

protective custody or not. There are additional options to protect an inmate, such as separating inmates or increasing supervision. If a prison official's response is objectively reasonable, the official is not liable under 42 U.S.C. § 1983 for violation of the Eighth Amendment, even if the harm is not ultimately avoided.

Admissibility of Expert Testimony regarding Genetic Predisposition to Violence

Nina E. Ross, MD

Fellow in Forensic Psychiatry

Susan Hatters Friedman, MD

The Phillip Resnick Professor of Forensic Psychiatry

*University Hospitals Cleveland Medical Center
Case Western Reserve University School of Medicine
Cleveland, Ohio*

Expert Testimony about Genetic Predisposition to Violence Did Not Meet Daubert Criteria for Admissibility

DOI:10.29158/JAAPL.210127LI-21

Key words: violence; *Daubert*; genetics; expert testimony; "warrior gene"

In *State v. Yopez*, 483 P.3d 576 (N.M. 2021), the New Mexico Supreme Court evaluated the admissibility of expert testimony regarding defendant Anthony Yopez's genetic predisposition to violence. Mr. Yopez sought to present this testimony to make the argument that he had a genetic predisposition to impulsive violence which made him unable to form the specific intent needed to commit the offense of murder.

Facts of the Case

Mr. Yopez lived with his girlfriend Jeannie Sandoval and her adoptive mother's boyfriend, George Ortiz. On October 29, 2012, Mr. Yopez killed Mr. Ortiz during an argument. Mr. Yopez and Ms. Sandoval subsequently set Mr. Ortiz's body on fire. Mr. Yopez was charged with first-degree murder, conspiracy to commit first-degree murder, tampering with evidence, and unlawful taking of a motor vehicle.

Prior to the trial, Mr. Yopez filed a motion *in limine* to admit expert testimony about his predisposition to violence, on the basis of his having a genotype that results in low monoamine oxidase A (MAOA) activity and his childhood abuse. This expert testimony was based on research that evaluated the relationship between childhood abuse, MAOA activity, and antisocial and violent behavior. In one prominent study, Brunner *et al.* had identified an association between MAOA complete deficiency and impulsive aggression among males in a family (Brunner HG, Nelen M, Breakenfield XO, *et al.* Abnormal behavior associated with a point mutation in the structural gene for monoamine oxidase A. *Science*. 1993 October; 262[5133]:578–580). Another study by Caspi *et al.* was noted to find that male victims of childhood maltreatment who had a genotype with low MAOA levels had a predisposition toward adult antisocial behavior (Caspi A, McClay J, Moffitt TE, *et al.* Role of genotype in the cycle of violence in maltreated children. *Science*. 2002 September; 297[5582]: 851–854). Mr. Yopez had a low-activity MAOA genotype and a history of childhood maltreatment; therefore, experts posited that he had a predisposition toward impulsive violence.

The state filed a motion *in limine* to exclude this testimony, on the basis that this testimony did not meet *Daubert* criteria, with data lacking both reliability and relevance to the case at hand, because of the poorly understood science and not clearly established relationship. The state further argued that his self-reported abuse history was not corroborated, and the expert testimony may mislead and confuse the jury. After a *Daubert/Alberico* hearing at which he was not successful, Mr. Yopez moved for reconsideration.

The district court ultimately determined that this expert testimony was inadmissible, by standards established in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993). Although the district court found the research on childhood maltreatment, low MAOA activity, and a predisposition to violence to be reasonably reliable, the court did not admit the testimony because the experts did not clearly explain how the science led to their conclusions that Mr. Yopez had a predisposition to impulsive violence. Though the court found that the broad findings of the studies met *Daubert* criteria, the expert testimony did not and misstated the results. Mr. Yopez was ultimately found guilty of second-degree murder, tampering with

evidence, and unlawful taking of a motor vehicle. He was sentenced to 22.5 years in prison.

Mr. Yepez appealed his conviction, arguing that the district court abused discretion by improperly excluding the expert testimony. The Court of Appeals found the district court's exclusion of the testimony to be in error, because the jury should have been permitted to evaluate the merit of the experts' opinions. The Court of Appeals further ruled that this error was harmless because it only served to prove that Mr. Yepez was prone to impulsive, rather than deliberate, violence, and Mr. Yepez was convicted of general intent crimes that did not require proof of deliberation. Mr. Yepez appealed this holding, on the basis that this error was prejudicial and harmful, because it also affected jury deliberation between second-degree murder and lesser offenses such as manslaughter. The state also appealed this holding and sought to vacate the Court of Appeals' opinion regarding the admissibility of the expert evidence. The Supreme Court of New Mexico granted *certiorari* to review whether or not the district court's exclusion of this expert evidence was an abuse of discretion.

Ruling and Reasoning

The Supreme Court of New Mexico ultimately determined the testimony to be inadmissible, based on its lack of reliability. The Court of Appeals' judgment was reversed and Mr. Yepez's conviction was affirmed.

This lack of reliability was based on several factors, including the complex, multifactorial relationship between genetic and environmental factors and acts of violence. The court noted that research has not clearly established MAOA and childhood abuse as definitively involved in antisocial behavior or in impulse control and, in fact, there are many biological and other etiologies that influence impulsivity and antisocial behavior. The court also noted that the experts failed to clearly explain the methodology behind their conclusions that a low-activity MAOA genotype leads to a higher risk of impulsive violence.

The court also noted that the content of the expert testimony did not fit appropriately with the facts of the case. For example, the Brunner study identified a relationship between complete MAOA deficiency and aggression in males, not low MAOA activity as was the case with Mr. Yepez. Expert testimony did not establish a causal link between Mr. Yepez's genotype and his actions on the night of the offense. One

expert testified that he could not establish a "clear connection" between Mr. Yepez's genetic predisposition and his actions on the night of the offense because genetics do not "directly" cause individuals' actions (Yepez, p 587).

The court acknowledged the complex relationship between genetics, environment, and behavior. The court also noted the distinction between a person having a predisposition to develop a behavior and a person actually developing this behavior. In the Caspi study, the authors noted that childhood maltreatment alone increases an individual's risk of adult criminal behavior. The court examined psychological research that noted that genetic assessments are not used as predictive measures of violent behaviors because of a lack of a clear relationship between a genetic finding and violent behaviors. One expert testified that low MAOA activity, combined with childhood maltreatment, increased an individual's risk of violence to 85 percent, but the court noted that his source for this information was unclear.

Discussion

This case highlights the complex relationship between genetics, environment, and behavior. Genetics may play a role in an individual's behavior, but the idea of a "warrior gene" that predisposes an individual to violence has been firmly rejected by the scientific community (Farahany, NA, Robinson GE. The rise and fall of the "warrior gene" defense. *Science*. 2021 March; 371[6536]:1320). The court incorrectly referred to the Brunner study as generally accepted in the scientific field (Farahany 2021). Although the court ultimately did not find that the expert testimony met *Daubert* criteria, the notion that the scientific community generally accepts the idea of this "warrior gene" is problematic and misleading (Farahany 2021).

Furthermore, simply possessing a genetic variant found to be associated with violence does not mean that person will go on to be violent in a specific situation. Mr. Yepez's own expert testified that although Mr. Yepez possessed a genetic variant associated with violence, "we don't know in any given individual exactly how factors interact to produce a certain set of behavior" (Yepez, p 588). Many other variables affect whether a person with a genetic predisposition toward a behavior will go on to exhibit that behavior.

Moreover, this case highlights the importance of accurate interpretation of scientific research, without

overextrapolation of the research findings. In this case, expert witnesses presented conclusions based on research that observed an association between an MAOA variant and antisocial, violent behaviors. The Brunner study, however, observed an association between aggression and a lack of MAOA activity, not low MAOA activity, as was the case with Mr. Yopez (Brunner 1993). Another study observed a relationship between low MAOA activity and antisocial behavior, not impulsive aggression (Caspi 2002). Furthermore, the court noted that the studies the experts cited, as well as other studies in the field, acknowledged the many variables that affect any individual's impulsive behavior and a lack of a clear link between MAOA activity and impulsive violence.

The etiology of violent behavior is complex. Any individual's likelihood of engaging in violence is affected by countless variables. There is a wide gap between possessing a genetic variant and actually exhibiting violence, a gap that contains many biological and environmental factors and their complex interactions.

Fitness for Duty Evaluations Predicated on Psychological Data

Ashley H. VanDercar, MD, JD
Fellow in Forensic Psychiatry

Neil B. Bruce, MD
Assistant Professor in Psychiatry

*University Hospitals Cleveland Medical Center
 Case Western Reserve University
 Cleveland, Ohio*

The Federal Circuit Recognized an Employee's Due Process Right to Review and Challenge Psychological Assessments Underlying an Adverse Fitness for Duty Evaluation

DOI:10.29158/JAAPL.210127L2-21

Key words: due process; fitness for duty; psychological testing; MMPI; invalid profile

In *Ramirez v. Dep't of Homeland Sec.*, 975 F.3d 1342 (Fed. Cir. 2020), Roberto Ramirez challenged

his removal as a Customs and Border Protection Officer at the Department of Homeland Security (the Agency), which had been based on three fitness for duty evaluations performed by psychiatrists. All of the reports relied on an invalid profile and defensiveness on three separate administrations of the Minnesota Multiphasic Personality Inventory (MMPI). Holding that Mr. Ramirez has a right to meaningfully review the psychiatrists' results, the Federal Circuit reversed and remanded.

Facts of the Case

Mr. Ramirez was a Customs and Border Protection Officer with the Department of Homeland Security. As part of his job description, he was required to be medically qualified to carry a service firearm. One night, he and his wife had an argument. His wife called the police and claimed that Mr. Ramirez had pointed his service firearm at her head and cocked it. Mr. Ramirez denied these allegations. The police found the allegations to be unfounded, and Mr. Ramirez was not charged with a crime.

After the above incident, the Department of Homeland Security took away Mr. Ramirez's service weapon. They required that he partake in a fitness for duty evaluation. The first psychiatrist to perform a fitness for duty evaluation stated that he did not have any evidence that Mr. Ramirez was "unable to safely, efficiently, and reliably perform all of the duties. . ." (*Ramirez*, p 1344, citing the administrative record). That psychiatrist described the limits of his opinion, referencing an inability to state whether Mr. Ramirez could safely carry a gun given evidence that Mr. Ramirez was "not 'totally forthcoming'" (*Ramirez*, p 1344). The evidence cited for this was Mr. Ramirez's performance on the MMPI. The MMPI was interpreted, by a clinical psychologist, as "invalid" due to "extreme defensiveness" (*Ramirez*, p 1345).

The Agency had Mr. Ramirez participate in a second fitness for duty evaluation. The second psychiatrist stated that he was unable to come to a conclusion as to whether Mr. Ramirez had a mental illness or personality disorder "because of [Mr. Ramirez's] defensiveness" (*Ramirez*, p 1345). He stated that he was unable to assess Mr. Ramirez's ability to safely carry a firearm but recommended that "Mr. Ramirez be 'restricted from any weapons carrying position' based on his 'lack of full