

A Genetic Defense for Murder?

by

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Martin Miller and Sue Norton had been living together for four years, ever since their senior year of college. Three months ago their first child was born, a son whom they named Morgan. Ever since the birth of their son, Sue just hadn't been herself. Martin suspected it was probably post-partum depression.

One evening, out of concern for Sue, Martin asked if he could do anything for her. Sue blurted out that she wanted to get legally married for the sake of their child. Martin was taken aback, as Sue had never mentioned this before. He asked her what difference this would really make; it was their relationship that mattered, not a piece of paper. Their conversation escalated into an argument. Finally Sue gave Martin an ultimatum: either they would legally marry within a month or she would permanently leave and take their son Morgan. She threatened Martin that he would never see his son again.

Martin was enraged. Glancing down, he saw scissors that had been left on a table, grabbed them, and stabbed Sue repeatedly. Sue screamed, and then collapsed.

Neighbors in the apartment building heard Sue's screams and called the police. When the police arrived they broke down the door of Martin and Sue's apartment. They found Sue dead. She had some twenty stab wounds and had bled profusely. Martin was sitting on the living room sofa, sobbing uncontrollably. He admitted to the police what he had done. He said that he just "lost it" when Sue threatened to take away the son he loved so much.

The state's prosecuting attorney believed he had an airtight case for a murder conviction and planned to ask for the maximum penalty allowed by the laws of the state for the heinous crime committed by Martin.

Martin's defense attorney had recently attended a conference for lawyers on genetics, neuroscience, and criminal behavior. She decided to have a blood sample taken from Martin and sent to a genetics lab for analysis. The results showed that Martin had a low activity variant of the MAOA gene (MAOA-L). There is evidence that MAOA-L, when combined with a history of abuse as a child, gives males a high risk of engaging in impulsive aggressive and violent behavior (McSwiggan *et al.*, 2017; Baum, 2011). Martin's parents had divorced when he was only three years old; he had been abandoned by his father and raised by his mother. After the divorce, Martin's mother became a drug addict, and physically abused and neglected him.

There is no question that Martin committed the act; he admitted to stabbing Sue. What is in question is the degree to which his is responsible and culpable for that act.

In virtue of having the MAOA-L gene variant together with a history of being abused as a child, should the punishment for Martin be reduced?



General Instructions

Students will divide into three groups for the purpose of conducting a mock trial: prosecution, defense, and jury. The instructor will serve as judge, mediating any questions, objections, or other issues that may come up in the course of the trial. There is a set of required readings for *all* students to read and a set of additional readings specific to each group that will help to prepare you for the role you are assigned to play (see the instructions for your group).

A criminal trial has two phases: the guilt phase in which it is determined if the accused committed the criminal act as charged (a verdict of “guilty” or “not guilty” is rendered); and the sentencing phase in which the punishment is determined. Remember that the main point of this exercise is to see if the facts about MAOA, coupled with a concept of free will and responsibility for action, provide moral and legal justification for a reduction in punishment.

Trial Procedure

- The course instructor serves as the judge presiding over the trial.
- The trial begins with opening statements first by the prosecution and then by the defense.
- The prosecution calls witnesses to the stand to establish their case. The defense may cross-examine the witnesses.
- Once the prosecution has rested the defense calls their witnesses, and the prosecution may cross-examine them.
- The prosecution and the defense may recall particular witnesses for further questioning.
- Once the defense rests, there is a brief recess to allow the prosecuting attorneys and the defense attorneys to compose their closing arguments.
- The prosecuting attorneys deliver their closing arguments to the jury, followed by the closing arguments of the defense attorneys.
- The jury retires to decide on the verdict and to recommend punishment.
- The jury returns and announces their verdict and recommended sentence.
- For the purposes of this exercise, the members of the jury will present a rationale for the verdict and the sentence personally favored.

Required Readings

Caspi, A., J. McClay, T.E. Moffitt, J. Mill, J. Martin, I.W. Craig, A. Taylor, and R. Poulton. 2002. Role of genotype in the cycle of violence in maltreated children. *Science* 297(5582): 851–54.

Baum, M.L. 2011. The monoamine oxidase A (MAOA) genetic predisposition to impulsive violence: is it relevant to criminal trials? *Neuroethics*. doi:10.1007/s12152-011-9108-6. <<http://www.pc.rhul.ac.uk/sites/rheg/wp-content/uploads/2011/12/genetic-italy-case.pdf>>.

McSwiggan, S., B. Elger, and P.S. Appelbaum. 2017. The forensic use of behavioral genetics in criminal proceedings: case of the MAOA-L genotype. *International Journal of Law and Psychiatry* 50: 17–23.

Instructions for the Prosecution

Some students in this group will serve on the team of attorneys while others will be witnesses friendly to the prosecution.

Team of Prosecuting Attorneys

Procedure

- In advance of the trial, the prosecuting attorneys must prepare an opening statement in which they outline the argumentation they will present to demonstrate the guilt of the defendant, including what they plan to show about the limitations of MAOA evidence and about genes, free will, and moral responsibility. They will also propose a specific punishment for the defendant.
- They must confer with the witnesses for the prosecution to decide on the questions they will pose to each witness while on the stand. Remember that all the facts about the crime and crime scene must be presented through the testimony of witnesses; in real life, jurors would not have direct access to the information already given in this case study. The prosecution must pose questions to the law professor witness (see below) to elicit his/her reservations about a “genetic defense” for criminal activity.
- The prosecuting attorneys must prepare a closing statement which not only reiterates their initial argumentation but responds to points made by the defense.

Content

- The prosecuting attorneys should look for any limitations inherent in the MAOA evidence presented by the defense.
- In court, appeal is made to legal precedent, that is, to judgments that have already been made in similar cases. The prosecuting attorneys should look for cases in which, in spite of a “genetic defense,” the defendant was convicted and a severe punishment imposed (see Baum, 2011; McSwiggan *et al.*, 2017). These precedents should be mentioned in the closing argument to the jury.
- In arguing for severe, unmitigated punishment, the prosecuting attorneys should keep in mind “aggravating factors” such as the crime being committed in a heinous, cruel or atrocious manner and the future dangerousness of the offender (see Capital Punishment in Context, *n.d.*; McSwiggan *et al.*, 2017; Morse, 2011).

Witnesses (in Order of Appearance)

Police Officer

This witness must establish from the crime scene that Martin indeed committed the crime; keep in mind that, while this is not in question, it still needs to be established for the jury. This witness can describe the horror of the scene and bear witness that Martin confessed to the crime. This witness can speak to Martin’s mental state (in his/her opinion, although not as an expert) but must be careful not to stray from facts outlined in the case and instructions to other witnesses.

This witness will also be cross-examined by the defense about an interview with a neighbor and friend of Sue undertaken as part of the investigation. In this interview it was learned that, while Martin is a loving father, he has been known to lose his temper although never to the degree that happened on the occasion of the murder. Further, Sue’s neighbor and friend indicated that Sue had mentioned in conversation that she wanted to be married for the sake of the baby but that she had not yet spoken to Martin about this.

Professor of Genetics

The role of this expert witness is to describe the limitations of MAOA evidence in general (see Rutherford, 2017). This witness might be recalled by the prosecution after the MAOA evidence has been presented by the defense to see if any weaknesses can be spotted in the defense’s argumentation in terms of assessing the effects of MAOA on a person’s behavior.

Law Professor

This expert witness has published articles critically assessing use of a “genetic defense” in court and is familiar with philosophical discussions of free will and responsibility for action (see Morse, 2011). This testimony is critical in making the case for the prosecution. This witness can argue in general against genes taking away a person’s free will and responsibility for action (see Morse, 2011; Collins, 2010). This witness might be recalled by the prosecution after the MAOA evidence has been presented by the defense to see if any weaknesses can be spotted in the defense’s argumentation in terms of assessing the impact of MAOA on a person’s free will.

Resources

Capital Punishment in Context. *n.d.* Overview of the capital trial process. [Webpage].

<<https://capitalpunishmentincontext.org/resources/trialprocess>>.

Collins, F. 2010. Did my genes make me do it? [Video] Running time: 2:42 min. Produced by The Faraday Institute.

<<https://youtu.be/hfkf716Ufbo>> Accessed April 2017.

Morse, S. 2011. Gene-environment interactions, criminal responsibility, and sentencing. Retrieved from

<http://repository.upenn.edu/neuroethics_pubs/77>. Pages 221–31 only.

Rutherford, A. 2017. *A Brief History of Everyone Who Ever Lived The Human Story Retold Through Our Genes*. New

York: The Experiment. Pages 311–19 only.



Instructions for the Defense

In this group some students will serve as the team of attorneys while others will be witnesses friendly to the defense.

Team of Defense Attorneys

Since there is no doubt that Martin murdered Sue, the job of the defense attorneys is to argue for reduction of punishment.

Procedure

- In advance of the trial, the defense attorneys must prepare an opening statement in which they outline the argumentation they will present on behalf of the defendant, including what they plan to show about a connection between MAOA and violent behavior, and concomitantly, about a condition of diminished free will and moral responsibility on the part of the defendant.
- They must confer with the witnesses for the defense to decide on the questions they will pose to each witness while on the stand.
- They must prepare a closing statement which not only reiterates their initial argumentation but responds to points made by the prosecution.

Content

- While the defense attorneys will emphasize the strengths of the MAOA evidence, they should also be aware of any limitations in order to anticipate what the prosecution might say and be prepared to respond to them.
- In court, appeal is made to legal precedent, that is, to judgments that have already been made in similar cases. The defense attorneys should look for cases in which a “genetic defense” has succeeded in reducing the punishment of a defendant who has been found guilty (see Baum, 2011; McSwiggan, *et al.*, 2017). These should be mentioned in their closing argument to the jury.
- In arguing for a reduction of punishment, the defense attorneys should keep in mind “mitigating factors” such as lack of premeditation, childhood abuse, what caused the behavior, or rationality or control deficits (see Baum, 2011; McSwiggan *et al.*, 2017; Morse, 2011).

Cross-Examination of the Police Officer

As part of the investigation the police officer interviewed the neighbor and friend of Sue, and the defense will examine this witness to bring out what was learned in the interview. Specifically, the interview revealed that, while Martin is a loving father, he has been known to lose his temper although never to the degree that happened on the occasion of the murder. Further, the neighbor and friend of Sue indicated that Sue had mentioned in conversation that she wanted to be married for the sake of the baby but that she had not yet spoken to Martin about this; thus there is evidence that Martin did not know ahead of time of Sue’s plan to leave him if he did not agree to get married. The defense should use the information gained from the interview to subsequently argue that Martin fits the profile set out by the behavioral geneticist.

Witnesses (in Order of Appearance)

Behavioral Geneticist

This expert witness discusses the factual evidence that the low activity MAOA gene variant combined with childhood abuse leads to violent behavior (see Cases, 1995; Caspi *et al.*, 2002; Baum, 2011) as well as the types of situational “triggers” for violent behavior to which individuals with the low activity MAOA variant are susceptible (see Gallardo-Pujo *et al.*, 2013; Eisenberger, 2007). The witness should realize that, while serving as a witness for the defense, any questions about any limitations in MAOA research posed in cross-examination by the prosecution must be answered honestly.

Martin Miller

The defense team must pose questions to this witness eliciting facts which show that Martin fits the profile set out by the behavioral geneticist. Specifically, while fully admitting that he committed the crime, Martin needs to establish that the murder was not premeditated and that he “lost control” of his actions. He also needs to attest to the abuse he suffered as a child. Further, Martin should report that, while he has lost his temper before, there is nothing in his past as violent as this incident, but then again nothing has ever happened as great as the shock and sense of loss caused by what Sue suddenly revealed to him.

Bioethicist (Ph.D. in Philosophy)

The task of this expert witness is to draw out the implications of the testimony presented by Martin and the behavioral geneticist in terms of free will and responsibility for action. This witness must present an account of free will and what diminishes it, in turn leading to reduced responsibility and culpability for action (see Coffey, 1993). This witness must apply this account to the case of Martin. Arguing diminished free will and responsibility for action on the part of Martin provides support for a lesser punishment.

Resources

- Morse, S. 2011. Gene-environment interactions, criminal responsibility, and sentencing. Retrieved from <http://repository.upenn.edu/neuroethics_pubs/77>.
- Cases, O., I. Seif, J. Grimsby, P. Gaspar, K. Chen, S. Pournin, U. Muller, M. Aguet, C. Babinet, J.C. Shih, and E. De Maeyer. 1995. Aggressive behavior and altered amounts of brain serotonin and norepinephrine in mice lacking MAOA. *Science* 268(5218): 1763–66.
- Coffey, M.P. 1993. The genetic defense: excuse or explanation? *William and Mary Law Review* 35(1): 353–99. <<http://scholarship.law.wm.edu/wmlr/vol35/iss1/13>>. Pages 356–60 and 393–98 only.
- Eisenberger, N.I., B.M. Way, S.E. Taylor, W.T. Welch, and M.D. Liberman. 2007. Understanding genetic risk for aggression: clues from the brain’s response to social exclusion. *Biological Psychiatry* 61(9): 1100–8.
- Gallardo-Pujo, D., A. Andres-Pueyo, and A. Maydeu-Olivares. 2013. MAOA genotype, social exclusion and aggression: an experimental test of a gene-environment interaction. *Genes, Brain and Behavior* 12(1): 14–45.



Instructions for the Jury

The jury is to formally render a verdict of guilty/not guilty and to recommend sentencing. Remember that there is no doubt that Martin committed the murder; the real issue is whether MAOA mitigates the crime to justify a reduction of punishment.

In advance of the trial, the members of the jury should determine exactly what they will look for in listening to and assessing the argumentation presented by the prosecution, the argumentation presented by the defense, and the testimony of witnesses.

For the purposes of this exercise, the jury will explain the rationale for their verdict and recommended sentence. If a minority opinion exists they can also state what it is, again giving a rationale for their judgment. Keep in mind that the judgment of the jury (and their rationale) need to be based solely on evidence presented in the trial.

Jurors should also mention which testimony was most effective in bringing them to their judgment.



Instructions for Reviewers

The task of the reviewers is to critically assess how the trial was conducted, that is, to critically assess how well students performed their various roles.

In advance of the trial, the reviewers should determine exactly what they will look for in listening to and assessing the argumentation presented by the prosecution, the argumentation presented by the defense, the testimony of witnesses, and the rationale presented by the members of the jury for their verdict and recommended punishment. Specifically, reviewers should consider the following questions:

- What are the strongest pieces of evidence/reasons presented to support a verdict of guilty of murder?
- What are the strongest pieces of evidence/reasons presented to support a verdict of guilty with mitigation of punishment?
- Did the prosecuting team commit any errors?
- Did the defense team commit any errors?
- Did the jury commit any errors?
- What verdict would you personally reach, and why?
- What punishment would you personally recommend, and why?

In order to identify errors, the reviewers need to make sure that they have looked at class notes and readings.

Reviewers may also indicate which students did a particularly good job in their roles.

