the Guidelines,⁴⁷ subsequent case law instructs courts to make a decision based on an individualized assessment and not presume that the Guidelines range is reasonable.⁴⁸ Furthermore, while Supreme Court precedent requires evidence that increases a statutory minimum or maximum to be found beyond a reasonable doubt,⁴⁹ other factual findings—specifically those that go toward a sentence within the Guidelines range or a downward departure or variance—still carry the preponderance of the evidence standard.⁵⁰

1. Determining the Guidelines Range

First, the sentencing judge consults Appendix A of the Guidelines Manual to determine which offense guideline to apply.⁵¹ This Appendix is an index of each federal criminal statute matched to their applicable offense guideline.⁵² This yields a base offense level.⁵³ For example, a judge sentencing a defendant guilty of assault with a dangerous weapon with intent to do bodily harm will check Appendix A for 18 U.S.C. § 113(a)(3),⁵⁴ see it matches with offense guideline 2A2.2,⁵⁵ and consult the Guidelines to determine that the base offense level is 14.⁵⁶ The judge then consults any specific characteristics under the offense guideline and chapter three of the Guidelines Manual to determine whether there are additional adjustments to be made on the base offense level.⁵⁷ Continuing the example, if the defendant used and discharged a firearm,⁵⁸ the assault was motivated by money or something of value,⁵⁹ and the defendant clearly demonstrated acceptance of responsibility,⁶⁰ the offense level would be 19.

⁴⁶ PRIMER DEPARTURES AND VARIANCES 2–3 (U.S. SENTENCING CMM’N 2019) [hereinafter PRIMER]; see also *Gall v. United States*, 552 U.S. 38, 49–50 (2007).

⁴⁷ *Booker*, 543 U.S. at 245.

⁴⁸ *Gall*, 552 U.S. at 50.

⁴⁹ See *supra* Section II.A.

⁵⁰ See *United States v. Cossey*, 632 F.3d 82, 86 (2d Cir. 2011).

⁵¹ THE BASICS, *supra* note 3, at 13.

⁵² See USSG, *supra* note 2, app. A.

⁵³ THE BASICS, *supra* note 3, at 13.

⁵⁴ The federal assault statute. 18 U.S.C. § 113.

⁵⁵ USSG, *supra* note 2, app. A.

⁵⁶ *Id.* § 2A2.2.

⁵⁷ THE BASICS, *supra* note 3, at 14.

⁵⁸ Increase by five levels. USSG, *supra* note 2, § 2A2.2(b)(2).

⁵⁹ Increase by two levels. *Id.* § 2A2.2(b)(5).

⁶⁰ Decrease by two levels. *Id.* § 3E1.1(a).

Our hypothetical defendant served less than 60 days for a prior crime⁶¹ and committed the instant assault while on probation,⁶² thus giving the defendant four criminal history points. This places the defendant in Zone D of the sentencing table with a Guidelines range of 37–46 months imprisonment.⁶³ Accordingly, the judge has nearly limitless discretion to consider almost any information in deciding to sentence the defendant to a specific term of imprisonment anywhere *within* that range.⁶⁴ The judge, however, may also consider any grounds for a departure or variance from the applicable Guidelines range.⁶⁵ While the two technically differ, they both operate to allow the judge to impose a sentence outside the applicable Guidelines range.⁶⁶

2. Departures and Variances

“Departure’ is a term of art under the Guidelines and refers only to non-Guidelines sentences imposed under the framework set out in the Guidelines.”⁶⁷ The Guidelines define departure as the “imposition of a sentence outside the applicable guideline range or of a sentence that is otherwise different from the guideline sentence.”⁶⁸ Put another way, “[a] ‘departure’ is typically a change from the final sentencing range computed by examining the *provisions of the guidelines themselves*.”⁶⁹ Departures are commonly requested by the prosecutor to reward cooperation or triggered “by other factors that take the case ‘*outside the heartland*’ contemplated by the Sentencing Commission when it drafted the guidelines for a typical offense.”⁷⁰ As such, departures are meant to be rare and apply to exceptional cases.⁷¹ In sum, there are several defining characteristics of departures: (1) they are statutorily authorized;⁷² (2) they require an aggravating or mitigating

⁶¹ Two points toward Criminal History Category. USSG, *supra* note 2, § 4A1.1(b).

⁶² Two more points toward Criminal History Category. *Id.* § 4A1.1(d).

⁶³ *Id.* Ch. 5, Pt. A, Sentencing Table.

⁶⁴ *Id.* § 1B1.4.

⁶⁵ THE BASICS, *supra* note 3, at 14.

⁶⁶ THE BASICS, *supra* note 3, at 18.

⁶⁷ *Irizarry v. United States*, 553 U.S. 708, 714 (2008).

⁶⁸ USSG, *supra* note 2, § 1B1.1, cmt. (n.1(F)).

⁶⁹ *United States v. Rangel*, 697 F.3d 795, 801 (9th Cir. 2012) (emphasis added) (quoting *United States v. Cruz-Perez*, 567 F.3d 1142, 1146 (9th Cir. 2009)), *cert. denied*, 568 U.S. 1182 (2013).

⁷⁰ *Id.* (emphasis added).

⁷¹ PRIMER, *supra* note 46, at 5.

⁷² See 18 U.S.C. § 3553(b)(1) (“[T]he court shall impose a sentence . . . within the range . . . unless the court finds that there exists an aggravating or mitigating circumstance . . . not adequately taken into consideration by the Sentencing Commission . . .”).

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circumstance not considered by the Sentencing Commission in formulating the Guidelines;⁷³ and (3) the departing judge must still consult the “sentencing guidelines, policy statements, and official commentary of the Sentencing Commission.”⁷⁴

Variances, on the other hand, are not subject to the Guidelines analysis in the way departures are.⁷⁵ While the Guidelines expressly prohibit consideration of various factors in granting a departure,⁷⁶ these same factors are fair game to a judge granting a variance.⁷⁷ This difference will sometimes result in a court granting both a departure and a variance.⁷⁸ A judge grants a variance when she “imposes a sentence above or below the otherwise properly calculated final sentencing range based on application of the *other statutory factors* in 18 U.S.C. § 3553(a).”⁷⁹ The many factors listed include “the history and characteristics of the defendant.”⁸⁰

While sentencing judges must state the reasons for a particular sentence in open court, judges varying or departing from the Guidelines range must also specifically state the reasons in a “statement of reasons” form.⁸¹ Whether these reasons result in a sentence within the Guidelines range or in a departure or variance, they generally take the form of various mitigating or aggravating circumstances presented in the presentence report or at the sentencing hearing.⁸² This may include a slew of factors unrelated to the instant offense: defendant’s abusive upbringing; functional illiteracy; learning disability; absence of positive male role models; addiction; efforts to be a functioning member of society; stated desire to rehabilitate; remorse;⁸³ significantly reduced mental capacity; aberrant behavior; anticipated trauma to a defendant’s infant if separated from her;⁸⁴ vulnerability in prison; and HIV positive

⁷³ *Id.*

⁷⁴ *Id.*

⁷⁵ *United States v. Fumo*, 655 F.3d 288, 317 (3d Cir. 2011).

⁷⁶ *See, e.g.*, USSG, *supra* note 2, § 5H1.10 (policy statement providing that race, sex, national origin, creed, religion, and socio-economic status are not relevant factors).

⁷⁷ *United States v. Chase*, 560 F.3d 828, 830–31 (8th Cir. 2009).

⁷⁸ *See* PRIMER, *supra* note 46, at 39 (giving the example of departing for substantial assistance under 5K1.1 and varying for defendant characteristics and history (ones not generally allowed by the Guidelines for purposes of a departure) under 18 U.S.C. § 3553(a)).

⁷⁹ PRIMER, *supra* note 46, at 5.

⁸⁰ 18 U.S.C. § 3553(a)(1).

⁸¹ 18 U.S.C. § 3553(c)(2).

⁸² THE BASICS, *supra* note 3, at 6–7.

⁸³ *United States v. Bannister*, 786 F. Supp. 2d 617, 685 (E.D.N.Y. 2011).

⁸⁴ *United States v. Blake*, 89 F. Supp. 2d 328, 338–39 (E.D.N.Y. 2000).

status.⁸⁵ Ironically, although the Guidelines attempt to restrict a sentencing judge's ability to consider certain factors,⁸⁶ it also concedes that "it is difficult to prescribe a single set of guidelines that encompasses the vast range of human conduct potentially relevant to a sentencing decision."⁸⁷

Although sentencing judges have more discretion now that the Guidelines are advisory and the system provides for departures and variances, mandatory minimums are still an issue.⁸⁸ Mandatory minimums restrict judges and place a lot of sentencing power in the hands of the legislature and prosecutors.⁸⁹ That said, in 2018, only 24.7% of federal offenders were convicted of offenses carrying mandatory minimum penalties.⁹⁰ And there are ways to avoid mandatory minimums; 40.6% of these offenders were relieved of the mandatory minimum due to "substantial assistance" or through the "safety valve provision."⁹¹ A defendant who has substantially assisted the government in the investigation or prosecution of another person may receive, upon motion of the prosecution, a sentence below a mandatory minimum.⁹² Defendants convicted of certain drug-trafficking offenses may qualify for a departure from the mandatory minimum through the statutory "safety valve."⁹³ In these drug-trafficking cases—usually low-level, non-violent offenses⁹⁴—the sentencing judge considers five statutory criteria to determine whether to impose a sentence below the mandatory minimum.⁹⁵ While mandatory minimums and their effect on the discretion of sentencing judges are an important part of the sentencing conversation, they are beyond the scope of this Comment. This Comment recognizes that they exist and sometimes limit judges' sentencing capability. But the present focus is on the many instances in which mandatory minimums do not

⁸⁵ *United States v. Blarek*, 7 F. Supp. 2d 192, 212 (E.D.N.Y. 1998).

⁸⁶ *See, e.g.*, USSG, *supra* note 2, § 5H1.12 (stating that "lack of guidance as a youth" is not grounds for departure).

⁸⁷ USSG, *supra* note 2, Ch. 1, Pt. A, introduction, 4(b).

⁸⁸ *See Hofer, supra* note 1, at 137.

⁸⁹ Hofer, *supra* note 1, at 140–41; *see also* USSG, *supra* note 2, § 5G1.1 (noting that, when statutory minimums or maximums conflict with the Guidelines range, the Guidelines defer to the statute).

⁹⁰ QUICK FACTS MANDATORY MINIMUM PENALTIES 1 (U.S. SENTENCING CMM'N 2018).

⁹¹ *Id.* at 1.

⁹² 18 U.S.C. § 3553(e).

⁹³ THE BASICS, *supra* note 3, at 9; *see also* 18 U.S.C. § 3553(f).

⁹⁴ THE BASICS, *supra* note 3, at 9.

⁹⁵ 18 U.S.C. § 3553(f) (these criteria include the defendant's criminal history, absence of violence, death, or injury, role in the offense, and cooperation and truthfulness); *see also* USSG, *supra* note 2, § 5C1.2.

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apply, and judges have wide latitude to consider facts that lead to more individualized sentences.

3. Sentencing Post-*Booker*

Although the Guidelines were an attempt to control the sentencing process,⁹⁶ statistics show that, since *Booker*, judges have gotten more comfortable with imposing sentences below the Guidelines range.⁹⁷ Sentences within range have fallen since *Booker*, and most of the departures and variances have been downward. In 2006, the year after *Booker* was decided, judges imposed 61.7% of sentences within the Guidelines range, 1.6% above the range, and a total of 36.6% below the range.⁹⁸ Of those sentences below the Guidelines range, 24.6% were government sponsored,⁹⁹ and 12% were non-government sponsored.¹⁰⁰ In 2018, 51% of sentences were within the Guidelines range, 2.6% above the range, and a total of 46.5% below the range.¹⁰¹ Of those sentences below the Guidelines range, 26.5% were government sponsored, and 20% were non-government sponsored.¹⁰² These statistics show a 10% decrease in sentences imposed within the Guidelines range since *Booker*, and nearly all of the difference has been made up by an increase in downward departures and variances. For whatever reason, judges seem happy to regain some of their sentencing discretion.

The question is why. Judges do have philosophical differences,¹⁰³ and those who disagreed with the Guidelines may have been looking for a way out, even before the Court heard *Booker*. After all, judges are human, not immune to cognitive dissonance, and perhaps felt that some individuals, and maybe even some offenses, did not deserve the level of punishment doled out by the Guidelines.¹⁰⁴ Perhaps this increase in

⁹⁶ Hofer, *supra* note 1, at 159.

⁹⁷ See, generally, U.S. SENTENCING COMMISSION FINAL QUARTERLY DATA REPORT (U.S. SENTENCING CMM'N 2006); U.S. SENTENCING COMMISSION FINAL QUARTERLY DATA REPORT (U.S. SENTENCING CMM'N 2018).

⁹⁸ U.S. SENTENCING COMMISSION FINAL QUARTERLY DATA REPORT 1 (U.S. SENTENCING CMM'N 2006).

⁹⁹ One example of this is when the government moves for a departure due to the defendant's § 5K1.1 substantial assistance. See *id.* (14.4% in 2006).

¹⁰⁰ *Id.* (4.7% of which were departures and 7.3% of which were variances).

¹⁰¹ U.S. SENTENCING COMMISSION FINAL QUARTERLY DATA REPORT 11 (U.S. SENTENCING CMM'N 2018).

¹⁰² *Id.* (2.5% were departures and 17.4% variances).

¹⁰³ Hofer, *supra* note 1, at 160.

¹⁰⁴ See Barkow, *supra* note 1, at 1148 (suggesting that the Court's interest in its "bipolar approach to substantive sentencing law" allows it to "feel better about its role" in administering punishment).

departures and variances is a modest sigh of relief that the Court took a firm, positive stance on judicial discretion in the sentencing process.¹⁰⁵ Even more recent Supreme Court jurisprudence has upheld the principle that “possession of the fullest information possible concerning the defendant’s life and characteristics” is essential to the sentencing process.¹⁰⁶

There is a dense forest of legal and philosophical scholarship on the issue of whether and how much discretion should be in the hands of sentencing judges.¹⁰⁷ On the one hand, individual cases are nuanced and require “a certain fluidity in imposing punishment,” best exercised by the trial judge who better understands the “full complexity of the offender and . . . appreciate[s] the subtleties in determining the punishment that justice demands.”¹⁰⁸ Furthermore, it would be unjust to impose the same punishment for people with different backgrounds, just as it would be unjust to impose different punishments for those convicted of similar crimes with similar backgrounds and circumstances.¹⁰⁹ On the other hand, wide discretion may lead to sentencing discrepancies for people who have committed the same crime.¹¹⁰ Additionally, judges exercising wide discretion sometimes act more like medical examiners or conduct a unique form of moral reasoning—a role judges are not familiar with and a setting where due process may not exist.¹¹¹ Whether discretionary sentencing should exist and whether it should fall on the judge are beyond the scope of this Comment. This Comment accepts the existence of *Booker* and the current federal sentencing scheme and analyzes how this scheme should (if at all) apply to fetal trauma evidence at sentencing.

¹⁰⁵ See *United States v. Booker*, 543 U.S. 220, 233 (2005) (“We have never doubted the authority of a judge to exercise broad discretion in imposing a sentence within a statutory range. Indeed, everyone agrees that the constitutional issues presented by these cases would have been avoided entirely if Congress had omitted from the SRA the provisions that make the guidelines binding on district judges . . .”).

¹⁰⁶ *Pepper v. United States*, 562 U.S. 476, 480 (2011) (quoting *Williams v. New York*, 337 U.S. 241, 246–47 (1949)). The Court also noted that Congress even codified this principle. *Id.* (“Congress codified this principle at 18 U.S.C. § 3661, which provides that ‘[n]o limitation shall be placed on the information’ a sentencing court may consider ‘concerning the [defendant’s] background, character, and conduct,’ and at § 3553(a), which sets forth certain factors that sentencing courts must consider, including ‘the history and characteristics of the defendant.’”).

¹⁰⁷ See, e.g., Hofer, *supra* note 1; Priester, *supra* note 1; Bowman, *supra* note 1; Ramirez, *supra* note 1; Barkow, *supra* note 1; Yellen, *supra* note 1.

¹⁰⁸ Thompson, *supra* note 1.

¹⁰⁹ *Id.*

¹¹⁰ Bowman, *supra* note 1, at 371. This harkens back to the arguments made by the reformers in justifying the passage of the Sentencing Reform Act. See *supra* Section II.A.

¹¹¹ Bowman, *supra* note 1, at 373.

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III. BEHAVIORAL SCIENCES AND CRIMINAL LAW

Whether and to what extent behavioral science research is allowed in court—specifically at sentencing—raises several important questions.¹¹² How reliable is the scientific research? What purpose should it serve? Should people predisposed to certain types of behavior be punished for that behavior?¹¹³ If so, should predisposition serve as a mitigating or aggravating factor?¹¹⁴ This Part seeks to explore these questions and set the tone for whether, and to what extent, fetal trauma evidence should be allowed at sentencing. It begins with a brief history of behavioral sciences in the legal system and then discusses how scientific findings should apply, if at all.

A. *Behavioral Science in the Legal System and Admissibility of Scientific Evidence*

Although early application of behavioral sciences in law focused on psychological research in criminal cases,¹¹⁵ it was not until *Brown v. Board of Education* that psychological research, and as a result, behavioral sciences in general, gained prominence in the legal system.¹¹⁶ A significant part of the growth of psychology in criminal law was in the assessment of criminal defendants for criminological or mental health purposes.¹¹⁷ Since then, behavioral sciences have played a role in several areas in the law: evaluating mental illness to reduce blameworthiness,¹¹⁸ determining the extent of physical brain injuries,¹¹⁹ and determining a defendant's free will.¹²⁰ The psychiatric profession began to study battered-child syndrome in 1963 and suggested that victims of violence in childhood would become future perpetrators of

¹¹² Tufik Y. Shayeb, *Behavioral Genetics & Criminal Culpability: Addressing the Problem of Free Will in the Context of The Modern American Justice System*, 19 U.D.C. L. REV. 1, 53 (2016).

¹¹³ *Id.*

¹¹⁴ *Id.*

¹¹⁵ James R. P. Ogloff et al., *Education and Training in Psychology and Law/Criminal Justice: Historical Foundations, Present Structures, and Future Developments*, 23 CRIM. JUST. & BEHAV. 200, 210 (1996).

¹¹⁶ *Id.* at 207–08; *see also*, *Brown v. Bd. of Ed. of Topeka, Shawnee Cty., Kan.*, 347 U.S. 483, 494 n.11 (1954), *supplemented sub nom.* 349 U.S. 294 (1955).

¹¹⁷ Ogloff et al., *supra* note 115, at 211.

¹¹⁸ Owen D. Jones, *Behavioral Genetics and Crime, in Context*, in THE IMPACT OF BEHAVIORAL SCIENCES ON CRIMINAL LAW 125, 129 (Nita A. Farahany ed., 2009).

¹¹⁹ *Id.*

¹²⁰ *Id.* at 137.

violence.¹²¹ It was not until *Daubert*, however, that the Court addressed the admissibility of scientific evidence at trial.¹²²

Before *Daubert*, scientific evidence was only allowed if it was produced by techniques that have “general acceptance in the particular field in which it belongs.”¹²³ The Court in *Daubert* ruled that federal courts should look to the Federal Rules of Evidence and only allow scientific evidence that is “reliable,” “relevant,” and “ground[ed] in the methods and procedures of science.”¹²⁴ The Court also noted that, although the evidence must be more than “subjective belief or unsupported speculation,”¹²⁵ it does not have to be “‘known’ to a certainty,” since “there are no certainties in science.”¹²⁶ The Court then stressed the importance of the validity of the scientific methodology used to produce the scientific evidence being offered¹²⁷ and noted its confidence in federal judges to make this inquiry.¹²⁸ In determining the admissibility of scientific evidence at trial, a district judge is supposed to make several appropriate observations:¹²⁹ whether a theory or technique can be or has been tested;¹³⁰ whether the theory/technique has been subject to peer review and publication;¹³¹ “the known or potential rate of error;”¹³² and the scientific community’s “general acceptance” of the research.¹³³

It is important to note that this standard applies to the admissibility of scientific evidence at *trial*,¹³⁴ and such standards do not apply to a judge’s considerations at sentencing.¹³⁵ But scholars suggest that

¹²¹ George C. Curtis, *Violence Breeds Violence—Perhaps?*, 120 AM. J. PSYCHIATRY 386, 386 (1963).

¹²² *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 589–90 (1993).

¹²³ Brett Walker, *When the Facts and the Law are Against You, Argue the Genes?: A Pragmatic Analysis of Genotyping Mitigation Defenses for Psychopathic Defendants in Death Penalty Cases*, 90 WASH. U. L. REV. 1779, 1807 (2013); *Frye v. United States*, 293 F. 1013, 1014 (D.C. Cir. 1923).

¹²⁴ *Daubert*, 509 U.S. at 589–90.

¹²⁵ *Id.* at 590.

¹²⁶ *Id.*

¹²⁷ *Id.* 592–93.

¹²⁸ *Id.* at 593.

¹²⁹ *Id.*

¹³⁰ *Daubert*, 509 U.S. at 593.

¹³¹ *Id.* at 593–94 (although even “new” theories and techniques should not be deemed *per se* inadmissible).

¹³² *Id.* at 594.

¹³³ *Id.*

¹³⁴ *Id.* at 589 (quoting FED. R. EVID. 702) (referring to scientific knowledge in assisting the “trier of fact . . . to determine a fact in issue”).

¹³⁵ USSG, *supra* note 2, § 6A1.3 cmt. (noting that, when sentencing judges consider facts, they “are not restricted to information that would be admissible at trial”).

Daubert can be used as a framework for sentencing judges¹³⁶ because judges still need to give reasons for their sentences,¹³⁷ the sentences must withstand the reasonableness standard on appeal,¹³⁸ and there seems to be no working standard for the admissibility of scientific evidence at sentencing. *Atkins v. Virginia*¹³⁹ is one of the most notable cases where scientific evidence was used at sentencing, and the case demonstrates the Court's—and ultimately society's—discomfort in imposing sentences that may be too harsh for the specific offender.

B. Behavioral Science and Sentencing

Daryl Renard Atkins, the defendant, was convicted of capital murder, among other crimes, and sentenced to death.¹⁴⁰ At sentencing, the prosecutor introduced two aggravating circumstances: future dangerousness and “vileness of the offense.”¹⁴¹ Atkins introduced one witness, Dr. Evan Nelson, a forensic psychologist who, after evaluating Atkins, testified that he was “mildly mentally retarded.”¹⁴² Dr. Nelson's evaluation consisted of interviews with people who knew Atkins, school and court records, and an IQ test that showed Atkins had an IQ of 59.¹⁴³ The Court reversed and remanded the case, holding that “death is not a suitable punishment for a mentally retarded criminal.”¹⁴⁴ In its reasoning, the Court noted the “evolving standards of decency that mark the progress of a maturing society.”¹⁴⁵ The Court determined that there was a national consensus reflecting “widespread judgment about the relative culpability of mentally retarded offenders, and the relationship between mental retardation and the penological purposes served by the death penalty.”¹⁴⁶ According to the Court, imposing the death sentence on “mentally retarded” defendants does not advance objectives such as

¹³⁶ Erica Beecher-Monas & Edgar Garcia-Rill, *Danger at the Edge of Chaos: Predicting Violent Behavior in a Post-Daubert World*, 24 CARDOZO L. REV. 1845, 1859 (2003) (in the context of using future dangerousness predictions in capital sentencings). For example, the Second Circuit implicitly invoked *Daubert* in reversing an overly harsh sentence after finding that the district court impermissibly relied “on its unsupported theory of genetics” in its decision. *United States v. Cossey*, 632 F.3d 82, 88 (2d Cir. 2011).

¹³⁷ THE BASICS, *supra* note 3, at 6–7.

¹³⁸ *United States v. Booker*, 543 U.S. 220, 261 (2005).

¹³⁹ 536 U.S. 304 (2002).

¹⁴⁰ *Id.* at 307.

¹⁴¹ *Id.* at 307–08.

¹⁴² *Id.* at 308.

¹⁴³ *Id.* at 308–09.

¹⁴⁴ *Id.* at 321.

¹⁴⁵ *Atkins*, 536 U.S. at 312.

¹⁴⁶ *Id.* at 317.

retributivism and deterrence because they lack the requisite culpability and ability to commit premeditated crimes.¹⁴⁷

While *Atkins* addressed those diagnosed with “mental retardation,” the Court hinted at the possibility of using other factors in mitigating sentencing that relate to “the diminished ability to understand and process information, to learn from experience, to engage in logical reasoning, or to *control impulses*.”¹⁴⁸ Also, while the Court addressed these factors in the context of the death penalty¹⁴⁹ this reasoning has been used in subsequent cases to justify a shift in noncapital sentences.¹⁵⁰ The Court even went one step further and held in *Roper v. Simmons*¹⁵¹ that since juveniles have a diminished sense of responsibility, courts should not impose the death penalty on them;¹⁵² thus realizing the possibility discussed in *Atkins* that a full diagnosis of “mental retardation” might not be necessary to avoid the death penalty.¹⁵³ Finally, the Court in *Graham v. Florida*¹⁵⁴ extended these principles to noncapital cases, holding that courts should not impose sentences of life imprisonment without parole on juvenile offenders in non-homicide cases.¹⁵⁵

C. *Is Behavioral Science Evidence Mitigating or Aggravating?*

The application of behavioral science in sentencing decisions begs the question whether such evidence should be a mitigating or aggravating factor. At first glance, the question seems simple—we should not hold those with genetic or biologic “deficiencies” to the same penological standards as the “normal” culpable criminal.¹⁵⁶ After all,

¹⁴⁷ *Id.* at 319–20.

¹⁴⁸ *Id.* at 320 (emphasis added).

¹⁴⁹ *Id.* (noting that deterrence is not furthered if these impairments “make it less likely that [defendants] can process the information of the possibility of execution as a penalty and, as a result, control their conduct based upon that information.”).

¹⁵⁰ See, e.g., *United States v. Moore*, 643 F.3d 451, 455–56 (6th Cir. 2011).

¹⁵¹ 543 U.S. 551 (2005).

¹⁵² *Id.* at 569.

¹⁵³ *Atkins*, 536 U.S. at 320; see also Matthew L. Baum, *The Monoamine Oxidase A (MAOA) Genetic Predisposition to Impulsive Violence: Is It Relevant to Criminal Trials?*, 6 NEUROETHICS 287, 287 (2013) (Italian judge used evidence of genetic variation linked to aggression in reducing defendant’s sentence); *Hill v. Ozmint*, 339 F.3d 187, 192 (4th Cir. 2003) (although death sentence eventually imposed, judge did allow, for mitigation purposes, expert witness testimony at sentencing regarding defendant’s serotonin deficiency that predisposed defendant to aggressive behavior).

¹⁵⁴ 560 U.S. 48 (2010).

¹⁵⁵ *Id.* at 82.

¹⁵⁶ Dorothy Nelkin, *After Daubert: The Relevance and Reliability of Genetic Information*, 15 CARDOZO L. REV. 2119, 2121 (1994) (“Biological defenses have been used to mitigate punishment on the assumption that genetic predisposition precludes free

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culpability—while more rigid when determining guilt—is a more flexible concept and can have a greater impact at sentencing.¹⁵⁷ For example, in arguing that childhood trauma diminishes a defendant’s culpability,¹⁵⁸ one scholar contrasts affirmative defenses, such as duress and necessity, to the use of evidence of childhood trauma at sentencing.¹⁵⁹ While duress and necessity require a strict showing that a defendant’s actions were “influenced . . . by the exigencies of the desperate situations in which [he] find[s] [him]sel[f],” sentencing decisions do not require a similar “lack of choice.”¹⁶⁰ Because of this less strict standard at sentencing, Bagaric argues, evidence of external factors such as childhood trauma removes enough choice from the defendant such that it should be admitted and considered toward mitigating a sentence.¹⁶¹

But not everyone agrees that lessened culpability should be the main concern at sentencing if a concern at all.¹⁶² Some argue that behavioral science, such as genetic information, could indicate a proclivity for violence, be used to predict future dangerousness,¹⁶³ and thus justify a harsher sentence.¹⁶⁴ For example, courts recognize the possible aggravating nature of this evidence,¹⁶⁵ and some have even considered it as aggravating against certain defendants.¹⁶⁶ In addition

will.”); Diane E. Hoffmann & Karen H. Rothenberg, *Judging Genes: Implications of the Second Generation of Genetic Tests in the Courtroom*, 66 MD. L. REV. 858, 871 (2007) (genetic tests could be used as a mitigating factor if judges agree that genetic makeup could reduce free will).

¹⁵⁷ Mirko Bagaric et al., *Trauma and Sentencing: The Case for Mitigating Penalty for Childhood Physical and Sexual Abuse*, 30 STAN. L. & POL’Y REV. 1, 39 (2019).

¹⁵⁸ *Id.* at 34.

¹⁵⁹ *Id.* at 40.

¹⁶⁰ *Id.*

¹⁶¹ *Id.* at 40–41.

¹⁶² *See, e.g.*, Hoffmann & Rothenberg, *supra* note 156, at 871–72; Jones, *supra* note 118, at 138.

¹⁶³ Hoffmann & Rothenberg, *supra* note 156, at 871.

¹⁶⁴ *See, e.g.*, Landrigan v. Stewart, 272 F.3d 1221, 1229 (9th Cir. 2001), *adopted sub nom.* Landrigan v. Schriro, 501 F.3d 1147 (9th Cir. 2007); United States v. Cossey, 632 F.3d 82, 86 (2d Cir. 2011).

¹⁶⁵ *See* Atkins v. Virginia, 536 U.S. 304, 321 (2002) (noting that reliance on mental retardation as a mitigating factor can be a double-edged sword that may enhance the likelihood that the jury will find the aggravating factor of future dangerousness).

¹⁶⁶ *See, e.g.*, United States v. Sawyer, 907 F.3d 121, 123–24 (2d Cir. 2018) (finding that a childhood marred by sexual abuse contributed to distorted perception of rape and child molestation thus making defendant a moderate to high risk to reoffend), *cert. denied*, 139 S. Ct. 1300 (2019); *Cossey*, 632 F.3d at 86 (district court imposed a greater sentence because it felt that defendant had a genetic predisposition to view child pornography and thus a higher likelihood of re-offending); *Landrigan*, 272 F.3d at 1229 (“although [defendant]’s new evidence can be called mitigating in some slight sense, it

to future dangerousness, there is the possibility that such information should be an aggravating factor for the sake of deterrence.¹⁶⁷ If some defendants are predisposed toward violent behavior but not completely out of control, should we not be more inclined to impose a greater deterrent effect on them?¹⁶⁸ The same could be said for a greater need to incapacitate or a lower likelihood of rehabilitation.

Genetic information can simultaneously cut in different directions: mitigation, aggravation, no impact at all, or somewhere in between.¹⁶⁹ This dilemma is yet another argument in support of higher discretion in the hands of the sentencing judge, who can appreciate the nuance of each case. That said, it is also an argument against allowing this scientific research altogether. Whether such information should, as a general rule, be allowed and act as a mitigating or aggravating factor is beyond the scope of this Comment. But the human condition is complex, and removing a person's liberty is not a task we should take lightly. As such, this Comment takes the position that, given the right circumstances, this type of information (assuming it is supported by reliable research, properly demonstrated, and appropriately considered) can play an important role. That said, fetal trauma—as this Comment argues¹⁷⁰—does not satisfy this threshold for consideration. When such information does meet this threshold, judges should consider it as a mitigating factor for several reasons.

First, as the Supreme Court noted, our society is undergoing a utilitarian progression, and a sign of a maturing society is tolerance and understanding of one another, including criminal defendants.¹⁷¹ Second, while we should be concerned with the goal of protecting society from those who might wish to harm it, or cannot help but doing so, treating genetic predisposition as an aggravating factor is not the best way to achieve that goal. Behavioral genetics is often misunderstood by non-scientists, inclining people to think crime is the result of criminals having specific genes.¹⁷² The reality is quite the opposite: “genes do not ‘determine’ behavior to any extent greater than environments do.”¹⁷³ The irony of this is that the same argument can be applied to preventing genetic information altogether—after all, if genes

would also have shown the court that it could anticipate that he would continue to be violent”).

¹⁶⁷ Jones, *supra* note 118, at 139.

¹⁶⁸ *Id.*

¹⁶⁹ *Id.*

¹⁷⁰ *See infra* Part V.

¹⁷¹ *See Atkins v. Virginia*, 536 U.S. 304, 321 (2002).

¹⁷² Jones, *supra* note 118, at 142.

¹⁷³ Jones, *supra* note 118, at 143.

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do not determine behavior, why should we consider it as a mitigating factor? But just because predispositions are not determinative of behavior does not mean they do not require rehabilitation. And our focus on rehabilitation must not accept the idea that certain types of people are rehabilitation proof. Different people respond differently to different forms of rehabilitation; there is no one-size-fits-all.¹⁷⁴ Finally, even the law provides that evidence such as genetic predispositions and childhood trauma should be used as a mitigating factor.¹⁷⁵ For example, in determining whether the death sentence is justified, courts are directed to consider—as a mitigating factor—a “defendant’s capacity to appreciate the wrongfulness of [his] conduct . . . regardless of whether the capacity was so impaired as to constitute a defense to the charge.”¹⁷⁶ In addition to other specific mitigating factors, the court is then open-endedly directed to consider “[o]ther factors in the defendant’s background, record, or character.”¹⁷⁷ Conversely, all the aggravating factors listed in the statute relate to the defendant’s instant offense or criminal history, and there is no provision directing the court to open-endedly consider the defendant’s background or character for aggravating purposes.¹⁷⁸ This plays out in an excellent example of information about a defendant that derives its credibility from behavioral science and acts as a mitigating factor at sentencing—Adverse Childhood Experiences.

D. Adverse Childhood Experiences

ACEs are potentially traumatic events, such as violence, abuse, or neglect, that occur between infancy and 17 years of age.¹⁷⁹ Of over 200,000 noninstitutionalized adults surveyed between 2011–2014, almost two-thirds reported having at least one ACE, and more than one

¹⁷⁴ Douglas B. Marlowe, *The Verdict on Drug Courts and Other Problem-Solving Courts*, 2 CHAP. J. CRIM. SCI. 57, 60 (2011) (“No intervention should be expected to work for all individuals. In fact, it is a sign of an immature profession if one intervention is applied to all clients.”).

¹⁷⁵ See 18 U.S.C. § 3592.

¹⁷⁶ *Id.* § 3592(a)(1).

¹⁷⁷ *Id.* § 3592(a)(8).

¹⁷⁸ See *id.* § 3592(a)–(d).

¹⁷⁹ *About Adverse Childhood Experiences*, CENTERS FOR DISEASE CONTROL AND PREVENTION (last updated Apr. 9, 2019) [hereinafter *About ACEs*], <https://www.cdc.gov/violenceprevention/childabuseandneglect/acestudy/aboutace.html> [<https://web.archive.org/web/20190912012107/https://www.cdc.gov/violenceprevention/childabuseandneglect/acestudy/aboutace.html>].

in four reported having three or more.¹⁸⁰ This is striking since ACEs can have a lasting impact on future behavior, health, and life opportunities.¹⁸¹ Given these findings, it is no wonder that some advocate using ACEs as a mitigating factor at sentencing.¹⁸² And judges seem to agree: in a 2002 survey of district judges on the Guidelines, over 60% responded that they believe more emphasis should be placed on mental conditions when determining sentences.¹⁸³ This Section begins with a brief introduction of ACEs research and then discusses several cases where ACEs were used as a mitigating factor.

1. ACEs Research

While the nuances of ACEs research are important to address, a crucial aspect of this research, with regards to sentencing, is that it is generally recognized that ACEs highly correlate with various negative outcomes in adulthood—especially risky behavior.¹⁸⁴ This general recognition is supported by numerous observational studies conducted over the past half-century and has even been applied to criminal law since 1963.¹⁸⁵ The National Institute of Justice has sponsored and published several studies in this area.¹⁸⁶ The English study found that children who were victims of violence were significantly more likely to be arrested later in life.¹⁸⁷ The Widom study found that youth victims of abuse were 11 times more likely to be arrested for a violent crime as a juvenile and almost three times more likely to be arrested for a violent

¹⁸⁰ *Behavioral Risk Factor Surveillance System ACE Data*, CENTERS FOR DISEASE CONTROL AND PREVENTION (last updated Apr. 9, 2019), <https://www.cdc.gov/violenceprevention/aces/ace-brfss.html>.

¹⁸¹ *About ACEs*, *supra* note 179.

¹⁸² Bagaric et al., *supra* note 157, at 40–41.

¹⁸³ U.S. SENTENCING COMM’N’S SURVEY OF ARTICLE III JUDGES, app. B, B-8 (U.S. SENTENCING COMM’N 2002) (https://www.ussc.gov/sites/default/files/pdf/research-and-publications/research-projects-and-surveys/surveys/20021202_Judge_Survey.pdf).

¹⁸⁴ *See, e.g., About ACEs*, *supra* note 179; *ACEs and Toxic Stress: Frequently Asked Questions*, CENTER ON THE DEVELOPING CHILD HARV. UNIV. (last visited Nov. 2, 2019), <https://developingchild.harvard.edu/resources/aces-and-toxic-stress-frequently-asked-questions>; *Adverse Childhood Experiences*, NAT’L CHILD ABUSE PREVENTION MONTH (last visited Nov. 2, 2019), <https://www.childwelfare.gov/topics/preventing/preventionmonth/resources/ace>.

¹⁸⁵ *See* Curtis, *supra* note 121, at 386.

¹⁸⁶ *See, e.g.,* Cathy S. Widom & Michael G Maxfield, *An Update on the “Cycle of Violence”*, in NAT’L INST. OF JUSTICE RESEARCH IN BRIEF 1 (U.S. DEPARTMENT OF JUSTICE 2001); Diana J. English et al., *Childhood Victimization and Delinquency, Adult Criminality, and Violent Criminal Behavior: A Replication and Extension* (NATIONAL CRIMINAL JUSTICE REFERENCE SERVICE 2002).

¹⁸⁷ Widom & Maxfield, *supra* note 186, at 1 (nearly 60% more likely to be arrested as a juvenile and nearly 30% more likely as an adult).

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crime as an adult.¹⁸⁸ More recent studies have corroborated these findings. For example, a 2012 study found that abused children are more than twice as likely as their non-abused counterparts to have a record of a violent offense.¹⁸⁹ A 2018 systematic review of research into the impact of childhood abuse on adult male prisoners found that childhood abuse was “strongly associated with adult aggression, impulsivity, and antisocial behavior.”¹⁹⁰ The list goes on.¹⁹¹ Given the strength and breadth of this research, it is no wonder judges are more comfortable using ACEs as a mitigating factor at sentencing.¹⁹² First, however, it is important to note that not only is the use of ACEs at sentencing somewhat dissonant with the express policies and directives of the Guidelines but the Guidelines seem to be at odds with themselves in this regard.

2. ACEs and the Guidelines

Information regarding ACEs generally makes its way into sentencing through the presentence report.¹⁹³ A probation officer creates a presentence report containing all the information a judge might need to impose a proper sentence.¹⁹⁴ If undisputed, the court accepts all the information in the presentence report as a finding of fact.¹⁹⁵ On the one hand, the Guidelines state that “lack of guidance as a youth” and similar disadvantaged upbringing are *not* grounds for a departure.¹⁹⁶ As to the definition of “lack of guidance as a youth,” a mere different upbringing may not qualify as a departure factor,¹⁹⁷ but

¹⁸⁸ English et al., *supra* note 186, at 33–34.

¹⁸⁹ James Topitzes et al., *From Child Maltreatment to Violent Offending: An Examination of Mixed-Gender and Gender-Specific Models*, 27 J. INTERPERSONAL VIOLENCE 2322, 2334, 2338 (2012).

¹⁹⁰ Teresa Goddard & Julie Ann Pooley, *The Impact of Childhood Abuse on Adult Male Prisoners: A Systematic Review*, 34 J. POLICE & CRIM. PSYCHOL. 215, 218 (2018).

¹⁹¹ See, e.g., Kathryn H. Howell et al., *The Relationship Between Types of Childhood Victimization and Young Adulthood Criminality*, 27 CRIM. BEHAV. & MENTAL HEALTH 341, 342 (2017); Joshua P. Mersky & Arthur J. Reynolds, *Child Maltreatment and Violent Delinquency: Disentangling Main Effects and Subgroup Effects*, 12 CHILD MALTREATMENT 246, 246 (2007) (violent offenses committed at a significantly higher rate by those who were victims of abuse in their youth compared to those who suffered none).

¹⁹² See *infra* Section III.D.2.

¹⁹³ See FED. R. CRIM. P. 32(d)(2)(B) (noting the report *must* contain “information that assesses any financial, social, psychological, and medical impact on any victim”).

¹⁹⁴ USSG, *supra* note 2, § 6A1.1(a); FED. R. CRIM. P. 32(d)(2)(A)–(B).

¹⁹⁵ FED. R. CRIM. P. 32(i)(3)(A).

¹⁹⁶ USSG, *supra* note 2, § 5H1.12. That said, there are plenty of examples of cases in which the judge, despite this explicit directive, considered “lack of guidance as a youth” as a mitigating factor. See *infra* Section III.D.3.

¹⁹⁷ See *United States v. Godinez*, 474 F.3d 1039 (8th Cir. 2007) (losing father, dropping out of school, and being illiterate until adolescence not enough for downward

“extreme childhood abuse” would qualify.¹⁹⁸ In the same chapter, however, the Guidelines note that “mental and emotional conditions may be relevant in determining whether a departure is warranted, if [they] . . . distinguish the case from the typical cases covered by the guidelines.”¹⁹⁹ Additional language allows departures based on circumstances and characteristics not taken into consideration by the Sentencing Commission; however, the Guidelines also note that this is for extreme circumstances or where the characteristic is present “to an exceptional degree.”²⁰⁰

An example of a departure under § 5K2.13 illustrates the lack of clarity and unwillingness to give bright-line direction to judges in this area. § 5K2.13 allows judges to consider “diminished capacity” toward a downward departure.²⁰¹ Specifically, the Guidelines require a two-step process in considering diminished capacity: (1) whether “the defendant committed the offense while suffering from a significantly reduced mental capacity”; and (2) whether the reduced “capacity contributed significantly to the commission of the offense.”²⁰² A significantly reduced mental capacity can be determined in one of two instances: (1) an impaired ability to understand the wrongfulness of an action or to exercise power of reason; or (2) an impaired ability to control behavior the defendant knows is wrongful.²⁰³ Studies on the effects ACEs have on brain development have demonstrated that adults who have suffered ACEs develop increased aggression, impulsive anger, and “impulsive decision-making during states of fear emotion.”²⁰⁴ The rift between the application of “diminished capacity” and ACEs research at sentencing is further widened since the Guidelines do not allow “diminished capacity” to be a factor in specific cases: where drugs or alcohol created the diminished capacity; where there is a great need to protect the public, either because of the violence of the offense or defendant’s criminal history; or where the defendant is being convicted of an offense involving obscenity, sexual abuse, sexual exploitation,

departure); *United States v. Dyck*, 334 F.3d 736 (8th Cir. 2003) (ignorance and lack of education from Mennonite upbringing not enough for downward departure).

¹⁹⁸ *United States v. Rivera*, 192 F.3d 81, 84–85 (2d Cir. 1999); *see also* *United States v. Walter*, 256 F.3d 891, 894 (9th Cir. 2001) (considering extraordinary childhood abuse as a sentencing factor).

¹⁹⁹ USSG, *supra* note 2, § 5H1.3.

²⁰⁰ USSG, *supra* note 2, § 5K2.0.

²⁰¹ USSG, *supra* note 2, § 5K2.13.

²⁰² PRIMER, *supra* note 46, at 25.

²⁰³ USSG, *supra* note 2, § 5K2.13 cmt. (n.1).

²⁰⁴ Michael D. De Bellis & Abigail Zisk, *The Biological Effects of Childhood Trauma*, 23 CHILD & ADOLESCENT PSYCHIATRIC CLINICS N. AM. 185, 205 (2014).

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abuse of children, or transportation for illegal sexual activity and related crimes.²⁰⁵ Yet research indicates that those who have experienced ACEs are more likely to commit violent offenses²⁰⁶—thus increasing their likelihood of having criminal histories—and more likely to sexually abuse others or commit other sex-related crimes as adults.²⁰⁷ Finally, regardless of the Guidelines restrictions, sentencing statutes clearly express no limitation on what a sentencing judge may consider.²⁰⁸

3. ACEs in Sentencing

These discrepancies are exaggerated by examples of cases in which judges applied ACEs as a mitigating factor at sentencing, some in which judges outright defied the express policies of the Guidelines. For example, judges and scholars seem to agree that even the milder “lack of guidance as a youth” can and should be a mitigating factor at sentencing.²⁰⁹

In a case involving a more extreme example of ACEs, *United States v. Sawyer*,²¹⁰ the defendant used expert testimony to connect childhood trauma to criminal behavior.²¹¹ Although the district court did not give the testimony much consideration at sentencing, the Second Circuit held that the district court “clearly failed to give appropriate weight to a factor listed in Section 3553(a) that should have mitigated the sentence

²⁰⁵ PRIMER, *supra* note 46, at 25–26.

²⁰⁶ See *supra* Section III.D.1.

²⁰⁷ Cathy S. Widom & Christina Massey, *Prospective Examination of Whether Childhood Sexual Abuse Predicts Subsequent Sexual Offending*, 169 JAMA PEDIATRICS 1, 4 (2015).

²⁰⁸ See 18 U.S.C. § 3553(a) (generally describing that a sentencing judge shall consider the “the history and characteristics of the defendant”); *id.* § 3661 (“No limitation shall be placed on the information concerning the background, character, and conduct of a person convicted of an offense which a court of the United States may receive and consider for the purpose of imposing an appropriate sentence.”).

²⁰⁹ See, e.g., *United States v. Silva*, 865 F.3d 1027, 1030 (8th Cir. 2017) (noting that the district court took into consideration the defendant’s “lack of guidance as a youth” as a mitigating factor despite it being outweighed by other aggravating factors); *United States v. Bettin*, No. CR 17-083-BLG-SPW, 2019 WL 3778461, at *2 (D. Mont. Aug. 12, 2019) (noting “lack of guidance as a youth” as a principal factor in a downward departure); see also AMY BARON-EVANS & JENNIFER NILES COFFIN, NO MORE MATH WITHOUT SUBTRACTION: DECONSTRUCTING THE GUIDELINES’ PROHIBITIONS AND RESTRICTIONS ON MITIGATING FACTORS 150 (2010), available at <https://fln.fd.org/files/training/no-more-math-without-subtraction.pdf> (“After *Booker*, there is no longer any need to show extreme abuse or neglect to avoid the prohibitions of § 5H1.12, and courts have begun to consider disadvantaged youth or lack of guidance as a youth as a factor for sentencing below the guideline range.”).

²¹⁰ 907 F.3d 121 (2d Cir. 2018).

²¹¹ *Id.* at 124.

substantially: the history and characteristics of the defendant.”²¹² This included childhood sexual abuse, drug and alcohol use, and physical abuse the court described as “horrid and nightmarish.”²¹³

Other recent circuit cases lend further support to the use of ACEs at sentencing. In *U.S. v. Phillips*,²¹⁴ the Court, although it did not depart downward, considered childhood abuse in refraining from imposing an upward variance despite the defendant being eligible for one.²¹⁵ In *U.S. v. Carpenter*,²¹⁶ the Court held that the district court did not commit a procedural error in considering physical abuse at the hands of the defendant’s stepfather as a mitigating factor.²¹⁷ Finally, *U.S. v. McBride*,²¹⁸ provides another example of a court disobeying the Guidelines. Although the Guidelines do not allow “diminished capacity” as a mitigating factor, the Circuit Court held that the sentencing judge did not err in varying downward in a child pornography case because it was one of the worst histories of abuse and abandonment the Court had ever seen.²¹⁹

It seems clear that courts are comfortable enough to stray from the Guidelines given the strength of ACEs research, the advisory nature of the Guidelines, and the wide discretion they once again possess to consider mitigating factors. The question this Comment presents is whether judges could be and should be as comfortable with similarly applying fetal trauma.

²¹² *Id.*

²¹³ *Id.* at 123–24 (noting that the trauma was “unresolved and untreated”).

²¹⁴ 461 F. App’x 135 (3d Cir. 2012).

²¹⁵ *Id.* at 141.

²¹⁶ 803 F.3d 1224 (11th Cir. 2015).

²¹⁷ *Id.* at 1233.

²¹⁸ 511 F.3d 1293 (11th Cir. 2007).

²¹⁹ *Id.* at 1298.

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IV. FETAL TRAUMA

Fetal trauma is a term for traumatic experiences, generally experienced by the pregnant mother, that have significant effects on the developing fetus.²²⁰ While some studies indicate a correlation between prenatal stress and adverse emotional and behavioral outcomes in children,²²¹ most studies in this field have focused on either the relationship between prenatal stress and epigenetic mechanisms or epigenetic mechanisms and behavioral problems.²²² Therefore, to understand the possible implications of fetal trauma on future behavior, it is first important to have a firm, albeit basic, grasp of epigenetics.

A. *Epigenetics*

In 1942, the developmental biologist and geneticist C. H. Waddington introduced the word “epigenetics” and used it to describe the influence of the environment on the human genome.²²³ Epigenetics plays an important role in the interaction of nature and nurture in determining human traits.²²⁴ This interaction involves something called the epigenome—all of the chemical compounds that attach to one’s genetic code that regulate the expression or activity of all the individual genes.²²⁵ Put simply, our genetic code is like hardware (e.g., the central processing unit (CPU) inside our laptops), and epigenetic information is like the software operating the hardware (e.g., the downloaded Microsoft Office products).²²⁶ These epigenetic chemical compounds—the epigenome—turn genes on or off and control the production of certain proteins²²⁷ without changing the underlying DNA sequence.²²⁸

²²⁰ See, e.g., Helena Palma-Gudiel et al., *Maternal Psychosocial Stress During Pregnancy Alters the Epigenetic Signature of the Glucocorticoid Receptor Gene Promoter in Their Offspring: A Meta-Analysis*, 10 *EPIGENETICS* 893, 893 (2015) (malnutrition, substance abuse, and psychosocial stressors are some examples of fetal trauma).

²²¹ See, e.g., Elisabeth Conrad et al., *Incorporating Epigenetic Mechanisms to Advance Fetal Programming Theories*, 30 *DEV. PSYCHOPATHOLOGY* 807, 807 (2018); A. B. Janssen et al., *A Role for the Placenta in Programming Maternal Mood and Childhood Behavioural Disorders*, 28 *J. NEUROENDOCRINOLOGY* 1, 1 (2016).

²²² Conrad et al., *supra* note 221, at 809.

²²³ Parisa Norouzitallab et al., *Can Epigenetics Translate Environmental Cues into Phenotypes?*, 647 *SCI. TOTAL ENV'T.* 1281, 1282 (2019).

²²⁴ Mark A. Rothstein et al., *The Ghost in Our Genes: Legal and Ethical Implications of Epigenetics*, 19 *HEALTH MATRIX CLEVELAND* 1, 1 (2009).

²²⁵ *What is Epigenetics?*, U.S. NATIONAL LIBRARY OF MEDICINE (last updated Oct. 29, 2019), <https://ghr.nlm.nih.gov/primer/howgeneswork/epigenome>.

²²⁶ Rothstein et al, *supra* note 224, at 1–2.

²²⁷ *Epigenomics Fact Sheet*, NATIONAL HUMAN GENOME RESEARCH INSTITUTE (last updated Apr. 1, 2016) [hereinafter *Fact Sheet*], <https://www.genome.gov/about-genomics/fact-sheets/Epigenomics-Fact-Sheet>.

²²⁸ *Id.*

Returning to our example, Microsoft Word gives your CPU instructions to allow you to write a paper, but it does not alter the physical structure of your CPU. The various cells in our body use these proteins to interpret genetic instructions and fulfill their purpose.²²⁹ For example, on a molecular level, skin cells, brain cells, and muscle cells contain the same DNA but have different jobs because of how they receive their genetic instructions through epigenetic expression.²³⁰ It follows that our brain development can be heavily influenced by environmental experiences that change our epigenome.²³¹ For example, smoking, diet, and other lifestyle factors may induce epigenetic changes.²³² These epigenetic changes may affect how we respond to adversity, increase our chances of developing mental illnesses, such as anxiety and depression, or even increase the likelihood of physical ailments, such as heart disease or diabetes.²³³

Epigenetic changes can be durable and are even inheritable.²³⁴ For example, evidence suggests that epigenetic changes can affect subsequent generations.²³⁵ That said, epigenetic changes are also sensitive to the developmental stage and are “subject to reconfiguration.”²³⁶ In fact, developing fetuses and newborns are the most susceptible and sensitive to epigenetic changes.²³⁷ For example, high levels of prenatal stress contribute to excess cortisol exposure, which has an impact on gestational health outcomes.²³⁸ This basic understanding of epigenetics will hopefully make it easier to understand the specific findings on the impact fetal trauma has on our epigenetic expression.

²²⁹ *Id.*

²³⁰ Rachael Rettner, *Epigenetics: Definition & Examples*, LIVE SCIENCE (June 24, 2013) <https://www.livescience.com/37703-epigenetics.html>.

²³¹ NATIONAL SCIENTIFIC COUNCIL ON THE DEVELOPING CHILD, EARLY EXPRESSIONS CAN ALTER GENE EXPRESSION AND AFFECT LONG-TERM DEVELOPMENT: WORKING PAPER NO. 10 2 (Harvard University 2010) [hereinafter EARLY EXPRESSIONS].

²³² *Fact Sheet*, *supra* note 227.

²³³ EARLY EXPRESSIONS, *supra* note 231, at 3–4.

²³⁴ Rothstein et al., *supra* note 224, at 3.

²³⁵ Rothstein et al., *supra* note 224, at 5.

²³⁶ *Id.*

²³⁷ *Id.*

²³⁸ Conradt et al., *supra* note 221, at 811.

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B. Fetal Trauma's Impact on Our Development

The hypothalamus, pituitary, and adrenal glands make up what is known as the HPA axis.²³⁹ This axis controls hormonal signaling pathways, including those responsible for our stress response.²⁴⁰ Serotonin is a chemical that is crucial to brain development, mood regulation, ability to react to stress, and the development of psychiatric disorders.²⁴¹ It is “also intimately involved in the formation of the fetal HPA axis.”²⁴² Much of the research done in the area of epigenetic changes and behavior has centered on the development of the HPA axis since it is highly linked to behavioral outcomes.²⁴³

Studies have shown a link between prenatal maternal stress and an increase of behavioral disorders in children due to an impairment of the serotonin systems.²⁴⁴ Chronic activation of this system—often “likened to revving a car engine for long periods of time”²⁴⁵—is linked to an increased vulnerability to developing psychopathology.²⁴⁶ This consistent level of exposure to stress impacts brain development on a molecular and structural level and “appears to impair cognition and increase anxiety and reactivity to stress.”²⁴⁷

Another way epigenetic changes in the fetus may affect our behavioral development is through changes to the expression of the monoglyceride lipase gene (MGLL), which regulates reward, addiction, and pain.²⁴⁸ Research in this area demonstrates a correlation²⁴⁹ between changes to the expression of MGLL, caused by prenatal stress, smoking, diet, or substance abuse, and children who develop “conduct

²³⁹ Alison G. Paquette & Carmen J. Marsit, *The Developmental Basis of Epigenetic Regulation of HTR2A and Psychiatric Outcomes*, 113 J. CELLULAR BIOCHEMISTRY 2065, 2066 (2014).

²⁴⁰ *Id.*

²⁴¹ Susanne Brummelte et al., *Developmental Changes in Serotonin Signaling: Implications for Early Brain Function, Behavior and Adaptation*, 342 NEUROSCIENCE 212, 212 (2017).

²⁴² Paquette & Marsit, *supra* note 239, at 2066.

²⁴³ Nicole M. Talge et al., *Antenatal Maternal Stress and Long-Term Effects on Child Neurodevelopment: How and Why?*, 48 J. CHILD PSYCHOL. & PSYCHIATRY 245, 253 (2007).

²⁴⁴ Joey St-Pierre et al., *Effects of Prenatal Maternal Stress on Serotonin and Fetal Development*, 30 PLACENTA S66, S69 (2016).

²⁴⁵ EARLY EXPRESSIONS, *supra* note 231, at 3.

²⁴⁶ Talge et al., *supra* note 243, at 254.

²⁴⁷ Alexandra Miranda & Nuno Sousa, *Maternal Hormonal Milieu Influence on Fetal Brain Development*, 8 BRAIN BEHAV. 1, 1 (2017).

²⁴⁸ *Epigenetic Changes at Birth Could Explain Later Behavior Problems*, SCIENCE DAILY (June 12, 2017), <https://www.sciencedaily.com/releases/2017/06/170612094030.htm>.

²⁴⁹ “Although these findings do not prove causation, they do highlight the neonatal period as a potentially important window of biological vulnerability” *Id.*

problems” such as fighting, lying, and stealing—behavior that places children at a higher risk for severe antisocial behavior.²⁵⁰

These studies, however, focus on epigenetic changes resulting from fetal trauma and tie those changes to what we know about the relationship between certain chemicals and human behavior. There are few, if any, fetal trauma studies like the longitudinal observational studies on ACEs and criminal behavior. More of these studies would be needed before courts are confident enough to consider this as a factor. That said, even if further studies bolster the connection between fetal trauma and criminal behavior, it should still not be considered at sentencing.

V. SHOULD FETAL TRAUMA PLAY A ROLE IN SENTENCING DECISIONS?

Many fetal complications can have an impact on behavior.²⁵¹ The sheer number of things that can happen to a pregnant mother resulting in epigenetic changes to her fetus should alone be reason enough to put fetal trauma to the side at sentencing. Additionally, the research on fetal trauma, while peer-reviewed and tested, does not yet create a strong enough correlation between fetal trauma and criminal behavior and thus lacks the general acceptance by the scientific community afforded to ACEs.²⁵² The Sentencing Commission has expressed its disapproval for factors that are too amorphous with no restrictions as to how and when they could be applied.²⁵³ On the other hand, if ever someone’s culpability should be reduced by past trauma, it seems wise to consider trauma they experience at a time when they are most vulnerable and out of control. Indeed the research, although not as reliable as ACEs with regard to criminal behavior, is far from inadequate and does demonstrate certain epigenetic changes that can be devastating, lasting, and sometimes permanent.²⁵⁴ That said, there are many more compelling reasons why fetal trauma should not be considered at sentencing.

These compelling reasons, listed below, can be applied in equal force to argue against the consideration of ACEs at sentencing; this Comment will apply each in turn. But whether ACEs should be

²⁵⁰ *Id.*

²⁵¹ Jones, *supra* note 118, at 130.

²⁵² See *supra* Section IV.B.

²⁵³ William W. Wilkins, Jr. & John R. Steer, *The Role of Sentencing Guideline Amendments in Reducing Unwarranted Sentencing Disparity*, 50 WASH. & LEE L. REV. 63, 84 (1993) (referring to “lack of youthful guidance”). This, however, may not be a valuable argument given judges’ willingness to, when the situation calls for it, disobey the Guidelines as to considering “lack of youthful guidance.” See *supra* Section III.D.3.

²⁵⁴ EARLY EXPRESSIONS, *supra* note 231, at 1, 3.

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considered at sentencing is beyond the scope of this Comment. That said, it is worthwhile to address this argument briefly. At first glance, it makes sense that the arguments laid out in this Comment against considering fetal trauma at sentencing should apply with equal force to ACEs. That said, the two are distinguishable enough to argue for the allowance of ACEs while simultaneously drawing the line there. ACEs can help a defendant argue for mitigation when there is no record—hospital, school, or diagnosis—of the trauma suffered during childhood or its lasting impact. This is because ACEs are relatively easy to present to a court as the defendant consciously lived those experiences as opposed to fetal trauma, which occurs in utero. They are also more strongly tied to criminal behavior than fetal trauma and occur closer to adulthood, thus decreasing the time in which any lasting negative impact can be repaired. But these arguments cast ACEs through the lens by which we view fetal trauma—that of “mental illness,” whereby trauma causes cognitive changes affecting behavior on a cellular level, thus decreasing one’s culpability. This implicates retribution and deterrence. There is a stronger argument when taking ACEs into account for rehabilitation purposes, such as redirecting a defendant to a special program as opposed to a traditional prison.

For example, restorative justice programs aim to rehabilitate defendants regardless of any present mental or physical deficiency that causes decreased culpability.²⁵⁵ The underlying philosophy has more to do with undoing an ingrained way of life.²⁵⁶ As such, it stands to reason that someone who experienced a series of ACEs—abuse, exposure to crime, exposure to drug and alcohol abuse—even without experiencing a long-term neurological effect, would benefit from an environment that seeks to counter those established norms in their life. To illustrate, let us look at two hypothetical defendants: Arthur and Bob. Arthur and Bob grow up in the same household. Unfortunately, their childhood was filled with exposure to abuse, drugs, and criminal behavior. Bob is genetically predisposed in such a way that the ACEs have significant and severe lasting impacts to the effect that he has developed antisocial behaviors as a result of deficient neurological development. Arthur is genetically predisposed in such a way that these ACEs do not have a

²⁵⁵ See generally *What is Restorative Justice*, INSIGHT PRISON PROJECT (last visited Jan. 9, 2020), <http://www.insightprisonproject.org/a-restorative-justice-agency.html>; U.S. PROBATION & PRETRIAL SERVS., U.S. DISTRICT CT. FOR THE DISTRICT OF MASS., RISE PROGRAM PACKET (2017), <https://www.map.uscourts.gov/sites/map/files/RISE%20Program%20Statement%202.0%202017.pdf>.

²⁵⁶ See Paul McCold, *Restorative Justice: The Role of the Community*, INTERNATIONAL INSTITUTE FOR RESTORATIVE PRACTICES (Mar. 31, 1995), <https://www.iirp.edu/news/restorative-justice-the-role-of-the-community>.

lasting impact on his neurological development. That said, Arthur is surrounded by negative stimuli and, even without physical changes to his brain or his neurotransmission, he sees this world as “normal.” Both men are found guilty of robbery. Bob would argue that his ACEs diminished his culpability as they caused him to have a condition that presently affects his impulse control and understanding of social norms. Arthur has no present condition that diminished his culpability, but he would argue that, having never known a “normal” life, he would greatly benefit from a program that could help correct those misguided norms.

Arthur is the reason judges may want to continue considering ACEs at sentencing. This Comment accepts that ACEs sometimes have a role to play in the sentencing process. That said, the following arguments do apply with equal force to the culpability aspect of ACEs and are compelling arguments that judges should not continue to use ACEs as a reason to simply lower a defendant’s sentence due to diminished culpability; rather, judges should reserve the consideration of ACEs for diversion to rehabilitative programs.

A. “Repairing” Epigenetic Changes

Assume judges developed enough confidence in criminogenic fetal trauma research and could comfortably distinguish between the degrees of fetal trauma—from socioeconomic factors to substance abuse—that they should and should not consider at sentencing. There is still the issue that many of these changes are epigenetic and thus can theoretically be reversed during a defendant’s lifetime.²⁵⁷ Not only do different people respond differently to traumatic experiences, but life experiences between birth and adulthood can affect the ultimate impact trauma has on someone.²⁵⁸ For example, how one responds to stress might be altered by environmental inputs during sensitive developmental periods.²⁵⁹ In fact, children that may have been more biologically susceptible to epigenetic changes in the first place may be the best candidates for reprogramming during these periods.²⁶⁰ Research is ongoing into the various types of treatment that might reverse epigenetic alterations: this includes both pharmacological

²⁵⁷ EARLY EXPRESSIONS, *supra* note 231, at 4; *see also Fact Sheet, supra* note 227 (“The epigenome can also change throughout a person’s lifetime.”).

²⁵⁸ SAMHSA, U.S. DEP’T OF HEALTH AND HUM. SERVS., TRAUMA-INFORMED CARE IN BEHAVIORAL HEALTH SERVICES 59 (2014).

²⁵⁹ Conradt et al., *supra* note 221, at 811.

²⁶⁰ *Id.*

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treatment²⁶¹ and environmental therapy.²⁶² Even non-targeted interventions, such as neighborhoods and social groups, seem to promote better health outcomes through epigenetic changes during childhood.²⁶³ Research even suggests that epigenetic alterations that occur because of early stressors may be “normalized or even prevented by pharmacological intervention during early life, adolescence as well as adulthood.”²⁶⁴ The English study, which was cited to support the use of ACEs in sentencing,²⁶⁵ seems to hint at this. Youth victims of abuse were 11 times more likely to be arrested for a violent crime as a juvenile, but only 2.7 times more likely to be arrested for the same as an adult.²⁶⁶ Although it is unclear why, this shows a significant “improvement” in the likelihood of arrest for violent crimes between adolescence and adulthood.

But much of this is true for ACEs as well: “The presence of ACEs does not mean that a child will experience poor outcomes. But children’s positive experiences or protective factors can prevent children from experiencing adversity and can protect against many of the negative health and life outcomes even after adversity has occurred.”²⁶⁷ Assuming this research on “repairing” epigenetic alterations applies equally to fetal trauma and ACEs, it stands to reason that judges should either consider fetal trauma or stop considering ACEs. That said, even though there is more time for change between fetus and adulthood than childhood and adulthood, there are still other reasons beyond epigenetic repair for not considering fetal trauma at sentencing.

B. *Observable or Diagnosable Issues in Adult Defendants*

It bears mentioning that the scientific community does not conduct research with the goal of criminal culpability in mind. The scientific

²⁶¹ See, e.g., St-Pierre et al., *supra* note 244, at S69 (treating anomalies in mice with Selective Serotonin Reuptake Inhibitors (SSRIs)); Nadine Provencal & Elisabeth B. Binder, *The Neurobiological Effects of Stress as Contributors to Psychiatric Disorders: Focus On Epigenetics*, 30 CURRENT OPINION NEUROBIOLOGY 31, 34 (2015).

²⁶² Sara Palumbo et al., *Genes and Aggressive Behavior: Epigenetic Mechanisms Underlying Individual Susceptibility to Aversive Environments*, 12 FRONTIERS BEHAV. NEUROSCIENCE 1, 5 (2018).

²⁶³ Colter Mitchell, et al., *DNA Methylation, Early Life Environment, and Health Outcomes*, 79 PEDIATRIC RES. 212, 215 (2016).

²⁶⁴ Annamaria Cattaneo et al., *Inflammation and Neuronal Plasticity: A Link Between Childhood Trauma and Depression Pathogenesis*, 9 FRONTIERS CELLULAR NEUROSCIENCE 1, 6 (2015).

²⁶⁵ See *supra* Section III.D.1.

²⁶⁶ English et al., *supra* note 186, at 33–34.

²⁶⁷ *About ACEs*, *supra* note 179.

community seeks to work backward from observable or diagnosable issues, learn why they occur, and figure out how to prevent them through policy or intervention.²⁶⁸ Although beyond the scope of this Comment, this type of “causation” research would be much more salient and useful in civil “litigations regarding multi-generational environmentally-driven health effects.”²⁶⁹ While all the research on fetal trauma provides a cause for issues developed and retained throughout one’s life, those issues are often diagnosable²⁷⁰ or measurable through some form of testing or imaging of the adult defendant.²⁷¹ For example, when serotonin is studied in epigenetic fetal trauma research, it often concerns an increased “risk of *psychiatric diseases such as depression, anxiety, or autism later in life.*”²⁷² Even the Court in *Atkins* evaluated the admissibility of the defendant’s diagnosis as “mentally retarded.”²⁷³ Absent a showing at sentencing of mental illness or some undiagnosable but observable chemical imbalance, fetal trauma may not have had a lasting impact on a given defendant.

The counter to this, of course, is the same as it was for repairing epigenetic alterations; this argument applies to ACEs as well. Any experience of ACEs that had a lasting impact strong enough to mitigate a criminal sentence should have resulted in an observable or diagnosable issue at sentencing. This is yet another reason judges should not consider even ACEs when determining diminished culpability with regards to a decreased sentence for a defendant.

C. Cost

It is easier to present evidence of ACEs than fetal trauma without requiring the hiring of an expert to show that those experiences had lasting mental or genetic effects on the defendant. ACEs are often

²⁶⁸ See EARLY EXPRESSIONS, *supra* note 231, at 1–2.

²⁶⁹ Tania L. Roth, *Epigenetic Mechanisms in the Development of Behavior: Advances, Challenges, and Future Promises of a New Field*, 25 DEV. PSYCHOPATHOLOGY 1279, 1288 (2013).

²⁷⁰ See, e.g., Paquette & Marsit, *supra* note 239, at 2071 (“Epigenetic regulation has arisen as a potential way to explain psychiatric disorders . . .”); Talge et al., *supra* note 243, at 245 (prenatal stress can lead to ADHD, anxiety, and language delay).

²⁷¹ See, e.g., Nelkin, *supra* note 156, at 2121 (“[C]ourts in the 1980s frequently allowed brain images from Positron Emission Tomography (‘PET’) scans to enter into sentencing decisions.”); Baum, *supra* note 153, at 287 (genetic variant was tested and shown to exist at the time of sentencing).

²⁷² St-Pierre et al., *supra* note 244, at 70 (emphasis added); see also Talge et al., *supra* note 243, at 251 (longitudinal study of women who were pregnant during a devastating flood or the German invasion of the Netherlands had children with a higher risk of developing schizophrenia).

²⁷³ See *Atkins v. Virginia*, 536 U.S. 304, 308–09 (2002) (forensic psychologist testified at sentencing about defendant’s mild mental retardation and low IQ).

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collected by the probation officer in creating the presentence report.²⁷⁴ Because a judge must accept the undisputed parts of the report as findings of fact and it is generally scientifically accepted that ACEs have a significant impact on adult criminal behavior, it is relatively easy to present ACEs for consideration at sentencing. Conversely, neuroimaging, genetic evidence, and expert testimony can cost upwards of \$50,000.²⁷⁵ When neither a defendant nor the government can afford to foot such a bill to definitively show the current neurological or genetic state of a defendant, ACEs are a useful alternative. This argument theoretically applies to fetal trauma, but it is much more difficult to collect reliable information about instances of fetal trauma than ACEs. Interviews conducted by the probation officer and records obtained from schools, doctors, and hospitals lend themselves to the discovery of a defendant's experience with ACEs. A defendant cannot even speak to their own experience of fetal trauma. Furthermore, because the research has not yet demonstrated a strong enough connection between fetal trauma and criminal behavior, it would not be as reliable to use fetal trauma without present evaluation.

Lastly, critics may argue that fetal trauma should be taken into account for a defendant who: (1) only experienced such extreme fetal trauma that it altered him substantially and permanently; (2) never suffered ACEs during his upbringing; and (3) the lasting effects are not observable, non-diagnosable, or would be too expensive for a defendant to present at sentencing. Even this improbable scenario fails, however, because judges should avoid getting sucked into a black hole of genetic heritability.

D. Genetic Heritability

Epigenetics is an ever-expanding field of study. While this Comment focused on epigenetic alterations that can occur in one's lifetime, there is a growing body of research studying epigenetic alterations that occur in parents before they even conceive and how they could get passed down to their children and beyond.²⁷⁶ This intergenerational transmission may allow a parent's ACEs to one day impact their child's fetal development.²⁷⁷ Judges would get tangled up in a defendant's heritage of suffering. Where would judges draw the

²⁷⁴ USSG, *supra* note 2, § 6A1.1(a); FED. R. CRIM. P. 32(d)(2)(A)–(B).

²⁷⁵ Walker, *supra* note 123, at 1804–05.

²⁷⁶ Kate Keenan et al., *Extending the Developmental Origins of Disease Model: Impact of Preconception Stress Exposure on Offspring Neurodevelopment*, 60 DEV. PSYCHOBIOLOGY 753, 753 (2018).

²⁷⁷ Conrad et al., *supra* note 221, at 808.

line? Would they consider a parent's experiences during the Jim Crow era, a grandparent's experiences during the Holocaust, a great-grandparent's experiences during World War I?

Venturing down this path would also implicate questions of free will and determinism. If we can trace the cause of our actions to suffering that occurred before we were even a thought, what does that do to our understanding of culpability? In the grand scheme of life, stressors and environmental factors can only change so much—there is a codependent factor, which is a person's innate personal characteristics that can moderate or exacerbate the effect of environmental insults.²⁷⁸ At the same time, it is important for the maturation of our society that we recognize that not all defendants are the same. A balance needs to be struck, and considering fetal trauma at sentencing goes far afield and upsets that balance.

VI. CONCLUSION

Case law, standards, public morals and values, and even the Guidelines all suggest that a sentencing judge could consider evidence of a defendant's traumatic experience during gestation. But judges should not. There are not enough longitudinal, observational studies on people who experienced fetal trauma and their disposition to violent or criminal behavior. Yet even in a world brimming with such research, there is so much opportunity for trauma to a fetus—from substance abuse to socioeconomic stressors to physical trauma—that a judge would be hard-pressed to draw the line between what degree of fetal trauma should be considered and what should not. Furthermore, research indicates that since these changes are epigenetic, positive experiences during childhood might repair any prenatal changes from trauma—and those that are irreparable manifest as observable or diagnosable issues in adults and are discernible at sentencing. Courts should avoid the world of genetic heritability, stop at considering ACEs, and look no further into a defendant's past.

²⁷⁸ *Id.*