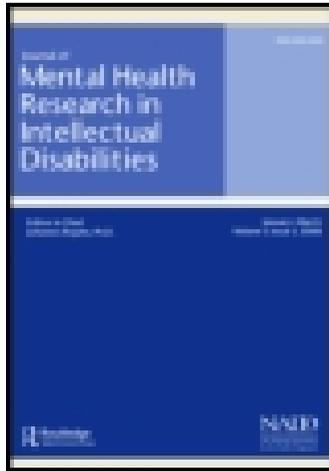


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Colleen M. Berryessa^{ab}, Lauren C. Milner^a, Nanibaa' A. Garrison^{cd} & Mildred K. Cho^{ae}

^a Stanford Center for Biomedical Ethics, Stanford University

^b Department of Criminology, University of Pennsylvania

^c Center for Biomedical Ethics and Society, Vanderbilt University

^d Department of Pediatrics, Vanderbilt University Medical Center

^e Department of Pediatrics, Stanford School of Medicine

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Impact of Psychiatric Information on Potential Jurors in Evaluating High-Functioning Autism Spectrum Disorder (hfASD)

COLLEEN M. BERRYESSA 

*Stanford Center for Biomedical Ethics
Stanford University, and
Department of Criminology
University of Pennsylvania*

LAUREN C. MILNER

*Stanford Center for Biomedical Ethics
Stanford University*

NANIBAA' A. GARRISON

*Center for Biomedical Ethics and Society
Vanderbilt University, and
Department of Pediatrics
Vanderbilt University Medical Center*

MILDRED K. CHO

*Stanford Center for Biomedical Ethics
Stanford University, and
Department of Pediatrics
Stanford School of Medicine*

During a trial involving an offender with a mental disorder, jurors are often required to evaluate information on the disorder and its characteristics. This evaluation relies on how jurors understand and synthesize psychiatric and other evidence on the disorder and this information's impact on the case, an offender's culpability, and the rendered verdict. The importance of this evaluation is further highlighted when jurors are faced with evaluating a disorder that may be associated with criminal actions

Address correspondence to Colleen M. Berryessa, Department of Criminology, University of Pennsylvania, 483 McNeil Building, 3718 Locust Walk, Philadelphia, PA 19104. E-mail: berrco@sas.upenn.edu

of diagnosed offenders, such as high-functioning autism spectrum disorder (hfASD). We designed a three-part survey to assess potential jurors' attitudes concerning an offender's diagnosis with hfASD in terms of perceptions and decisions surrounding legal and moral responsibility, personal characteristics of the offender, the introduction of psychiatric and genetic information, and the condition's influence on the facts of the case. A sample of 623 jury-eligible U.S. adults completed the survey. We found the majority of participants were influenced by the information provided on hfASD. Most respondents indicated that hfASD diagnosis should generally not affect the legal responsibility of an offender, but many reported the disorder as a mitigating factor when evaluating moral responsibility and legal consequences for criminal actions. Respondents reported favorable and sympathetic perceptions of individuals with autism and associated characteristics but were unsure, even after the presentation of psychiatric information on hfASD, if these disorders should be classified as "mental illness." Further, the majority reported their views were in some way influenced by the fact that hfASD has potential genetic origins.

KEYWORDS high-functioning autism spectrum disorder (hfASD), jury, decision making, psychiatric evidence, responsibility

INTRODUCTION

In the United States criminal justice system, jurors are tasked to make fair judgments based on their evaluation, interpretation and synthesis of evidence and information presented to them in the courtroom. In some cases, this evidence relates to the mental health of the offender, which can include psychiatric, genetic, and other scientific information on an offender's diagnosis with a mental disorder and how it is relevant or important to the facts and case at hand. If the offender's mental health is called into question during the course of a prosecution, the court must evaluate how the disorder may have potentially impacted an offender's culpability. This evaluation relies on how jurors understand medical and scientific information on the offender's mental health, leading to influenced attitudes and perceptions regarding the offender, his responsibility, and ultimately, the rendered verdict and sentencing.

Jurors' attitudes, both positive and negative, have been shown to have strong effects on their decision making and corresponding judgments (Louden & Skeem 2007), especially for perceptions of a defendant's unusual personal characteristics or behavior (Visher, 1987). Information on a defendant's mental abnormalities significantly impacts jurors' impressions of the

personal characteristics of the defendant (Montgomery, Ciccone, Garvey, & Eisenberg, 2005). Further, research has shown that a defendant's mental health state is one of the most powerful types of mitigating factors for juries when making their judgments, often reducing a defendant's moral culpability (Garvey, 1998). Jurors are especially affected by factors that they identify as "uncontrollable," such as intellectual disability, age when an offense occurred, and diagnosis with a mental disorder (Barnett, Brodsky, & Price, 2007; Garvey, 1998).

Further, we know relatively little about whether jurors' decision making is influenced by scientific data on the genetics of behavior. The perception that a mental disorder has a genetic basis could potentially be considered an "uncontrollable" mitigating factor for juries, as one study recently showed it was for judges (Aspinwall, Brown, & Tabery, 2012). However, one recent preliminary study found that behavioral genetic evidence had no significant effect on potential jurors' decisions concerning an offender's culpability or the severity of punishment administered (Appelbaum & Scurich, 2014). Jurors have shown relatively good command of biological facts related to genetic evidence in mock trials (Kaye, Hans, Dann, Farley, & Albertson, 2007), yet there is still concern about how juries utilize them, especially as they relate to behavior, and how jurors might place too much weight on genetic contributions to behavior when assessing criminal actions and in decision making (Dreyfuss & Nelkin, 1992; Jacobs, 1992–1993). Even jurors themselves say that scientific, statistical, and technical information are difficult to properly assess (Cecil, Hans, & Wiggins, 1991).

The literature therefore supports that juror perceptions of evidence regarding an offender's mental health and genetics may affect how juries make decisions and ultimately how justice is administered. Thus, the purpose of this study is to consider the perceptions and decisions of jury-eligible persons involving an offender's diagnosis with a specific mental disorder, high-functioning autism spectrum disorder (hfASD), and in what ways and to what magnitude these potential jurors' attitudes are affected by psychiatric information on the disorder, as well as if respondents report being influenced by the potential genetic origins of the disorder.

According to the 5th edition of APA's *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5), autism spectrum disorder (ASD) is a complex developmental disorder, diagnosed on a continuum, defined by deficits in two main areas, varying across individuals, symptoms, and levels of severity: (1) "persistent deficits in social communication and social interaction;" and (2) "restricted, repetitive patterns of behavior, interests, or activities" (American Psychiatric Association, 2013). According to the DSM-5, "symptoms must be present in the early developmental period (but may not become fully manifest until social demands exceed limited capacities, or may be masked by learned strategies in later life), symptoms cause clinically significant impairment in social, occupational, or other important areas

of current functioning, and these disturbances are not better explained by intellectual disability” (for more extensive diagnostic criteria, see American Psychiatric Association, 2013). An ASD diagnosis may or may not include accompanying intellectual or language impairments. Research suggests a genetic basis for autism, although the genetic basis is still not fully known (Abrahams & Geschwind, 2008; Freitag, 2007; Persico & Bourgeron, 2006).

High-functioning autism spectrum disorder (hfASD) has been historically applied to individuals diagnosed within the ASD umbrella who are defined as “higher functioning” (IQ >70), who have no intellectual or language disabilities, and exhibit “normal functioning” cognitive abilities (Carpenter, Soorya, & Halpern, 2009). Characteristics include normal intelligence, social awkwardness and naivety, nonverbal communication problems, problems with empathy and inappropriate emotional aspects of social interaction, extreme focus on routine and repetition, flat and rigid affect and body language, and difficulty with motor control and physical clumsiness (Carpenter et al., 2009). High-functioning autism spectrum disorder is not recognized as a separate diagnosis in the DSM-5, but the term has often been previously used in regards to individuals who would have been historically diagnosed with Asperger’s syndrome before its removal in DSM-5 (Sanders, 2009). This includes the offender and symptomatic attributes discussed in this data set. Individuals who would have been historically diagnosed with Asperger’s syndrome are now diagnosed on the autism continuum. It is noted that these terms are used in this research and paper as this study was conducted before the publication of the DSM-5.

Our decision to focus on potential jurors’ perceptions and decision making surrounding hfASD for this study is based on several factors. Over the last few decades, several areas of literature have reported a controversial connection between violent criminal offending and diagnosis with hfASD, especially Asperger’s syndrome (Baron-Cohen, 1988; Barry-Walsh & Mullen, 2004; Chesterman & Rutter, 1993; Everall & Lecouteur, 1990; Hare, Gould, Mills, & Wing, 1999; Mawson, Grounds, & Tantam, 1985; Murrie, Warren, Kristiansson, & Dietz, 2002; Scragg & Shah, 1994; Siponmaa, Kristiansson, Jonson, Nyden, & Gillberg, 2001; Tantam, 1991). This connection has been widely covered in the media and in academic literature. Yet there have also been several studies showing no relationship between criminality and hfASD, as well as disagreement on the validity of such evidence (Allen et al., 2008; Browning & Caulfield, 2011; Ghaziuddin, Tsai, & Ghaziuddin, 1991; Haskins & Silva, 2006; Mouridsen, Rich, Isager, & Nedergaard, 2008; Murphy, 2003; Myers, 2004; Wing, 1981; Wing, 1996).

Research suggests that individuals with autism who do criminally offend often act in relation to feelings and behaviors associated with the clinical features of the disorder, such as problems with impulse control, misunderstanding social cues, links to idiosyncratic fixations, such as fire, or acts out of sexual frustration (Wing, 1996; Murrie et al., 2002; Haskins & Silva,

2006; Browning & Caulfield, 2011). Although the literature indicates that the great majority of individuals with hfASD, including Asperger's syndrome, are law abiding and will never commit criminal acts (Allen et al., 2008; Berney, 2004; Browning & Caulfield, 2011; Ghaziuddin, 2002; Howlin, 2004), it has not dispelled the perception of the relationship between violence and the disorder.

This perception is perhaps fueled by coverage from the mainstream media. The media often misrepresent specific events, academic reporting, and experts on scientific and medical research, including autism (Sly & Brand, 2011). Reporting of this type has greatly influenced the societal supposition linking hfASD and criminal offending (Howlin, 2004). Recently, this has been seen in the media aftermath of specific acts of sensational violence committed by individuals diagnosed with or speculated to have Asperger's syndrome, such as the incidents at Virginia Tech in 2007, Aurora, Colorado in 2012, and Newtown, Connecticut in 2012 (Wachtel & Shorter, 2013). This type of coverage potentially reinforces the connection between these disorders and likelihood of violence or criminality.

There are certain elements of hfASD that make it interesting to study in the context of criminal justice. The "high-functioning" aspect indicates normal or higher intelligence and the presumed ability to understand right and wrong. However, hfASD offenders also might be defined as "mentally unwell" and stigmatized, as many individuals with autism in society are stigmatized (Shtayermman, 2009). The literature has expressed apprehension surrounding how juries handle cases involving offenders with lower functioning autism, primarily concerned that jurors may make decisions based on popular stigmatized beliefs and misconceptions surrounding autism (Frith, 1993; Mayes & Koegel, 2003; Mayes & Zirkel, 2000; Rapin, 1997; Sundby, 1997).

Additionally, there is growing evidence that there is some genetic basis for ASD. This has included research on susceptibility genes, copy number variation, and other molecular genetic studies on autism, Asperger's syndrome and related PDD-nos (pervasive developmental disorder, not otherwise specified) disorders (Abrahams & Geschwind, 2008; Freitag, 2007; Persico & Bourgeron, 2006). Research is ongoing as the role of genetic factors in the development of ASD is multifaceted and not yet fully understood or known (Abrahams & Geschwind, 2008). In recent decades, studies have raised questions and debate in the criminal justice and legal systems about the genetic and biological origins of, or predispositions to, specific actions and behaviors, as well as the free will and choice of individuals in regard to their behavior and actions (Farahany & Coleman, 2006). In fact, a recent study has shown that in a hypothetical case, judges considered psychiatric, neurobiological, and genetic information on the causes of an offender's mental disorder as mitigating factors in their decisions and significantly reduced an offender's sentence based on that information (Aspinwall et al., 2012).

It is reasonable to think, with the growing interest in genetics, origins of behavior, and their discussion and use in the courtroom, that these issues could permeate the trials of offenders with hfASD and corresponding legal decisions.

Despite the evidence that the large majority of individuals with hfASD are likely to never criminally offend, and those who do usually commit minor offenses (Allen et al., 2008; Berney, 2004; Browning & Caulfield, 2011; Ghaziuddin, 2002; Howlin, 2004), individuals with ASD are 7 times more likely to encounter the criminal justice system in some capacity, whether it is as an offender or victim, than those without the disorder (Debbaudt, 2004). Therefore potential jury members could very well encounter offenders with these disorders in the criminal justice system and would be required to understand the scientific, medical, or psychiatric evidence on the complexities of hfASD, its symptoms, and possible effects on criminal actions, as well as make legal decisions concerning these offenders.

This study was designed to survey the attitudes of potential jury members surrounding offenders with hfASD and how information on the characteristics and origins of hfASD affect juror perceptions and decision making. This includes how jurors perceive and make decisions surrounding an offender's behavior and criminal actions, legal responsibility and criminal intention, moral responsibility and ability to control behavior, personal characteristics such as dangerousness and mental ability, and the likely genetic origins of these disorders. There are no data on how offenders with hfASD are viewed, handled, and processed by juries within the legal systems, but there is some literature on models of jury decision making and behavior concerning the mildly to profoundly intellectually disabled that contributed to the design and aims of this research (Najdowski, Bottoms, & Vargas, 2009).

Previous mock-jury research in this area has reported jurors judge intellectually disabled offenders as less mentally competent, less able to form criminal intention and comprehend the criminal implications of behavior, and are less blameworthy and morally responsible for crimes committed (Bottoms, Nysse-Carris, Harris, & Tyda, 2003; Gibbons, Gibbons, & Kassin, 1981; Najdowski et al., 2009). These findings have been attributed to both the *patronization effect* and the *discounting principle*. Driven by views that intellectually disabled individuals are less mentally competent and less able to control their behavior, the *patronization effect* states that people tend to believe that the actions of intellectually disabled offenders are due to external, rather than internal, factors and, therefore, an offender is less blameworthy (Gibbons, Sawin, & Gibbons, 1979). Similarly, the *discounting principle* is when people discount or are less likely to attribute possible internal causes for behavior if a more plausible external cause, such as the presence and symptomatic presentation of a mental disorder, exists (Kelley, 1973). We expected that diagnosis with hfASD would affect the attitudes

and decision making of the potential jurors in our sample in similar ways compared to the findings concerning jurors' perceptions of the intellectually disabled, as well as previously described literature on juror's attitudes towards mental disorders and effects on judgments (Barnett et al., 2007; Garvey, 1998).

METHOD

Survey Design

This survey used a single group before-after study design. Single group before-after research design studies are conducted by measuring characteristics or attitudes of a population or a group of individuals before and after an experimental event, intervention, manipulation, or treatment has occurred (McDonald, 2010). The "before" condition serves as a baseline measure, and the "after" condition measures the effect of the manipulation. Thus, the intervention group, by means of the test in the "before" condition, is used as their own control group (Ellis, 1999; National Collaborating Centre for Methods and Tools, 2008). Research questions in this design focus on change within a person or an entire sample to gain understanding on the influence of the effect of an intervention on the selected sample (McDonald, 2010; Morris & DeShon, 2002) and helps to reduce errors associated with individual differences across sample groups (Ellis, 1999; McDonald, 2010). Single group before-after research designs are commonly used in published research from several disciplines, such as psychology, public health, and education (e.g., Compton, Esterberg, McGee, Kotwicki, & Oliva, 2006; Crosson, Deng, Brazeu, Boyd, & Soto-Greene, 2004; Dorsch, Aiyer, & Meyer, 2004; Halm, Atlas, Borowsky, Benzer, & Singer, 1999; Hannay, Usherwood, & Platts, 1992; Lasley, 1994; Lau, Tsui, & Chan, 2005; McCluskey & Lovarini, 2005; Murero, D'Ancona, & Karamanoukian, 2001; Rosenberg, 1958; Sargent, Shepard, & Glantz, 2004; Verplanken, 1989; Wertz, Sorenson, Liebling, Kessler, & Heeren, 1987; Whitaker et al., 2010; Wrosch & Heckhausen, 1999).

We report a three-part Web-based survey designed to evaluate the effects of a criminal offender's hfASD diagnosis and corresponding psychiatric information on the perceptions and decision making of jury-eligible individuals surrounding a fictional criminal case. All participants received all three parts of the survey. In the first part of the survey, participants were instructed to imagine that they have been asked to serve as a juror on a case presented to them. This included a fictional criminal case summary (based on a real case, see *R v. Kagan*, 2007) involving a defendant named MK who had been charged with assaulting his roommate. The case study was around 300 words in length and only contained the facts of the case, defendant's background, and trial behavior (Appendix A). Definitions were given for the terms "criminal intention," "legal responsibility," "moral responsibility," and "free will."

Part 1 contained no psychiatric evidence or testimony. Participants were then asked to rate their opinions on a scale of 1 to 5 (from “strongly agree” to “strongly disagree”) on a series of 12 questions. Participants were instructed not to go back to change these answers at any time.

In the second part of the survey, the participants were presented with additional information involving a 330-word summary of psychiatric testimony given during the trial, arguing the offender had been diagnosed with hfASD, typical of what would have been historically diagnosed as Asperger’s syndrome, and that the new evidence supports that his diagnosis affected his behavior and specific facts of the case (Appendix B). This evidence also included information about hfASD, diagnostic characteristics, and the evidence on genetic origin of the disorder. After reading the evidence, participants were asked to re-rate their opinions on the same scale of 1 to 5 (from “strongly agree” to “strongly disagree”) on the same series of 12 questions initially presented in Part 1, taking into account the new information provided in Part 2. The aim of this was to indicate how and if knowledge regarding the offender’s condition altered jurors’ survey responses and are referred to as the “before and after” responses in this data set.

Finally, in Part 3, participants were asked to answer a series of forced ranking and multiple choice questions on the offender, his condition, dangerousness, legal consequences, and legal and moral responsibility, based on all the information presented in Parts 1 and 2. Questions in Part 3 of the survey stood alone from the questions asked in Part 1 and 2. Participants were asked how and why their opinions changed due to the newly presented psychiatric information, the offender’s condition, and the genetic propensity of his disorder. Once again, definitions were given for the terms “criminal intention,” “legal responsibility,” “moral responsibility,” and “free will.” We report responses from Part 3 that are specifically related to contextualize the choices made in Parts 1 and 2 of the survey, to show if, how, and why individuals changed their responses.

Sampling Procedure

This study employed a large sample of jury-eligible U.S. citizens, age 18 and older, as participants. A marketing firm—SurveyMonkey—was used to gather a demographically diverse sample of eligible respondents using a standard sampling procedure utilized by SurveyMonkey (for full details of the sampling procedure, including information on compensation, see SurveyMonkey, 2014). An invite algorithm selects a random group of individuals from the SurveyMonkey Contributor member base who match the demographic targeting criteria requested and also estimates the total number of surveys that need to be sent to in order to gather the amount of responses

requested. After receiving the standard email notification, the eligible participants are directed to an online system that delivers the survey materials. SurveyMonkey also requires respondents to report specific demographic information, including age, gender, and level of education on the survey. No identifying information is collected from participants, and researchers do not interact with the respondents at any point.

For our survey, we requested SurveyMonkey target a sample of its members who were jury-eligible U.S. citizens residing in the US and 18 years of age and older. We conducted a pilot survey of 52 SurveyMonkey members to ensure face validity and readability, then made minor revisions to enhance clarity and comprehension of the case study and questions. Survey responses were collected online between March 14, 2013, and April 1, 2013. The Stanford University Institutional Review Board approved this study and consent was presumed from all participants when they proceeded to complete the survey.

Data Analysis

All data were analyzed with IBM SPSS Statistics, Version 21. We used McNemar's test ($\alpha = 0.05$) to analyze the changes in the proportion of responses in Parts 1 and 2 of the survey, which took the form of a paired t test, to examine how and if respondents significantly changed their opinions before and after the presentation of psychiatric evidence. We focused our analysis on a change in the proportion of responses between three sets of opinions: AGREE (ranking 1 and 2 on our scale), NEUTRAL (ranking 3 on our scale), and DISAGREE (ranking 4 and 5 on our scale). We then tabulated the demographics of the sample and the responses to a series of stand-alone questions (Part 3 of the survey) to provide contextual information to the responses in Parts 1 and 2 of the survey.

RESULTS

Sample and Demographics

Of 338 invited members for the pilot version of the survey, 52 individuals completed the survey. Following the pilot, we utilized SurveyMonkey's invite algorithm to contact an additional 3,062 members (for 3,400 total), with a total enrollment target of 500 participants. In total, including the pilot, 623 participants completed the survey (18.3% response rate). According to SurveyMonkey, the typical response rate for surveys administered by their marketing firm in which there is no previous relationship with participants, such as our study, is between 10% and 15% (SurveyMonkey, 2014). An additional 69 respondents began the survey, but did not complete it, so those responses were discarded.

All participants were over the age of 18, residing in the US, and stated they were U.S. citizens. SurveyMonkey provided us with a diverse sample of the general U.S. population, within our sample criteria, that is representative of the general U.S. population by gender. Other demographics, such as age, education, and geographic region, are not representative. Information on respondent ethnicity or participants' experiences or knowledge on autism was not collected. Most participants were 45 years old or older (61.3%) and the slight majority was female (50.2%). Approximately one third of our sample held an associate or bachelor's degree (32.6%), followed by a graduate degree (27.6%), some college (28.4%), and a high school degree or less (11.4%). Full demographics, including geographic region, are summarized in Table 1. Although there is little evidence on typical juror demographics and jurors vary in demographics depending on the jurisdiction in which they serve, there is some evidence that in some jurisdictions, typical jurors are often 40 years old or older (e.g., Anwar, Bayer, & Hjalmarsson, 2014; Carlson & Russo, 2001) and the mean education level of jurors is many times higher compared to that of members of society, according to the U.S. Census (Levin & Emerson, 2005); these characteristics are similar to those of our sample.

TABLE 1 Survey Respondent Demographics

Characteristic	Number of respondents (<i>n</i> = 623)	Percentage of respondents
Education		
Less than high school	10	1.6%
High school degree	61	9.8%
Some college	177	28.4%
Associate or bachelor's degree	203	32.6%
Graduate degree	172	27.6%
Location (census region)		
New England	44	7.1%
Middle Atlantic	92	14.8%
East North Central	114	18.3%
West North Central	43	6.9%
South Atlantic	96	15.4%
East South Central	21	3.4%
West South Central	58	9.3%
Mountain	47	7.5%
Pacific	99	15.9%
Age		
18–29 years	119	19.1%
30–44 years	122	19.6%
45–60 years	216	34.7%
> 60 years	166	26.6%
Gender		
Female	313	50.2%
Male	310	49.8%

Survey Results

We found that, overall, respondents' views were significantly altered after learning about the offender's diagnosis (Tables 2 and 3). Most respondents did not change their views of the MK's legal responsibility, with the vast majority agreeing both before (86.4%) and after (74.3%) the information on MK's condition that he should be legally responsible for assaulting his roommate; nevertheless, this difference was statistically significant ($p < 0.0001$). A majority also still agreed both before (88.8%) and after (80.6%) the information on MK's condition that MK had committed a criminal action, but this difference was also statistically significant ($p < 0.0001$). However, the percentage of respondents who initially agreed that there was criminal intention in MK's actions dropped substantially after learning of his condition (from 53.9% to 31.1%, $p < 0.0001$). Similarly, more respondents agreed that MK's actions should be found to have been made in self-defense after learning of his condition (from 10.1% to 22.3%, $p < 0.0001$).

Compared to the before and after questions, we observed similar respondent attitudes in the stand-alone contextualization questions that may relate to MK's legal responsibility (Table 4). While most respondents disagreed with the statements "MK is not guilty of any crimes" (75.4%) and "MK does not understand what he did was wrong, and, therefore, should not be held accountable" (72.7%), fewer respondents reported the belief that MK was competent to stand trial (64.5%), and only a slight majority of respondents disagreed with the statement "MK did not have control over the criminal actions he committed because of his condition" (55.4%). While many respondents agreed that MK was legally responsible for his actions, there was less agreement regarding the punitive consequences of such actions. Although respondents were somewhat split, almost half of our respondents disagreed with the statement "MK should be sentenced to prison time" (46.9%) and agreed that prison should be considered cruel and unusual punishment (45.1%). More than half of respondents (57.6%) agreed that MK should be given therapy instead of going to prison.

We also observed a number of shifts in responses in the before and after questions suggesting that respondents may be more lenient in their views of MK's moral responsibility, as opposed to legal responsibility, after learning about his condition (Tables 2 and 3). The proportion of respondents who agreed that MK was morally responsible for assaulting his roommate was reduced from 81.5% to 62.3% ($p < 0.0001$), and those agreeing that MK should feel bad for his actions was reduced from 78.8% to 67.7% ($p < 0.0001$) following the evidence about MK's condition. The percentage of respondents who agreed with the statement "MK had reason to fear that his roommate would seriously injure him" jumped from 28.9% to 50.9% ($p < 0.0001$) after hearing about MK's condition through the psychiatric testimony.

TABLE 2 Changes in Response to Before and After Questions After Presentation of Psychiatric Evidence

Statement	Before			After			McNemar's test	
	Agree %	Neutral %	Disagree %	Agree %	Neutral %	Disagree %	Value	<i>p</i>
(1) MK committed a criminal action.	88.8	8.5	2.7	80.6	11.4	8.0	39.1	<0.0001
(2) There was criminal intention in the actions made by MK.	53.9	25.4	20.7	31.1	29.5	39.3	136.1	<0.0001
(3) MK should be legally responsible for assaulting his roommate.	86.4	10.3	3.4	74.3	16.1	9.6	58.2	<0.0001
(4) MK's actions should be found to have been made in self-defense.	10.1	23.3	66.6	22.3	30.8	46.9	100.9	<0.0001
(5) MK had reason to fear that his roommate would seriously injure him.	28.9	23.4	47.7	50.9	22.0	27.1	121.2	<0.0001
(6) MK is morally responsible for assaulting his roommate.	81.5	14.0	4.5	62.3	21.7	16.1	100.0	<0.0001
(7) MK had the free will to commit the actions he did against his roommate.	79.8	10.9	9.3	58.1	23.8	18.1	95.7	<0.0001
(8) MK should feel bad for his actions.	78.8	18.8	2.4	67.7	24.9	7.4	42.7	<0.0001
(9) Even though MK hurt his roommate, I feel sorry for MK.	12.4	23.4	64.2	32.3	31.1	36.6	179.1	<0.0001
(10) I think MK is a dangerous person.	50.6	35.0	14.4	41.4	34.5	24.1	41.8	<0.0001
(11) MK's behavior during the trial makes it look like he does not care.	83.9	11.4	4.7	58.6	23.4	18.0	141.7	<0.0001
(12) MK's behavior during the trial makes him look guilty of his crimes.	41.7	41.3	17.0	32.9	38.7	28.4	48.5	<0.0001

TABLE 3 Differences in Response to Before and After Questions After Presentation of Psychiatric Evidence

Statement	% Change in response after presentation of evidence						
	No difference in response (%)	Unfavorable for offender			Favorable for offender		
		Disagree to agree (%)	Disagree to neutral (%)	Neutral to agree (%)	Neutral to disagree (%)	Disagree to agree (%)	Disagree to neutral (%)
(1) MK committed a criminal action.	85.2	0.3	0.5	1.9	1.6	4.5	5.9
(2) There was criminal intention in the actions made by MK.	56.8	1.6	1.8	2.9	9.6	12.4	14.9
(3) MK should be legally responsible for assaulting his roommate.	80.7	0.3	0.3	2.4	1.4	5.5	9.3
(4) MK's actions should be found to have been made in self-defense.	64.2	9.0	14.9	5.8	1.9	3.5	0.6
(5) MK had reason to fear that his roommate would seriously injure him.	59.6	16.5	7.7	9.6	2.4	1.3	2.9
(6) MK is morally responsible for assaulting his roommate.	69.8	0.5	1.3	2.6	3.5	9.8	12.5
(7) MK had the free will to commit the actions he did against his roommate.	64.5	2.1	2.2	2.4	2.6	10.6	15.6
(8) MK should feel bad for his actions.	77.2	0.6	0.8	3.9	1.9	4.5	11.1
(9) Even though MK hurt his roommate, I feel sorry for MK.	57.6	13.2	16.9	8.5	2.1	0.3	1.4
(10) I think MK is a dangerous person.	66.1	2.1	2.9	4.5	8.7	5.9	9.8
(11) MK's behavior during the trial makes it look like he does not care.	66.3	1.0	0.6	1.4	2.9	12.0	15.7
(12) MK's behavior during the trial makes him look guilty of his crimes.	66.6	1.4	2.7	4.8	9.3	6.3	8.8

TABLE 4 Summary of Stand-Alone Contextualization Question Responses

Statement	Response (<i>n</i> = 623)		
	Agree	Neutral	Disagree
MK is not guilty of any crimes.	71 (11.4%)	82 (13.2%)	470 (75.4%)
MK does not understand what he did was wrong, and therefore, should not be held accountable.	73 (11.7%)	97 (15.6%)	453 (72.7%)
MK did not have control over the criminal actions he committed because of his condition.	128 (20.5%)	150 (24.1%)	345 (55.4%)
MK is competent to stand trial for his crimes.	402 (64.5%)	143 (23.0%)	78 (12.5%)
MK is mentally ill.	191 (30.7%)	202 (32.4%)	230 (36.9%)
MK was genetically predisposed to the behaviors that led to the actions against his roommate.	256 (41.1%)	161 (33.1%)	206 (25.8%)
Putting MK in prison would be cruel and unusual punishment.	281 (45.1%)	156 (25.0%)	186 (29.9%)
MK should be given therapy instead of being put in prison.	359 (57.6%)	139 (22.3%)	125 (20.1%)
MK should be sentenced to prison time.	171 (27.4%)	160 (25.7%)	292 (46.9%)
	Less	The same	More
If you answered (I agree/I strongly agree) to question above [prison sentencing], please complete the following statement using the choices provided: MK should be sentenced to _____ prison time because of his condition. (<i>n</i> = 200)	73 (36.5%)	123 (61.5%)	4 (2.0%)
	Less	No effect on	More
MK's condition makes him have (more/no effect on/less) legal responsibility for his actions.	192 (30.8%)	399 (64.1%)	32 (5.1%)
MK's condition makes him have (more/no effect on/less) moral responsibility for his actions.	219 (35.2%)	364 (58.4%)	40 (6.4%)
	Strongly changed	Somewhat changed	Did not change
On the whole, the expert testimony on the nature and symptoms of MK's condition _____ my opinion on the case study.	85 (13.6%)	413 (66.3%)	125 (20.1%)
	Very influential	Somewhat influential	Not influential
The fact that MK's condition is on the autistic spectrum _____ (please choose one) on my original view of the case study.	219 (35.1%)	217 (34.8%)	187 (30.1%)
The fact that MK's condition is a genetic disorder _____ (please choose one) on my original view of the case study.	164 (26.3%)	167 (26.8%)	292 (46.9%)
	Agree	Neutral	Disagree
After reading the psychiatrist's testimony, I feel differently about MK's behavior during the trial.	349 (56.0%)	131 (21.0%)	143 (23.0%)
	More positive	More negative	
If you answered (I strongly agree/I agree) to the question above [trial behavior], please complete the following statement using the choices provided: I have a (more positive/more negative) view of MK's behavior during the trial. (<i>n</i> = 345)	334 (96.8%)	11 (3.2%)	

Respondents' personal feelings and perceptions concerning MK and his behavior, rather than his legal or moral responsibility, also shifted following the evidence on his condition (Tables 2 and 3). The percentage of people who reported that they "felt sorry" for MK increased from 12.4% to 32.3% ($p < 0.0001$) following the psychiatric evidence, and fewer respondents agreed that they considered MK a dangerous person (50.6% to 41.4%, $p < 0.0001$). Respondents' perceptions of MK's behavior during the trial were particularly altered by knowledge of his condition, with the percentage of those agreeing that MK's behavior during the trial made him look like he "didn't care" dropping from 83.9% to 58.6% ($p < 0.0001$) and those agreeing that MK's trial behavior made him "look guilty" dropping from 41.7% to 32.9% ($p < 0.0001$) following the information presented on his condition.

Interestingly, in the stand-alone contextualization questions (Table 4), respondents were almost evenly split regarding whether MK is mentally ill (30.7% agreed, 32.4% were neutral, and 36.9% disagreed). However, the majority of respondents (56.0%) agreed that the psychiatric evidence did change their view of MK's behavior during the trial; of these respondents who changed their views of his trial behavior, 96.8% reported that they had a more positive response to MK following the psychiatrist's evidence. This is consistent with results reported in the before and after questions concerning MK's trial behavior.

Finally, despite the shifts observed in the before and after questions, the majority of respondents in the stand-alone contextualization questions (Table 4) reported they believed that MK's condition did not affect his legal (64.1%) or moral (58.4%) responsibility for his actions (although a substantial proportion of respondents reported that he was less legally and/or morally responsible due to his condition [30.8% and 35.2%, respectively]). The majority of respondents (66.3%) reported that the psychiatric evidence "somewhat changed" their original view of the case study. Participants were evenly split on whether the fact that MK's condition was on the autism spectrum played a role in shifting their perceptions of his responsibility or him personally (35.1% said very influential, 34.8% said somewhat influential, and 30.1% said not influential). Concerning the genetics of the disorder, 41.1% of respondents reported, "MK was genetically predisposed to the behaviors that led to the actions against his roommate." This corresponds to the majority (53.1%) that reported that the fact that MK's condition is genetic was very or somewhat influential on their views of the case.

DISCUSSION

In general, this survey of potential jurors revealed measurable influences on attitudes towards the legal and moral responsibility, personal characteristics, and the condition's influence on an offender with hfASD. We found

respondents' views on all facets of MK's behavior and the criminal justice system's treatment of MK were in some way influenced by the presentation of psychiatric information on the offender's disorder and symptoms. Our results suggest that a diagnosis of hfASD does not generally affect the view of legal responsibility or criminality. However, we did see an effect on perceptions of MK's criminal intention, and almost half of our respondents did not disagree with the statement, "MK did not have full control over the criminal actions he committed because of his condition." This result further supports that jurors often identify an offender's diagnosis with a mental disorder as an "uncontrollable" factor concerning the perpetration of criminal behavior (Barnett et al., 2007; Garvey, 1998), and it is consistent with both the *patronization effect* (Gibbons et al., 1979) and *discounting principle* (Kelley, 1973).

The majority of respondents reported that MK was still morally responsible for his actions, yet the overall survey responses suggested respondents were more lenient in their views of MK's moral responsibility, as opposed to legal responsibility, after learning about his condition. Respondents also were less likely to believe that MK should show remorse for his actions. These findings are consistent with literature reporting that juries and their decisions are influenced by evidence surrounding an offender's diagnosis with a mental disorder, as well as intellectual disability, if they believe it may have mitigated or affected his moral culpability for the crime (Barnett et al., 2007; Bottoms et al., 2003; Garvey, 1998; Gibbons et al., 1981; Najdowski et al., 2009).

Further, results on the respondents' opinions regarding prison time and what legal consequences MK ought to face also appear to be mitigated due the information on his mental disorder. It is surprising that the majority of respondents reported MK's legal responsibility for his actions was unchanged, but also reported that harsh legal consequences, such as prison, would be both inhumane and the incorrect sentence for this type of offender. This result is consistent with our findings showing that many respondents indicated more lenient views concerning MK's moral responsibility for his actions after the presentation of information on his condition. It is also consistent with other literature reporting that one of the most powerful types of mitigating evidence for juries when making their judgments is the presence of a mental disorder and its possible mitigating effect on moral culpability (Barnett et al., 2007; Garvey, 1998). These findings on legal consequences and mitigated punishment or moral culpability may also be connected to the notable number of respondents shifting away from believing MK had criminal intention, as well as the large number of respondents who believed MK did not have full control over his behavior.

By and large, participants seemed to have favorable and sympathetic perceptions of the behaviors associated with autism, as well as the disorder itself, after learning of MK's diagnosis and viewed the offender

as less dangerous and with more compassion and understanding than before the psychiatric information was presented. These findings conflict with the academic concerns that juries may make decisions based on stigmatization (Shtayermman, 2009) or negative misconceptions of autism (Frith, 1993; Mayes & Koegel, 2003; Mayes & Zirkel, 2000; Rapin, 1997; Sundby, 1997), especially since in recent years, information about autism and criminality have often been fueled by misrepresentations or misunderstandings in the media (Howlin, 2004; Sly & Brand, 2011). Further, supporting the literature previously discussed (Visser, 1987; Montgomery et al., 2005; Loudon & Skeen, 2007), jurors' positive attitudes regarding MK's personal characteristics were likely correlated to effects on their judgments, in this case regarding his reduced moral responsibility and mitigated legal consequences.

A striking result with a clear area of disagreement among respondents concerned the statement "MK is mentally ill." Respondents were almost evenly split among agreeing, disagreeing, and being neutral toward that statement, showing that respondents were unsure if hfASD should be labeled as "mental illness" even after learning about the disorder and its characteristics from the psychiatric information; this included the fact that individuals with these disorders have normal cognitive functioning, have no intellectual or language disabilities, and should have the complete ability to make rational decisions. In the same vein, after learning of his condition, only two thirds of respondents were certain that the offender was competent to stand trial. It is possible that the uncertainty of such a large portion of our respondents concerning MK's mental competence could be due to the *patronization effect* (Gibbons et al., 1979). Although we can draw no further conclusions from our data set on the reasons why the views of our sample were so divided in this area, these findings provide a direction for further research.

Finally, concerning genetics, the majority of potential jurors reported their views on the original case study were in some way influenced by the fact that hfASD may have a genetic basis, and a substantial proportion of respondents indicated that MK was genetically predisposed to the behaviors that led to the actions against his roommate. We cannot comment if the jurors had good command of the psychiatric or genetic information, as some past research has shown (Kaye et al., 2007), or if they struggled with properly using it in their decision making (Cecil et al., 1991; Dreyfuss & Nelkin, 1992; Jacobs, 1992–1993). As the genetics evidence was not isolated from the psychiatric information, we cannot determine its direct influence on the respondents' views of MK's moral responsibility or legal consequences. Nevertheless, it does appear that many respondents reported that learning of the potential genetic origins of hfASD did in some way influence their attitudes and responses.

LIMITATIONS

The study has a few important limitations. We used a single group before-after design in order to simulate a real-life juror experience where new evidence is presented during a trial. Although there are many benefits to this type of design for the purposes of our research questions, such as providing a natural anchor, “real-life” decision-making scenario for participants (Ellis, 1999), there are also several limitations. These include difficulty in fully attributing observed changes in the results solely to the intervention (Hill & Betz, 2005), including possible confounding extraneous “carryover effects” (Tourangeau, Rasinski, Bradburn, & D’Andrade, 1989), demand characteristics (Orne, 1962), response shift bias (Howard & Daily, 1979), testing effect (Roediger & Karpicke, 2006), and the Hawthorne bias (Adair, 1984) that could have possibly affected results. It is also possible that the shift in opinion of our respondents may have been due to regression towards mean, rather than the effect of the expert testimony on responses (Bland & Altman, 1994). Another limitation of this research design includes the possible overestimation of the impact of the experimental intervention and, therefore, the significance of the results (Bacchieri & Cioppa, 2007; Eccles, Grimshaw, Campell, & Ramsay, 2003). Although we attempted to minimize the possible ill effects of this research design as much as possible with testing, piloting, and careful wording of the survey (Charness, Gneezy, & Kuhn, 2012; Morris & Deshon, 2002), these limitations should be noted when interpreting the results and conclusions of this study.

Further, as this was the first study of its kind to assess these issues, we used an experimental before-after study design to simulate what in reality is a very complex undertaking assumed by individuals who are ultimately chosen as jurors after a long and selective process. Although we recruited a sample of jury-eligible adults, there is no way of knowing if there were other characteristics of our respondents that would have excluded them or made them less likely to be chosen for jury service, such as being employed in law enforcement. There is also no way of knowing if members of our sample may have been more knowledgeable about or receptive to information on hfASD than the rest of the general public, or if our sample’s mean level of education, which was quite high, may have made them more likely to take the expert testimony into account after its presentation.

In addition, there is no information available about the 69 individuals who began the survey but chose not to complete it, and, therefore, it is unknown if the members of this group are different in any systematic ways from the 623 individuals who completed the survey or if their choice not to complete the survey was meaningful. Finally, our sample only included participants with access to the internet. It is important to note that internet users tend to be more highly educated, higher income, and younger than

the general U.S. population. Thus, our sample may not be representative in regard to those demographics.

Finally, we examined these issues within the confines of a specific case study and given psychiatric information, focusing on the decision making of individual jurors rather than the decision making of the entire jury as a single entity. We do not know whether another case involving a different crime or offender, or other evidence or information on hfASD, may have changed the attitudes or decisions of the individual jurors or a jury as a whole, the effects we observed, or our ultimate results. We also probed and reported some issues that are many times out of a jury's powers or undertaken task of responsibility determination, such as decisions involving sentencing. Accordingly, our results should be interpreted as expressive, rather than absolute, concerning the roles and effects that information on hfASD has on juror or jury perceptions and decision making in trials of offenders with these disorders. Interviewing or surveying real jurors or complete juries who have had experiences serving on trials and making legal decisions involving different types of crimes committed by offenders with hfASD would be helpful to provide more context and potency to our presented results.

CONCLUSION

Our findings provide a window into how potential jury members understand, handle, and legally process criminal offenders with hfASD. Our respondents overall did not believe hfASD should affect legal responsibility, but considered the presence of the disorder as a mitigating factor for moral culpability and legal consequences. This was paired with findings showing that respondents demonstrated consideration and positive attitudes toward the diagnosed individual and his behavior, but also that individuals may have problems fully comprehending and assessing information on the disorder and its impact. Mainly, our results also show there is no consensus on these issues and, therefore, more research should be done. Most participant opinions on the case were influenced by the presented psychiatric information on hfASD, and by looking at how the respondents in our study shifted their opinions, it seems that how jurors understand information on these disorders greatly affects how they form their attitudes and perceptions of individuals with hfASD, those individuals' characteristics and behavior, and the disorders themselves. In addition, how jurors make legal decisions regarding these offenders may be influenced. Thus, it is very important to consider how information and research on hfASD is presented to jurors, as well as more generally in the media and on other platforms to members of the public who might serve on juries.

These considerations create larger questions on the manner and circumstances in which scientists, psychiatrists, criminologists, and other individuals present autism research and information to the larger public as well as in court to juries and other criminal justice actors—such as judges, law enforcement officials, and attorneys—who might be influenced by their perceptions of this evidence and are tasked with the duty of making legal decisions regarding these types of offenders. This sentiment is especially demonstrated by how split our sample was on whether hfASD should be considered “mental illness,” even though we provided respondents with psychiatric information on the disorders and their symptoms in the survey. We suggest further work should be done examining how psychiatric, genetic, scientific, and other expert information, evidence, and testimony is given in trials involving offenders with these disorders and assessing how experts in these areas are choosing the information they present in these trials and what specifically they are trying to convey to juries, judges, and other criminal justice actors.

ORCID

Colleen M. Berryessa  <http://orcid.org/0000-0003-1670-7484>

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REFERENCES

- Abrahams, B. S., & Geschwind, D. H. (2008). Advances in autism genetics: On the threshold of a new neurobiology. *Nature Reviews Genetics*, *9*, 341–355.
- Adair, J. G. (1984). The Hawthorne effect: A reconsideration of the methodological artifact. *Journal of Applied Psychology*, *69*, 334–345. doi:10.1037/0021-9010.69.2.334
- Allen, D., Evans, C., Hider, A., Hawkins, S., Peckett, H., & Morgan, H. (2008). Offending behaviour in adults with Asperger syndrome. *Journal of Autism and Developmental Disorders*, *38*, 748–758. doi:10.1007/s10803-007-0442-9
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental Disorders* (5th ed.). Arlington, VA: American Psychiatric. doi:10.1176/appi.books.9780890425596

- Anwar, S., Bayer, P., & Hjalmarsson, R. (2014). The role of age in jury selection and trial outcomes. *Journal of Law and Economics*, 57, 1001–1030. doi:10.1086/675257
- Appelbaum, P. S., & Scurich, N. (2014). Impact of behavioral genetic evidence on the adjudication of criminal behavior. *Journal of American Academy of Psychiatry and Law*, 42, 91–100. Retrieved from <http://jaapl.org/content/42/1/91.long>
- Aspinwall, L. G., Brown, T. R., & Tabery, J. (2012). The double-edged sword: Does biomechanism increase or decrease judges' sentencing of psychopaths? *Science*, 337, 846–849. doi:10.1126/science.1219569
- Bacchieri, A., & Cioppa, G. D. (2007). Experimental design: Fallacy of “before-after” comparisons in uncontrolled studies. In A. Bacchieri & G. Della Cioppa (Eds.), *Fundamentals of clinical research: Bridging medicine, statistics and operations* (pp. 183–199). Milan, Italy: Springer Milan. doi:10.1007/978-88-470-0492-4_8
- Barnett, M., Brodsky, S., & Price, J. (2007). Differential impact of mitigating evidence in capital case sentencing. *Journal of Forensic Psychology Practice* 7, 39–46. doi:10.1300/j158v07n01_04
- Baron-Cohen, S. (1988). An assessment of violence in a young man with Asperger's syndrome. *Journal of Child Psychology and Psychiatry*, 29, 351–360. doi:10.1111/j.1469-7610.1988.tb00723.x
- Barry-Walsh, J. B., & Mullen, P. E. (2004). Forensic aspects of Asperger's syndrome. *Journal of Forensic Psychiatry & Psychology*, 15, 96–107. doi:10.1080/14789940310001638628
- Berney, T. (2004). Asperger syndrome from childhood into adulthood. *Advances in Psychiatric Treatment*, 10, 341–351. doi:10.1192/apt.10.5.341
- Bland, J. M., & Altman, D. G. (1994). Statistics notes: Some examples of regression towards the mean. *BMJ*, 309, 780. doi:10.1136/bmj.309.6957.780
- Bottoms, B. L., Nysse-Carris, K. L., Harris, T., & Tyda, K. (2003). Jurors' perceptions of adolescent sexual assault victims who have intellectual disabilities. *Law and Human Behavior*, 27, 205–227. doi:10.1023/a:1022551314668
- Browning, A., & Caulfield, L. (2011). The prevalence and treatment of people with Asperger's syndrome in the criminal justice system. *Criminology and Criminal Justice*, 11, 165–180. doi:10.1177/1748895811398455
- Carpenter, L. A., Soorya, L., & Halpern, D. (2009). Asperger's syndrome and high-functioning autism. *Pediatric Annals*, 38, 30–35. doi:10.3928/00904481-20090101-01
- Carlson, K. A., & Russo, J. E. (2001). Biased interpretation of evidence by mock jurors. *Journal of Experimental Psychology: Applied*, 7, 91–103. doi:10.1037/1076-898x.7.2.91
- Cecil, J. S., Hans, V. P., & Wiggins, E. C. (1991). Citizen comprehension of difficult issues: Lessons from civil jury trials. *American University Law Review*, 40, 727–774. Retrieved from <http://www.aulawreview.com/pdfs/40/40-2/cecil.pdf>
- Charness, G., Gneezy, U., & Kuhn, M. A. (2012). Experimental methods: Between-subject and within-subject design. *Journal of Economic Behavior & Organization*, 81, 1–8. doi:10.1016/j.jebo.2011.08.009
- Chesterman, P., & Rutter, S. C. (1993). Case report: Asperger's syndrome and sexual offending. *The Journal of Forensic Psychiatry*, 4, 555–562. doi:10.1080/09585189308408222

- Compton, M., Esterberg, M., McGee, R., Kotwicki, R., & Oliva, J. (2006). Brief reports. Crisis intervention team training: changes in knowledge, attitudes, and stigma related to schizophrenia. *Psychiatric Services*, *57*, 1199–1202. doi:0.1176/appi.ps.57.8.1199
- Crosson, J. C., Deng, W., Brazeau, C., Boyd, L., & Soto-Greene, M. (2004). Evaluating the effect of cultural competency training on medical student attitudes. *Family Medicine*, *36*, 199–203. Retrieved from <http://europepmc.org/abstract/med/14999577>
- Debbaudt, D. (2004). Beyond guilt or innocence. *Leadership Perspectives in Developmental Disability*, *4*, 1–3. Retrieved from <https://www.ahany.org/Debbaudt.htm>
- Dorsch, J. L., Aiyer, M. K., & Meyer, L. E. (2004). Impact of an evidence-based medicine curriculum on medical students' attitudes and skills. *Journal of the Medical Library Association*, *92*, 397–406. <http://ncbi.nlm.nih.gov/pmc/articles/PMC521510>
- Dreyfuss, R. C., & Nelkin, D. (1992). Jurisprudence of genetics. *Vanderbilt Law Review*, *45*, 313–348. Retrieved from <http://ncbi.nlm.nih.gov/pubmed/11659544>
- Eccles, M., Grimshaw, J., Campbell, M., & Ramsay, C. (2003). Research designs for studies evaluating the effectiveness of change and improvement strategies. *Quality and Safety in Health Care*, *12*, 47–52. doi:10.1136/qhc.12.1.47
- Ellis, M. V. (1999). Repeated measures designs. *The Counseling Psychologist* *27*, 552–578. doi:10.1177/0011000099274004
- Everall, I. P., & Lecouteur, A. (1990). Firesetting in an adolescent boy with Asperger's syndrome. *The British Journal of Psychiatry*, *157*, 284–287. doi:10.1192/bjp.157.2.284
- Farahany, N. A., & Coleman, J. (2006). Genetics and responsibility: To know the criminal from the crime. *Law and Contemporary Problems*, *69*, 115–164. Retrieved from <http://www.jstor.org/stable/27592126>
- Freitag, C. M. (2007). The genetics of autistic disorders and its clinical relevance: A review of the literature. *Molecular Psychiatry*, *12*, 2–22. doi:10.1038/sj.mp.4001896
- Frith, U. (1993). Autism. *Scientific American*, *268*, 108–114. doi:10.1038/scientificamerican0693-108
- Garvey, S. P. (1998). Aggravation and mitigation in capital cases: What do jurors think? *Columbia Law Review*, *98*, 1538–1576. doi:10.2307/1123305
- Ghaziuddin, M. (2002). Asperger syndrome associated psychiatric and medical conditions. *Focus on Autism and Other Developmental Disabilities*, *17*, 138–144. doi:10.1177/10883576020170030301
- Ghaziuddin, M., Tsai, L., & Ghaziuddin, N. (1991). Brief report: Violence in Asperger syndrome, a critique. *Journal of Autism and Developmental Disorders*, *21*, 349–354. doi:10.1007/bf02207331
- Gibbons, F. X., Gibbons, B. N., & Kassin, S. M. (1981). Reactions to the criminal behavior of intellectually disabled and nondisabled offenders. *American Journal of Mental Deficiency*, *86*, 235–242. Retrieved from <http://http://aaidjournals.org/loi/ajmr.1>
- Gibbons, F. X., Sawin, L. L. C., & Gibbons, B. N. (1979). Evaluations of mentally retarded persons: "Sympathy" or patronization? *American Journal*

- of *Mental Deficiency*, 84, 124–131. Retrieved from <http://ncbi.nlm.nih.gov/pubmed/495658>
- Halm, E. A., Atlas, S. J., Borowsky, L. H., Benzer, T. I., & Singer, D. E. (1999). Change in physician knowledge and attitudes after implementation of a pneumonia practice guideline. *Journal of General Internal Medicine*, 14, 688–694. doi:10.1046/j.1525-1497.1999.03469.x
- Hannay, D., Usherwood, T., & Platts, M. (1992). Workload of general practitioners before and after the new contract. *British Medical Journal*, 304, 615–618. doi:10.1136/bmj.304.6827.615
- Hare, D. J., Gould, J., Mills, R., & Wing, L. (1999). A preliminary study of individuals with autistic spectrum disorders in three special hospitals in England. *National Autistic Society*. Retrieved from <http://www.aspires-relationships.com/ASPIRES/aspires-/ASPIRES/3hospitals.pdf>
- Haskins, B. G., & Silva, J. A. (2006). Asperger's disorder and criminal behavior: Forensic-psychiatric considerations. *Journal of the American Academy of Psychiatry and the Law Online*, 34, 374–384. Retrieved from <http://jaapl.org/content/34/3/374.full>
- Hill, L. G., & Betz, D. L. (2005). Revisiting the retrospective pretest. *American Journal of Evaluation*, 26, 501–517. doi:10.1177/1098214005281356
- Howard, G. S., & Dailey, P. R. (1979). Response-shift bias: A source of contamination of self-report measures. *Journal of Applied Psychology*, 64, 144–150. doi:10.1037//0021-9010.64.2.144
- Howlin, P. (2004). *Autism and Asperger syndrome: Preparing for adulthood* (2nd ed.). New York, NY: Routledge. doi:10.4324/9780203426913
- Jacobs, M. (1992–1993). Testing the assumptions underlying the debate about scientific evidence: A closer look at juror incompetence and scientific objectivity. *Connecticut Law Review*, 25, 1083–1116. Retrieved from <http://heinonline.org/HOL/LandingPage?handle=hein.journals/conlr25&div=48&>
- Kaye, D. H., Hans, V. P., Dann, B. M., Farley, E., & Albertson, S. (2007). Statistics in the jury box: How jurors respond to Mitochondrial DNA match probabilities. *Journal of Empirical Legal Studies*, 4, 797–834. doi:10.1111/j.1740-1461.2007.00107.x
- Kelley, H. H. (1973). The processes of causal attribution. *American Psychologist*, 28, 107–128. doi:10.1037/h0034225
- Lasley, J. R. (1994). The impact of the Rodney King incident on citizen attitudes toward police. *Policing and Society: An International Journal*, 3, 245–255. doi:10.1080/10439463.1994.9964673
- Lau, J. T. F., Tsui, H. Y., & Chan, K. (2005). Reducing discriminatory attitudes toward people living with HIV/AIDS (PLWHA) in Hong Kong: An intervention study using an integrated knowledge-based PLWHA participation and cognitive approach. *AIDS Care*, 17, 85–101. doi:10.1080/09540120412331305151
- Levin, H. Y., & Emerson, J. W. (2005). Is there a bias against education in the jury selection process. *Connecticut Law Review*, 38, 325–353. Retrieved from http://heinonlinebackup.com/hol/cgi-bin/get_pdf.cgi?handle=hein.journals/conlr38§ion=17
- Louden, J. E., & Skeem, J. L. (2007). Constructing insanity: Jurors' prototypes, attitudes, and legal decision making. *Behavioral Sciences & the Law*, 25, 449–470. doi:10.1002/bsl.760

- Mawson, D. C., Grounds, A., & Tantam, A. (1985). Violence and Asperger's syndrome: A case study. *The British Journal of Psychiatry*, *147*, 566–569. doi:10.1192/bjp.147.5.566
- Mayes, T. A., & Koegel, R. L. (2003). Persons with autism and criminal justice: Core concepts and leading cases. *Journal of Positive Behavior Interventions*, *5*, 92–100. doi:10.1177/10983007030050020401
- Mayes, T. A., & Zirkel, P. A. (2000). The intersections of juvenile law, criminal law, and special education law. *UC Davis Journal of Juvenile Law and Policy*, *4*, 125–158. Retrieved from <http://jjlp.law.ucdavis.edu/archives>
- McCluskey, A., & Lovarini, M. (2005). Providing education on evidence-based practice improved knowledge but did not change behaviour: A before and after study. *BMC Medical Education*, *5*, 40–51. doi:10.1186/1472-6920-5-40
- McDonald, V. (2010). Before and after case study design. In A. Mills, G. Durepos, & E. Wiebe (Eds.), *Encyclopedia of case study research* (pp. 52–55). Thousand Oaks, CA: Sage. doi:10.4135/9781412957397
- Montgomery, J. H., Ciccone, J. R., Garvey, S. P., & Eisenberg, T. (2005). Expert testimony in capital sentencing: Juror responses. *Journal of the American Academy of Psychiatry and the Law Online*, *33*, 509–518. Retrieved from <http://jaapl.org/content/33/4/509.full>
- Morris, S. B., & DeShon, R. P. (2002). Combining effect size estimates in meta-analysis with repeated measures and independent-groups designs. *Psychological Methods*, *7*, 105–125. doi:10.1037//1082-989x.7.1.105
- Mouridsen, S. E., Rich, B., Isager, T., & Nedergaard, N. J. (2008). Pervasive developmental disorders and criminal behaviour: A case control study. *International Journal of Offender Therapy and Comparative Criminology*, *52*, 196–205. doi:10.1177/0306624x07302056
- Murero, M., D'Ancona, G., & Karamanoukian, H. (2001). Use of the internet by patients before and after cardiac surgery: An interdisciplinary telephone survey. *Journal of Medical Internet Research*, *3*, e27. doi:10.2196/jmir.3.3.e27
- Murphy, D. (2003). Admission and cognitive details of male patients diagnosed with Asperger's syndrome detained in a special hospital: Comparison with a schizophrenia and personality disorder sample. *The Journal of Forensic Psychiatry*, *14*, 506–524. doi:10.1080/1478994031000152736
- Murrie, D. C., Warren, J. I., Kristiansson, M., & Dietz, P. E. (2002). Asperger's syndrome in forensic settings. *International Journal of Forensic Mental Health*, *1*, 59–70. doi:10.1080/14999013.2002.10471161
- Myers, F. (2004). On the borderline?: People with learning disabilities and/or autistic spectrum disorders in secure, forensic and other specialist settings. *Scottish Executive Social Research*. Retrieved from <http://www.scotland.gov.uk/Publications/2004/06/19505/38853>
- Najdowski, C. J., Bottoms, B. L., & Vargas, M. C. (2009). Jurors' perceptions of juvenile defendants: The influence of intellectual disability, abuse history, and confession evidence. *Behavioral Sciences & the Law*, *27*, 401–430. doi:10.1002/bsl.873
- National Collaborating Centre for Methods and Tools. (2008). *Quality assessment tool for quantitative studies*. Hamilton, Ontario: McMaster University. Retrieved from <http://www.nccmt.ca/registry/view/eng/14.html>.

- Orne, M. T. (1962). On the social psychology of the psychological experiment: With particular reference to demand characteristics and their implications. *American Psychologist*, *17*, 776–783. doi:10.1037/h0043424
- Persico, A. M., & Bourgeron, T. (2006). Searching for ways out of the autism maze: Genetic, epigenetic and environmental clues. *Trends in Neuroscience*, *29*, 349–358. doi:10.1016/j.tins.2006.05.010
- R v. Kagan, 261 NSR (2d) 285 (N.S.S.C. [Canada], 2007).
- Rapin, I. (1997). Autism. *New England Journal of Medicine*, *337*, 97–104. doi:10.1056/nejm199707103370206
- Roediger, H. L., & Karpicke, J. D. (2006). Test-enhanced learning taking memory tests improves long-term retention. *Psychological Science*, *17*, 249–255. doi:10.1111/j.1467-9280.2006.01693.x
- Rosenberg, M. (1958). Comparative negligence in Arkansas: A before and after survey. *Arkansas Law Review*, *13*, 89–112. Retrieved from <http://heinonline.org/HOL/LandingPage?handle=hein.journals/arklr13&div=17&>
- Sanders, J. L. (2009). Qualitative or quantitative differences between Asperger's disorder and autism? Historical considerations. *Journal of Autism and Developmental Disorders*, *39*, 1560–1567. doi:10.1007/s10803-009-0798-0
- Sargent, R. P., Shepard, R. M., & Glantz, S. A. (2004). Reduced incidence of admissions for myocardial infarction associated with public smoking ban: Before and after study. *BMJ*, *328*(7446), 977–980. doi:10.1136/bmj.38055.715683.55
- Scragg, P., & Shah, A. (1994). Prevalence of Asperger's syndrome in a secure hospital. *The British Journal of Psychiatry*, *165*, 679–682. doi:10.1192/bjp.165.5.679
- Shtayermman, O. (2009). An exploratory study of the stigma associated with a diagnosis of Asperger's syndrome: The mental health impact on the adolescents and young adults diagnosed with a disability with a social nature. *Journal of Human Behavior in the Social Environment*, *19*, 298–313. doi:10.1080/10911350902790720
- Siponmaa, L., Kristiansson, M., Jonson, C., Nyden, A., & Gillberg, C. (2001). Juvenile and young adult mentally disordered offenders: The role of child neuropsychiatric disorders. *Journal of the American Academy of Psychiatry and the Law Online*, *29*, 420–426. <http://jaapl.org/content/29/4/420.full>
- Sly, P. D., & Brand, P. L. (2011). Medical research results in the general media: Worthwhile and rewarding if presented well, potentially harmful if prepared poorly. *Pediatric Respiratory Reviews*, *12*, 277–280. doi:10.1016/j.prrv.2011.01.013
- Sundby, S. E. (1997). The jury as critic: An empirical look at how capital juries perceive expert and lay testimony. *Virginia Law Review*, *83*, 1109–1188. doi:10.2307/1073729
- SurveyMonkey. Sampling procedure: How do academics use SurveyMonkey Audience? (2014). Retrieved from http://help.surveymonkey.com/articles/en_US/kb/How-do-Academics-use-SurveyMonkey-Audience#audience-sampling
- Tantam, D. (1991). Asperger syndrome in adulthood. In U. Frith (Ed.), *Autism and Asperger syndrome* (pp. 147–83). Cambridge: Cambridge University. doi:10.1017/cbo9780511526770.005
- Tourangeau, R., Rasinski, K. A., Bradburn, N., & D'Andrade, R. (1989). Carryover effects in attitude surveys. *Public Opinion Quarterly*, *53*, 495–524. doi:10.1086/269169

- Verplanken, B. (1989). Beliefs, attitudes, and intentions toward nuclear energy before and after Chernobyl in a longitudinal within-subjects design. *Environment and Behavior*, *21*, 371–392. doi:10.1177/0013916589214001
- Visher, C. A. (1987). Juror decision making: The importance of evidence. *Law and Human Behavior*, *11*, 1–17. doi:10.1007/bf01044835
- Wachtel, L. E., & Shorter, E. (2013). Autism plus psychosis: A “one-two punch” risk for tragic violence? *Medical Hypotheses*, *81*, 404–409. doi:10.1016/j.mehy.2013.05.032
- Wertz, D. C., Sorenson, J. R., Liebling, L., Kessler, L., & Heeren, T. C. (1987). Knowledge and attitudes of AIDS health care providers before and after education programs. *Public Health Reports*, *102*, 248–254. doi:10.1016/0196-6553(88)90083-1
- Whitaker, A. K., Terplan, M., Gold, M. A., Johnson, L. M., Creinin, M. D., & Harwood, B. (2010). Effect of a brief educational intervention on the attitudes of young women toward the intrauterine device. *Journal of Pediatric and Adolescent Gynecology*, *23*, 116–120. doi:10.1016/j.jpag.2009.09.012
- Wing, L. (1981). Asperger's syndrome: A clinical account. *Psychological Medicine*, *11*, 115–129. doi:10.1017/s0033291700053332
- Wing, L. (1996). *The autistic spectrum: A guide for parents and professionals*. London, UK: Robinson. doi:10.1017/s003329179921166x
- Wrosch, C., & Heckhausen, J. (1999). Control processes before and after passing a developmental deadline: Activation and deactivation of intimate relationship goals. *Journal of Personality and Social Psychology*, *77*, 415–427. doi:10.1037/0022-3514.77.2.415

APPENDIX A

Case-Study Summary

Instructions: Imagine that you have been selected as a jury member for the following case. You will be presented the facts of the case and trial, followed by a set of questions.

Provided Definitions:

- *Criminal intention* is a person's awareness of the fact that his or her conduct is against the law.
- *Legal responsibility* is based on a person's duty to follow laws or otherwise face punishment.
- *Moral responsibility* is based on the choice or intention of a person to act according to or against what he or she thinks is right or wrong.
- *Free will* is the freedom and ability to control his or her thoughts and actions.

Case Study: MK, a 28-year-old male, was charged with aggravated assault on his roommate. One evening, MK and his roommate began to have a heated verbal argument over the rent. After yelling at each other for several minutes, MK left the room suddenly and began to walk quickly up the

stairs to the second floor of the apartment. He described later during questioning that he left because he felt “trapped,” “unsafe,” “very nervous,” and he “needed to get away from the yelling.” Soon after MK left the room, his roommate ran after him up the stairs, shouting that the discussion was not over. MK’s roommate did not touch MK, but he stopped less than a foot away from him on the stairs. At that time, MK sprayed his roommate in the face with pepper spray. MK’s roommate screamed after being hit with the pepper spray and, blinded by the spray, began to wave his arms wildly in order to catch the stair railing. MK then removed a pocketknife from his pocket and stabbed his roommate in the abdomen, causing major injuries.

When questioned, MK said he used the pepper spray because he felt unsafe when the roommate yelled and ran towards him. MK said that he stabbed his roommate because the pepper spray seemed to make the roommate “yell louder, want to grab me, and kill me even more.” MK said that he had acted in self-defense because he feared his roommate was going to seriously injure him. MK said that he does not understand why he is being tried. Neither MK nor his roommate have histories of violent behavior.

During the trial, MK sat next to his lawyers at the defense table with a smile on his face, and did not seem interested in the trial. He lined up pencils on the defense table when he was not being questioned. He read a comic book during his roommate’s testimony. On the stand, he smiled when he was discussing the case, and he spoke with no emotion.

APPENDIX B

Expert Psychiatric Testimony

Instructions: You will now be presented with additional information on the case for which you are on the jury, followed by three sets of questions.

Testimony: Dr. Smith, a psychiatrist, gave expert testimony during the trial. He explained that MK has a high-functioning autistic spectrum disorder and his condition probably played a role in the event on trial. MK’s symptoms are typical of what is commonly called Asperger’s syndrome. People with this condition often have problems with performing and understanding social interactions, understanding other people’s emotions, compassion, and do not speak with emotion. However, people with this condition usually have normal intelligence and do not have problems understanding or using language. Scientific research indicates a likely genetic cause of this condition, which means that a person born with certain genes would be more likely to have it.

Dr. Smith continued to explain that people with this condition prefer structure and routine. They tend to have strong fear and anxiety when

their personal space or routines are changed, because this makes them feel trapped. In stressful situations, they are more likely to become paranoid, overreact, and misread others' actions as threats. They then try to return stressful situations to their comfort level. These individuals are typically loners with few long-lasting relationships. They usually do not trust others, even people they know.

Dr. Smith explained that MK's condition likely affected MK's view of the situation. MK left the room likely because he felt anxious and "trapped" as the fight became heated and wanted to return the situation to his comfort level. When the roommate followed MK up the stairs, MK likely became more nervous and afraid as the roommate came towards him. MK's condition would not have prevented him from knowing what he was doing or making logical choices, but MK likely misunderstood his roommate's behavior as more aggressive or physically threatening than it actually was. Dr. Smith said that a person like MK would have thought there was a real threat, and that MK likely believed he had to protect himself. Dr. Smith also said that MK's condition explained his behavior during the trial, including the odd facial expressions, disinterest, and the comic book reading.