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Effects of Diagnosis and Evidence Type on Insanity Defense Outcomes and Juror Perceptions

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Abstract

Psychopathy rarely forms the basis of an insanity defense, due to its highly prejudicial nature. However, certain characterizations and types of evidence can somewhat reduce this stigma. Undergraduate participants ($N = 270$) in this mock trial experiment read vignettes describing a fictional murder case in which an insanity defense was raised. These vignettes varied by evidence type (neuroscientific or psychological) and by the defendant's diagnosis (psychopathy, a brain disease, or psychosis). Participants delivered verdicts and answered questions about sentencing and their perceptions of the defendant. The results indicate that neuroscientific evidence is superior to psychological evidence in establishing a successful insanity defense, while nonsignificant trends suggest that labeling psychopathy as a brain disease may ameliorate the stigma surrounding the disorder.

Keywords: psychopathy, insanity defense, diagnosis, evidence, mock trial, verdict, sentencing, punishment

A series of difficult questions is smoldering at the intersection of forensic psychology, jurisprudence, and neuroethics, questions concerning the accountability and disposition of criminal defendants whose mental capacity is affected by psychopathology. To be sure, these are not new questions. The extent to which persons with mental illness are responsible for their actions has been argued in courtrooms since the Age of Enlightenment (Reznek, 1997). It fascinated Victorian social critics (Smith, 1988; Tolstoy, 1869/1994), and it has riveted the modern public—most notably in such high-profile cases as John Hinckley Jr.'s acquittal for the failed assassination of President Reagan (Bonnie, Jefferies, & Low, 2000). However, recent advances in science, such as the burgeoning of fMRI technology and evolving conceptualizations of psychopathology, have brought the relationship between psychology and the law, long uncomfortable, to a head (Carroll, 1986; Haederle, 2010; Schneider, 2009). To what extent is the ordinary legal assumption of rationality accurate for those with abnormal brain functioning (Reznek, 1997)? What types of abnormality may qualify as exculpatory? Can (and should) recently-developed neuroimaging technologies help us predict future behavior (Nadelhoffer et al., 2010)? Even within this hotly-debated sphere, there are areas of greater and lesser clarity.

One intriguing area of lesser clarity is that of psychopathy. Psychopathy is characterized by lack of empathy and guilt, shallow affect, manipulativeness, impulsivity, poor behavioral control, and often, criminal behavior (Hoff, Beneventi, Galta, & Wik, 2009).[1] Persons with psychopathy appear to have prefrontal and limbic deficiencies

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[1]   It is of note that psychopathy is not synonymous with antisocial personality disorder (ASPD), a diagnosis found in the DSM-IV. Indeed, psychopathy represents a distinct, more severe construct (Gurley, 2009). This project focuses on psychopathy, not ASPD.

(Basoglu et al., 2008; Lapierre, Braun, & Hodgins, 1995), and exhibit lessened autonomic response to aversive and fearful stimuli (Gao, Glenn, Schug, Yang, & Raine, 2009). They represent an especially interesting case in the debate introduced above, in that, although they have pronounced affective, behavioral, cognitive, and neurobiological deficits, the law traditionally does not recognize psychopathy as a potentially exculpatory mental condition—and in some cases, it even goes so far as to exclude persons with psychopathy from eligibility for an insanity plea (Kinscherff, 2010). Indeed, while comprising roughly 1% of the general population (Rotter, Way, Steinbacher, Sawyer, & Smith, 2002), individuals with psychopathy account for approximately one-third of inmates (Gurley, 2009; Poythress et al., 2010).

Much of the cutting-edge research on psychopathy makes use of fMRI technology and examinations of diagnosed individuals in prison populations (for example, Arja et al., 2009; Kiehl, Bates, Laurens, Hare, & Liddle, 2006). The feasibility of this methodology, however, is limited by the equipment and training required to conduct research with such sophisticated neuroimaging technology. A much more accessible area of study—and one that has yet to be widely examined—is that of layperson views about the appropriate legal disposition of criminal defendants with psychopathy. This area of research is uniquely relevant in that it is the attitudes of private individuals (when on juries) that directly influence the fate of these defendants.

Some of the early research in this area was carried out by Edens, Guy, and Fernandez (2003), who used a mock trial paradigm to measure attitudes toward a convicted juvenile capital offender. Undergraduate students were asked to assume the role of jurors and to read the account of a legal appeal involving the offender. They were then asked questions related to sentencing and their perceptions of the case. When the offender was described has having

psychopathic traits, rehabilitative treatment was seen as less of a priority than when he did

not have these traits, a finding which suggested what Edens et al. (2003) referred to as the

prejudicial effects of psychopathy. To further investigate these effects, Edens, Desforges,

Fernandez, and Palac (2004) conducted a mock trial study examining ratings of future

dangerousness of capital murder defendants. Defendants with psychopathy were perceived

as more likely to be dangerous in the future than were defendants with no diagnosis, although

future dangerousness ratings did not differ significantly between defendants with

psychopathy and defendants with psychosis. In a follow-up study, however, Edens, Colwell,

Desforges, and Fernandez (2005) found that undergraduate mock jurors were significantly

more likely to sentence to death defendants diagnosed with psychopathy than they were

either defendants diagnosed with psychosis or those with no diagnosis. Taken together, these

findings suggest that, while mental illness in general is stigmatic (a supposition corroborated

by Silton, Flannelly, Milstein, & Vaaler, 2011), psychopathy is uniquely prejudicial in

criminal proceedings.

Such prejudicial effects have been evidenced in numerous actual court cases, as

Rendell, Huss, and Jensen (2010) recounted. In many trials involving the insanity plea, the

prosecution has presented evidence that a defendant has psychopathy, in order to convince

jurors that the accused was, in fact, criminally responsible and should be held fully

accountable rather than being acquitted as insane. For their part, defense attorneys arguing

an insanity case have sometimes attempted to specifically show that a defendant did *not* have

psychopathy, bringing evidence of an alternative diagnosis in hopes of preempting or

counteracting such prosecution strategies. On occasion, the defense has even avoided

altogether using the insanity defense, lest the prosecution offer strongly prejudicial rebutting evidence of psychopathy.

Gurley and Marcus (2008) conducted some of the first research specifically investigating psychopathy in the context of the legal insanity defense. They assessed the effects of diagnosis (psychopathy or psychosis), presence or absence of traumatic brain injury, and presence or absence of an MRI scan on verdicts and ratings of the persuasiveness of testimony. Among the findings were significant main effects for diagnosis and MRI, such that defendants with psychosis were much more likely to be found not guilty by reason of insanity (NGRI) than those with psychopathy, as were those for whom an MRI scan was provided. While defendants with psychopathy were rarely found NGRI by merit of their disorder alone (just over 10%), that rate nearly doubled in the presence of an MRI image. The additional presence of a traumatic brain injury doubled the rate of NGRI again to nearly 43%. These results suggest both the prejudicial effects of psychopathy diagnosis and also the gravity accorded to medically-construed or neuroscientific evidence.

Further substantiating the impact of neuroscientific evidence (although not in the specific case of psychopathy), recent mock trial research by Rendell et al. (2010) and Schweitzer and Saks (2011) suggests that neuroscientific evidence is more successful than psychological evidence in supporting an insanity plea. Specifically, neuroscientific evidence describing neurochemical and neurobiological irregularities (Rendell et al., 2010) and presenting neuroimaging and accompanying interpretation (Schweitzer and Saks, 2011) was found to yield more NGRI verdicts than psychological evidence based upon clinical evaluation and psychological testing. In addition to significantly influencing verdict, neuroscientific evidence appeared to lead jurors to attribute a lesser degree of behavioral

control to a defendant with a mental disorder (Rendell et al., 2010; Schweitzer & Saks, 2011). Furthermore, Rendell et al. found that participants shown neuroscientific evidence were more likely than those shown psychological evidence to believe that a defendant would benefit from treatment. Of final note is that, contrary to previous findings, neuroimaging did not lead to more NGRI verdicts (Schweitzer & Saks, 2011). Based on this result, Schweitzer and Saks reinterpreted earlier research purporting to demonstrate such an effect (Gurley & Marcus, 2008, for example) as showcasing not the specific effects of neuroimaging itself, but rather the general effects of neuroscientific evidence.

Taken together, the studies reviewed above recommend two conclusions. First, it seems clear that, compared to psychological evidence, neuroscientific evidence is more effective at obtaining NGRI verdicts, eliciting support for rehabilitative treatment, and generating perceptions of impaired behavioral control in a mock trial context. Second, it appears that the diagnosis of psychopathy has strongly prejudicial effects on mock jurors, when compared to psychosis diagnosis or no diagnosis. However, this effect appears to be ameliorated by the introduction of neuroscientific evidence. As Schweitzer and Saks (2011) remarked, "framing mental illness in biological or neurological terms works to remove some skepticism on the part of jurors by making the underlying mechanism of the mental illness more concrete" (p. 604).

The present study built upon these foundations, investigating the central issue of the perceived culpability of defendants with psychopathy. Inspired by the work of Gurley and Marcus (2008) and seeking to extend the findings of Rendell et al. (2010) and Schweitzer and Saks (2011) to specifically examine attitudes toward psychopathy, the present study compared the effects of neuroscientific versus psychological evidence on guilty or NGRI

verdict for a defendant diagnosed with either psychopathy or psychosis (a control condition). Additionally, the study employed a novel manipulation—styling psychopathy either medically as a "brain disease" or as a psychological condition. This manipulation built both upon Gurley and Marcus's finding that establishing a physical basis for psychopathic traits (i.e. a traumatic brain injury) increased NGRI verdict rates and upon Schweitzer and Saks' suggestion that biological framing makes a mental disorder more credible to jurors. Including the brain disease diagnosis was intended to reveal whether simply presenting an alternative etiological perspective could blunt the prejudicial effects of psychopathy. Finally, this study also looked to explore perceptions of the degree of behavioral control of defendants with psychopathology and the previously unexamined effects of diagnosis and evidence type on non-capital sentencing harshness and the prioritization of treatment for an adult defendant.

Participants were presented with one of six vignettes describing a criminal defendant with psychopathy (labeled as either *psychopathy* or as a *brain disease*) or psychosis. In the vignettes, evidence of impairment was presented; this evidence was either neuroscientific or psychological in nature. The experiment thus followed a 3 (diagnostic label—psychopathy, brain disease, or psychosis) x 2 (evidence type—neuroscientific or psychological) design. After reading the vignettes, participants were asked to deliver a verdict and a sentence in the case. Measured were NGRI versus guilty verdict, participants' harshness in sentencing, the duration of the assigned sentence, the perceived importance of rehabilitative treatment of the defendant, and perceptions regarding the defendant's degree of behavioral control.

It was hypothesized that psychopathy diagnosis would have a prejudicial effect on jurors' attitudes toward the defendant. Specifically, a main effect was predicted for

diagnostic label, such that psychopathy diagnosis would lead to the severest disposition (i.e. the fewest NGRI verdicts, greatest harshness in sentencing, longest duration of sentence, least importance accorded to rehabilitation, and greatest perceived degree of behavioral control), brain disease diagnosis to less severe disposition, and psychosis diagnosis to the least severe disposition of all the diagnoses. Additionally, it was hypothesized that neuroscientific evidence would elicit less severe disposition than would psychological evidence. This main effect of evidence type would be demonstrated by more NGRI verdicts, less harshness in sentencing, shorter durations of sentence, more importance accorded to rehabilitation, and less perceived degree of behavioral control in the case of a defendant whose trial included neuroscientific evidence than one whose trial included psychological evidence. Finally, an interaction was predicted, such that a defendant diagnosed with a brain disease and defended with neuroscientific evidence would be treated less severely than a defendant diagnosed with psychopathy and defended with psychological evidence, to an extent greater than that which would be expected from the main effects alone.

Method

Participants

Participants were undergraduates ($N = 270$) at a small liberal arts college in the Northeastern United States. As an incentive for participating, students received introductory psychology course credit or were entered in a drawing to win a $25 gift card. Participants were primarily young (*M* age = 20.05, *SD* = 1.89) and female (67%). Caucasians comprised the majority of the sample (86.7%), while Hispanics (5.2%), Asians and Pacific Islanders (4.1%), and African Americans (3%) comprised the remainder; a small proportion of participants (1.1%) reported their race as "other." A minority of participants (15.9%) had

been contacted to serve (although they had not necessarily served) on a jury. The Dickinson

College Institutional Review Board approved all materials and procedures before the study

commenced.

Materials

Participants in this study received an electronic survey (see Appendix A). First,

demographic questions determined participants' age and gender, as well as whether they had

taken a class in psychopathology or had ever been contacted to serve on a jury. Participants

were also asked a question assessing their attitude toward capital punishment, based on that

used by J. F. Edens (personal communication, November 28, 2011). Next, they read

instructions introducing the study. They were told that they were to serve as judge in a

murder trial, and must, on the basis of a short passage containing evidence and testimony,

reach a verdict.

Each participant read one of six brief vignettes describing the trial of a criminal

defendant and presenting statements from the prosecution and defense. The vignettes began

by reviewing the facts of a fictional case involving the murder of a pawnbroker. The

defendant was observed entering and exiting the pawnshop at the time of the murder, and

DNA evidence confirmed that a weapon found in his apartment was indeed the murder

weapon. He confessed to the crime and pled not guilty by reason of insanity (NGRI). The

six vignettes were identical in their length and overall structure; the only differences were

found in one manipulation paragraph containing testimony and evidence regarding the

defendant's condition (see Appendices).

The manipulation paragraph (see Appendix B) began by reporting a defense expert's

diagnosis of the defendant (psychopathy, a brain disease, or psychosis). This diagnosis was

based on psychological testing (for the psychological evidence condition) or a PET scan (for the neuroscientific evidence condition). The diagnosis was then generally characterized as involving affective, behavioral, cognitive, and interpersonal disturbances (for the psychological evidence condition) or diagnosis-appropriate neurobiological impairment (for the neuroscientific evidence condition). Next, specific deficits were outlined. When the defendant was diagnosed with either psychopathy or a brain disease, these highlighted traits were drawn from the Hare Psychopathy Checklist—Revised (PCL-R) (Hare, 1991). Specifically, the defendant's deficits were described as involving lack of impulse control, inability to experience emotions, lack of remorse, irresponsibility, and impaired moral judgment. When diagnosed with psychosis, the defendant had deficits found in schizophrenia, drawn from the DSM-IV-TR (American Psychiatric Association, 2000), specifically, delusions, hallucinations, disorganized thought and speech, engagement in bizarre behaviors and mannerisms, and display of inappropriate emotional responses. Finally, the paragraph reported that a prosecution expert agreed with the assessment made by the defense expert.

Following the example of Schweitzer and Sacks (2011), manipulation paragraphs with neuroscientific evidence included a PET scan showing the contrast between a normal brain and the brain of a person with either psychopathy (for the psychopathy and brain disease conditions) or schizophrenia (for the psychosis condition). Manipulation paragraphs with psychological evidence included the image of an empty courtroom, sized the same as the PET scan image. This was done to prevent any possible confounding effects of presenting an image in one condition but not another.

Instructions following the vignettes informed participants of their fictional jurisdiction's standards for exculpatory insanity. These standards were a slightly-simplified version of the M'Naghten standard, the current federal standard for legal insanity in the United States (Carroll, 2011). Specifically, defendants must demonstrate beyond a reasonable doubt that, at the time of the crime, they were unable to understand the nature or wrongness of their actions, because of mental illness or defect. The M'Naghten standard was chosen over the American Legal Institute's Model Penal Code standard employed in a similar study by Gurley and Marcus (2008). This decision was made both in light of the greater prevalence of the M'Naghten standard and in order to determine the as-yet unexamined outcome of using the M'Naghten standard in a mock trial experiment involving psychopathy. Additionally, participants were told that their jurisdiction did not permit capital punishment. A number of studies have made use of the mock trial paradigm to measure attitudes regarding capital punishment of defendants with psychopathy (Edens et al., 2005; Edens et al., 2004; and Edens et al., 2003 are good examples), but such an examination was outside of the scope of the present study.

A series of questions determined participants' responses to the vignettes. First, participants were asked to rule the defendant guilty or NGRI. If they ruled the defendant guilty, the harshness with which they believed he should be sentenced was measured on a six-point Likert scale. As a more tangible measure, for either verdict, participants were asked to sentence the defendant to a specific number of years of incarceration (0 years was indicated by those who chose NGRI). Next, the importance of treating the defendant's condition was measured on a 6-point Likert scale. Finally, participants were asked to rate the

degree of control they believed the defendant possessed over his actions when committing his crime, again, on a 6-point Likert scale.

At the conclusion of the survey, participants were asked a series of three comprehension evaluation questions as a manipulation check to verify their understanding of the instructions (for example, that the vignette was fictional) and familiarity with the case (i.e. what the defendant's diagnosis was). Data from participants who failed to correctly answer two out of the three questions were excluded from the study. These questions and the elimination criterion were very similar to the those used to measure comprehension of the stimulus materials by Edens et al. (2003) and were also comparable to those employed in Gurley and Marcus's (2008) study. This exclusion served to remove participants who may have been confused and, so, to maximize internal validity (Edens et al., 2003, p. 815).

Procedures

Informed consent to participate was gathered from each participant prior to the experiment. In the case of participants receiving psychology course credit, the researcher administered electronic surveys to small groups of participants in a research suite; otherwise, participants completed the survey individually, in varied locations. Regardless of the setting of administration, each participant randomly received one of the six versions of the survey. On-screen instructions asked them to complete the demographic portion of the survey, read the vignette, and answer the subsequent questions. After completing the survey, participants were thanked for their time, and were not otherwise debriefed.

Data analysis

Data from participants in each of the six conditions were pooled and analyzed using PASW 18 statistical software. Responses to the guilt question (i.e. guilty or NGRI verdict)

were analyzed using a series of chi-square tests for independence, due to the categorical nature of the variable. A series of two-way ANOVAs were conducted to analyze differential responding by condition to the questions measuring harshness, sentence duration, perceived importance of treatment, and perceived degree of control. Evidence type and diagnostic label were between-subjects factors. Planned *post hoc* t-tests were conducted to further analyze the data. Unless otherwise stated, alpha levels were set at 0.05.

Results

Comprehension Check Exclusions

Prior to data analysis, participants' responses to the comprehension evaluation questions were examined. The data from participants who failed to correctly answer two out of the three questions (43 participants, 16% of the total sample) were excluded from analysis—similar to the proportion excluded by Gurley and Marcus (2008). By condition, the following exclusions were made: brain disease, neuroscientific evidence ($n = 4$); brain disease, psychological evidence ($n = 7$); psychosis, neuroscientific evidence ($n = 8$); psychosis, psychological evidence ($n = 9$); psychopathy, neuroscientific evidence ($n = 9$); and psychopathy, psychological evidence ($n = 6$). The 227 participants remaining after exclusion were distributed by condition as follows: brain disease, neuroscientific evidence ($n = 44$); brain disease, psychological evidence ($n = 36$); psychosis, neuroscientific evidence ($n = 32$); psychosis, psychological evidence ($n = 34$); psychopathy, neuroscientific evidence ($n = 37$); and psychopathy, psychological evidence ($n = 44$).

Inferential Analyses

The verdicts (guilty or NGRI) returned by participants in each of the experimental conditions were analyzed using a chi-square test for independence; cell frequencies for

verdicts in each of the conditions are reported in Table 1. Overall, 42.5% of participants

returned NGRI verdicts. Collapsing across evidence types, NGRI verdict rates by diagnosis

were as follows: brain disease (39.2%), psychosis (50%), and psychopathy (39.5%).

Ignoring the independent variable of evidence type, verdicts did not differ significantly

between conditions, χ^2 (2, $N = 226$) = 2.16, $p = .34$, $\Phi_c = .10$. By contrast, verdicts did

appear to differ by evidence type; collapsing across diagnostic label, 50% of participants who

were shown neuroscientific evidence delivered NGRI verdicts, compared to only 35.1% of

participants shown psychological evidence. Ignoring the independent variable of diagnostic

label, this difference is significant, χ^2 (1, $N = 226$) = 5.14, $p = .02$, $\Phi_c = .15$. Additional chi-

square tests of independence were conducted to further analyze these results. Within the

psychosis diagnosis conditions, 65.6% of respondents who received neuroscientific evidence

returned NGRI verdicts, compared to 35.3% of those who received psychological evidence,

χ^2 (1, $N = 66$) = 6.07, $p = .01$, $\Phi_c = .30$. Within the brain disease conditions, the comparable

percentages were 48.8% and 27.8%, respectively, χ^2 (1, $N = 79$) = 3.64, $p = .06$, $\Phi_c = .22$.

Finally, 37.8% of participants in the psychopathy conditions who were shown neuroscientific

evidence returned NGRI verdicts, whereas 40.9% of those shown psychological evidence

ruled the defendant NGRI, χ^2 (1, $N = 81$) = .08, $p = .78$, $\Phi_c = .03$. Figure 1 illustrates the

percentages of NGRI verdicts by condition.

A series of 2-way ANOVAs was then conducted to determine the effects of

diagnostic label (brain disease, psychosis, or psychopathy) and evidence type (neuroscientific

or psychological) on the remaining dependent variables (sentencing harshness, sentence

duration, importance of treatment, and degree of control). For the dependent variable of

sentencing harshness, no main effects were found for diagnostic label, F (2, 124) = .44, $p =$

.65, η^2 = .01, or for evidence type, F (1, 124) = .00, p = .98, η^2 < .001, however, the

diagnostic label by evidence type interaction approached significance, F (2, 124) = 2.73, p =

.07, η^2 = .04 (see Figure 2). Exploratory *post-hoc* independent samples t-tests were thus

conducted, and suggested that although psychosis/neuroscientific evidence participants did

not differ from psychosis/psychological evidence participants with respect to sentencing

harshness, t (30) = .25, p = .80, d = .09, psychopathy/neuroscientific evidence participants

tended to sentence less harshly than psychopathy/psychological evidence participants, t (47)

= 1.64, p = .11, d = .48 (although not to a statistically significant degree). By contrast, brain

disease/neuroscientific evidence participants seemed to sentence more harshly than did brain

disease/psychological evidence participants, t (46) = 1.63, p = .11, d = .48 though, again, the

difference was not significant.

Next, the dependent variable of sentence duration was examined (see Figure 3); there

was no main effect of diagnostic label, F (2, 216) = .93, p = .40, η^2 = .01 or of evidence type,

F (1, 216) = 2.5, p = .12, η^2 = .01. An interaction was likewise nonsignificant, F (2, 216) =

1.01, p = .37, η^2 = .01. Similarly, no significant main effect for diagnostic label F (2, 220) =

.74, p = .48, η^2 = .01 or evidence type, F (1, 220) = .03, p = .86, η^2 < .001 was found for the

dependent variable of perceived importance of treatment. The diagnosis by evidence type

interaction was also not significant, F (2, 220) = .60, p = .55, η^2 = .01; these results are

displayed in Figure 4.

Finally, an analysis of the dependent variable of perceived degree of behavioral

control (see Figure 5) yielded no main effect of diagnostic label, F (2, 218) = .94, p = .40, η^2

= .01, but a significant main effect for evidence type, F (1, 218) = 4.17, p = .04, η^2 = .02.

There was no significant interaction, F (2, 218) = .62, p = .54, η^2 = .01. Table 2 displays

means and standard deviations for each dependent variable, while Table 3 reports F and p values, and effect sizes.

Discussion

The present study was the first of its kind to investigate the effects of evidence type and diagnostic label on conviction, sentencing, and perceptions of a mock defendant with psychopathy. It also employed a novel manipulation—presenting psychopathy as a brain disease—to test whether establishing a more concrete, physical basis for the condition would attenuate the strong prejudicial effects generally associated with psychopathy. Consistent with the predictions, significant results and trends in the expected directions suggest the superiority of neuroscientific evidence in establishing a successful insanity defense and the prejudicial effect of psychopathy on jurors, a phenomenon which was somewhat ameliorated when psychopathy was framed medically and paired with neuroscientific evidence.

The verdict is the central outcome of any trial, be it mock or actual, so special attention should be given to interpreting these results. As hypothesized, neuroscientific evidence led to significantly more NGRI verdicts than did psychological evidence. This result is consistent with the findings of recent studies (Rendell et al., 2010; Schweitzer & Saks, 2011), and serves to extend their conclusions to the case of an experiment involving psychopathy. Rates of NGRI verdict were not found to differ by diagnosis; however, the highest NGRI verdict rates were observed when the defendant was diagnosed with psychosis, a finding in line with previous research (Gurley & Marcus, 2008). Although the prediction that participants in the brain disease conditions would return more NGRI verdicts than participants in the psychopathy conditions, regardless of evidence type, was not supported, the combination of brain disease diagnosis and neuroscientific evidence did lead to a higher

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NGRI rate than did that of psychopathy diagnosis and neuroscientific evidence (48.8% versus 37.9%, respectively). This suggests that the novel manipulation of labeling psychopathy as a brain disease may, indeed, have been successful in reducing some of the prejudicial effects of psychopathy.

Surprisingly, the highest rate of conviction (72.2%) was delivered in the brain disease, psychological evidence condition; this finding is contrary to the prediction that the brain disease diagnosis would be second only to the psychosis diagnosis in low levels of guilty verdicts. An examination of the manipulation paragraphs offers an explanation (see Appendix B). Whereas the brain disease, neuroscientific evidence condition (51.2% conviction rate) manipulation paragraph featured a PET scan and mentioned reduced activity and abnormal functioning in the frontal cortex and limbic system, the *brain disease*, *psychological evidence* condition manipulation paragraph included only the control image of a courtroom, and referenced abnormal emotions, actions, thoughts, and interpersonal behavior. A plausible explanation for the high conviction rate in the latter condition is that, in the absence of substantiating, medical evidence, merely labeling the condition as a brain disease failed to make it more credible or concrete, in the words of Schweitzer and Saks (2011). Indeed, the high conviction rate suggests skepticism about the label, and may reflect the perception that claiming to suffer from a medical condition on the basis of psychological testing is disingenuous, in the context of a legal insanity defense.

Also of special note is that mock jurors in the present study assigned NGRI verdicts at a much higher rate than did those in analogous conditions in the study by Gurley and Marcus (2008). For instance, jurors in the present study delivered NGRI verdicts 40.9% of time when the defendant was diagnosed with psychopathy using psychological evidence,

compared to just 10.6% of the time in Gurley and Marcus's study. Once again, this difference

may be explained in part by the descriptions used in the two studies. Describing the

defendant with psychopathy, Gurley and Marcus stated that he was "charming, had difficulty

sustaining work due to tardiness and difficulties with authority, relied on family and friends

for financial support, and has had multiple short-term sexual relationships" (p. 89). This

description focuses on behavioral patterns of the defendant that are not particularly relevant

to the legal insanity standard—and, indeed, are not even strikingly pathological. By contrast,

the description given in the present study highlights lack of impulse control, inability to

experience emotions, lack of remorse, irresponsibility, and impaired moral judgment. These

deficits are broader in scope, portray the defendant in a more pathological light, and focus

directly upon traits relevant to the legal standard for exculpatory insanity.

Additionally, when Gurley and Marcus's (2008) defendant had psychopathy and

presented neuroimaging and neuroscientific testimony to aid in his insanity plea, the NGRI

verdict rate nearly doubled (~19%) compared to psychological evidence alone (10.6%).

Interestingly, however, in the present study, pairing psychopathy diagnosis with

neuroscientific evidence did not result in an increased NGRI verdict rate, compared to

pairing with psychological evidence (37.8% versus 40.9%). This inability of neuroscientific

evidence to increase the NGRI rate for the defendant with psychopathy over that elicited by

psychological evidence might be explained with reference to the demonstrated prejudicial

effects of psychopathy (Edens, Colwell, Desforges, and Fernandez, 2005; Rendell, Huss, and

Jensen, 2010). Perhaps the prejudicial nature of psychopathy diagnosis creates a ceiling

effect, such that, up to—but not beyond—a certain level, pathological descriptions (*supra*) or

evidence showing concrete impairment yield higher NGRI rates. Specifically, whereas

neuroscientific evidence appreciably augmented NGRI rates when the defendant was

diagnosed with psychosis or when psychopathy was simply labeled a brain disease, (and also

for psychopathy, labeled as psychopathy, when the baseline NGRI rate was sufficiently low,

as in the Gurley and Marcus study), there appears to be a certain level (roughly 40% NGRI)

beyond which providing neuroscientific evidence does not increase the chances of being

found NGRI. If accurate, this hypothesis would begin to quantify the reported prejudicial

effect of psychopathy. Given the dearth of mock trial research on psychopathy and the

insanity defense, it will be up to future researchers to confirm or refute this supposition.

Results from the present study suggest that diagnostic label and evidence type may

have had some effect on sentencing harshness and perceived degree of control. For the

measure of sentencing harshness, the trend toward a significant interaction suggests that, as

hypothesized, when the defendant was diagnosed with psychopathy, neuroscientific evidence

led to less harsh treatment than did psychological evidence. Although no interaction was

present when the defendant was diagnosed with psychosis, an interaction did appear to

emerge when the defendant was diagnosed with a brain disease. The nature of this

interaction was such that neuroscientific evidence led to harsher treatment, whereas

psychological evidence led to less harsh treatment. This result runs contrary to what was

predicted, as well as to the patterns demonstrated in the related measures of verdict and

sentence duration. If replicated, it would certainly raise intriguing questions about

perceptions of moral desert and the consequences of harsh treatment.

Just as predicted, the significant results obtained for the measure of perceived degree

of behavioral control indicate that when the defendant was diagnosed with psychosis, he was

judged to be less in control of his actions when neuroscientific evidence was provided than

when psychological evidence was provided. This finding is consistent with the results of the research conducted by Rendell et al. (2010) and Schweitzer and Saks (2011). It seems likely that neuroscientific evidence may lead to the perception that a defendant's mental disorder is largely responsible for his actions, an issue important in most formulations of the insanity defense.

Results for remaining two variables, sentence duration and perceived importance of treatment, did not differ significantly by diagnostic label or evidence type. As Figure 3 shows, there was considerable variability in the results for the sentence duration question; this may be because participants were asked to generate their own sentence lengths, rather than choosing from a number of pre-defined options. This substantial individual variation most likely prevented the results from surpassing the threshold of statistical reliability. Notwithstanding, the results shown in Figure 3 appear to be consistent with the predictions. It is recommended that future mock trial studies attempt to reduce this variability by using an alternative method to measure of sentence duration, such as asking participants to select among ranges of sentences (e.g. 15-20 years, 20-25 years, etc.). Although it is generally preferable to obtain continuous rather than categorical data, identifying ranges of sentences would also better approximate the legal reality of sentencing guidelines (ranges of sentences assigned to particular crimes).

A number of noteworthy limitations to the present study should be considered. First, it is possible that the comprehension check did not eliminate enough participants, failing to exclude some who did not sufficiently understand the directions and vignettes. Although the exclusion rate was comparable to that in Gurley and Marcus's (2008) study, it is possible that some participants were inappropriately included, which would partially account for the

nonsignificance of some of the results. Researchers conducting future mock trial studies should consider including additional, more stringent comprehension check questions. Future researchers should also consider pilot testing their stimulus materials. Doing so would permit the re-evaluation of materials which participants reported to be confusing or appeared not to understand. The varied locations in which the survey was administered represent another potential limitation; while some participants completed the survey in a research suite monitored by the researcher, most did so in varied locations at their own convenience. These latter participants may have been distracted while taking the survey or have devoted insufficient time and attention to it. Given the large sample size, low power most likely did not limit the findings of the study.

The greatest limitation of the present study is that the stimulus materials (i.e. vignettes) may not have been adequately detailed or lengthy. The brevity of these may be largely to blame for the nonsignificance of some of the results (see Appendix A). Similarly, the impairments described in the manipulation paragraphs (see Appendix B)—particularly those for the psychosis conditions—may not have been sufficiently pronounced. Longer descriptions and more vivid deficits (e.g. the defendant with psychosis believed that the devil spoke to him) would have better approximated actual insanity defense testimony. A review of the stimulus materials employed in previous mock trial experiments across a range of research topics indicates that they were generally both more detailed and longer in duration than those used in the current study (e.g., Bright & Goodman-Delahunty, 2011; Dunlap, Hodell, Golding, & Wasarhaley, 2012; Guy & Edens, 2003; Tait, 2011). Efforts were made during the design phase of the current study to balance the need for materials of sufficient duration and detail with the time constraints involved in maximizing the number of

participants that could be recruited (i.e. the longer the survey, the more difficult to obtain sufficient numbers of participants). However, researchers conducting future mock trial experiments should ensure that sufficient emphasis is placed upon duration and detail considerations.

It should also be noted that caution must be exercised when interpreting and extending the results of mock trial experiments. Mock trial studies are highly useful in that they represent the opportunity to study "jurors'" responses to situations that are rare in the actual criminal justice system (such as a defendant with psychopathy attempting to use the insanity defense). The paradigm is also uniquely relevant in that the mock jurors who participated in the present study may some day participate in an actual jury deciding the fate of a defendant with psychopathy; indeed, some participants (15.9%) had already been contacted to serve on a jury. However, the mock trial paradigm has been criticized for its dubious generalizability (Wiener, Krauss, & Lieberman, 2011)—after all, no jury would ever be comprised of a dozen 20-year-old undergraduates from a private liberal arts college. More importantly, mock trial experiments typically lack crucial aspects of the jury deliberation process, from live testimony to group discussion. These drawbacks suggest the need to develop more sophisticated mock trial methodology, in order to better approximate the experiences of an actual jury.

Beyond the suggestions for improvement mentioned above, numerous future directions for research into psychopathy and the law might be pursued. For instance, although the present study included a measure of the perceived importance of treating the defendant's condition, this very broad notion could be broken down and analyzed in considerably greater depth. What factors influence the perceived importance of treatment?

How is the perceived importance of treating offenders with psychopathology related to that of treating non-psychopathological offenders—or offenders with varying levels of impairment? In addition to considering these questions, researchers might also examine the varying extent to which the distinguishable philosophical goals of punishment (e.g. retributivism, rehabilitation, and deterrence; Moore, 1997 offers a brief taxonomy of these aims) are perceived to apply to certain groups of criminals, particularly those with psychopathology. Prima facie, it seems reasonable to suppose that the differential weighting of these goals may predict varying decisions regarding sentencing and disposition. Although research on punishment has often utilized experimental economics approaches (see Nadelhoffer, Heshmati, Kaplan, & Nichols, 2012) the mock trial experiment would lend itself well to such investigations.

In order to develop more sophisticated future studies like those suggested above, it is imperative that researchers immerse themselves not only in the existing psychological research in the field, but also in the interdisciplinary literature from jurisprudence and the philosophy of punishment. Situated as it is at the crossroads of psychology, law, and philosophy, the present topic of study would benefit greatly from additional empirical investigation. However, as relative latecomers to the area, empirical researchers taking up this call must proceed with caution, lest they overlook the complexities and fine distinctions that have accumulated through centuries' worth of scholarship in the philosophical and legal communities. Notwithstanding the challenges involved, this field offers important opportunities for new research assessing attitudes and perceptions of the law and its underlying assumptions; indeed, some scholars have argued that changes in these attitudes

and perceptions will soon foreshadow dramatic changes in the criminal law (Greene &

Cohen, 2004).

In the spirit of interdisciplinarity, it seems appropriate to briefly consider the

scholarly literature addressing one of the broader questions behind the present study, and one

which cannot be answered empirically: should psychopathy be exculpatory? Whereas the

majority of mock jurors in the present experiment did not believe so, a number of

philosophers and jurists have recently voiced arguments to the contrary. One such line of

reasoning constitutes an external critique of punishment in general, relying upon the

metaphysical positions of determinism and free will skepticism (see Pereboom, 2012);

however, adequately elucidating such arguments is beyond the scope of this discussion.

More accessibly, a number of scholars have formulated an internal reply to the question,

arguing that individuals with psychopathy should be able to avail themselves of the existing

insanity defense (Fischette, 2004, for example). The crux of this argument lies in the

interpretation of the moral component present in most insanity defense standards: to be found

NGRI, a defendant must have been unaware of the wrongness of the crime at the time it

occurred. Those wish to preclude individuals with psychopathy from using the insanity

defense point out that, unlike florid psychosis, psychopathy does not impair the ability to

articulate and conform to the morality and laws of society (Maibom, 2008). However, their

opponents argue that the insanity standard refers to a deeper internalization of morality,

which is severely impaired in psychopathy. As Diamond (as cited in Slovenko, 2009, 182-

183) cautioned regarding individuals with psychopathy, "Their appearance of normalcy, their

apparent ability to exercise free will, choice and decision (and somehow invariably choose

the wrong instead of the right) is purely a façade, an artifact that conceals the extent to which

they are victims of their own brain pathology." It is in part to avoid this jurisprudential

debate that the authors of the DSM have altogether avoided including the valid clinical

construct of psychopathy, instead embracing the less valid diagnosis of ASPD; the DSM-V is

projected to largely continue in this pattern (Gurley, 2009; T. Nadelhoffer, personal

communication, February 15, 2012).

Returning to the present study to consider its practical legal implications, what can be

learned about the behavior of jurors and about perceptions of defendants with psychopathy,

in particular? In general, it would be highly unlikely for a defendant with psychopathy to

successfully plead NGRI in the current legal and social climate. While such a plea might be

more plausible under certain formulations of the insanity standard than others (the broad

Durham test, for instance, requires only that a crime be the product of a mental disease or

defect; Trant, 1983), the chances are at best, remote, particularly if the prejudicial ceiling

effect hypothesis is correct. As the results suggest, however, these chances would be

maximized by showing jurors neuroscientific evidence and by attempting to present a

credible physical or medical basis for the condition, as in the brain disease, neuroscientific

evidence condition in the present study. As comparison with the study by Gurley and

Marcus (2008) reveals, the scope and severity of a defendant's impairment also seem to have

an important impact upon jurors' attitudes and perceptions; thus, an insanity defense raised

by an individual with psychopathy would stand its best chances of success if the defendant

had severe functional impairments which were vividly conveyed to the jury. In the present

study, it appears that these impairments may have been strongly impressed upon the jury; in

general, across all conditions, the importance attributed to treatment was very high, while the

perceived degree of behavioral control accorded to the defendant was fairly low across all

conditions. The high overall rate of NGRI verdicts also suggests that jurors took seriously the severe functional impairments described.

American insanity defense law has fluctuated considerably over the past 50 years. For all these shifts, however, one matter that has remained unchanged is that psychopathy is typically precluded from serving as the basis for an insanity defense. The present study sought to explore juror decisions and perceptions when a defendant with psychopathy does attempt to make use of the insanity defense. Generally speaking, many of the results appeared to be consistent with the predictions, suggesting the need for replication and expansion upon the foundations laid by this study. In closing, it is hoped that the interdisciplinary scope of the current project will inspire future researchers to explore the areas of exculpatory psychopathology, perceptions of criminal responsibility, and punishment more broadly.

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Table 1
Cell Frequencies for Chi-Square Analysis of Verdict

Diagnostic label	Neuroscientific evidence		Psychological evidence	
	Guilty	NGRI	Guilty	NGRI
Brain disease	22	21	26	10
Psychosis	11	21	22	12
Psychopathy	23	14	26	18

Note. NGRI = not guilty by reason of insanity verdict.

Table 2

Means and Standard Deviations for the Results of Sentencing and Juror Perceptions

Diagnostic label	Neuroscientific evidence		Psychological evidence	
	M	*SD*	*M*	*SD*
DV = Sentencing harshness				
Brain disease	2.55	.96	3.04	1.11
Psychosis	3	.78	2.91	1.02
Psychopathy	2.96	.88	2.54	.91
DV= Sentence duration				
Brain disease	18.11	21.71	17.80	19.15
Psychosis	10.61	17.75	20.09	20.82
Psychopathy	18.06	18.83	22.02	23.05
DV = Importance of treatment				
Brain disease	1.61	1.04	1.56	.94
Psychosis	1.72	1.55	1.59	.78
Psychopathy	1.68	1.23	1.95	1.56
DV = Degree of control				
Brain disease	4.07	1.21	3.89	1.06
Psychosis	4.35	1.11	3.79	1.07
Psychopathy	3.92	1.08	3.72	1.22

Table 3
ANOVA Table for the Results of Sentencing and Juror Perceptions

DV	Factor	*df*	*F*	*p*	partial η^2
Sentencing harshness	Diagnosis	(2, 124)	.44	.65	.01
	Evidence	(1, 124)	.00	.98	< .001
	Diagnosis x evidence	(2, 124)	2.73	.07	.04
Sentence duration	Diagnosis	(2, 216)	.93	.40	.01
	Evidence	(1, 216)	2.5	.12	.01
	Diagnosis x evidence	(2, 216)	1.01	.37	.01
Importance of treatment	Diagnosis	(2, 220)	.74	.48	.01
	Evidence	(1, 220)	.03	.86	< .001
	Diagnosis x evidence	(2, 220)	.60	.55	.01
Degree of control	Diagnosis	(2, 218)	.94	.40	.01
	Evidence	(1, 218)	4.17	.04	.02
	Diagnosis x evidence	(2, 218)	.62	.54	.01

Note. DV = dependent variable; diagnosis = diagnostic label; evidence = evidence type.

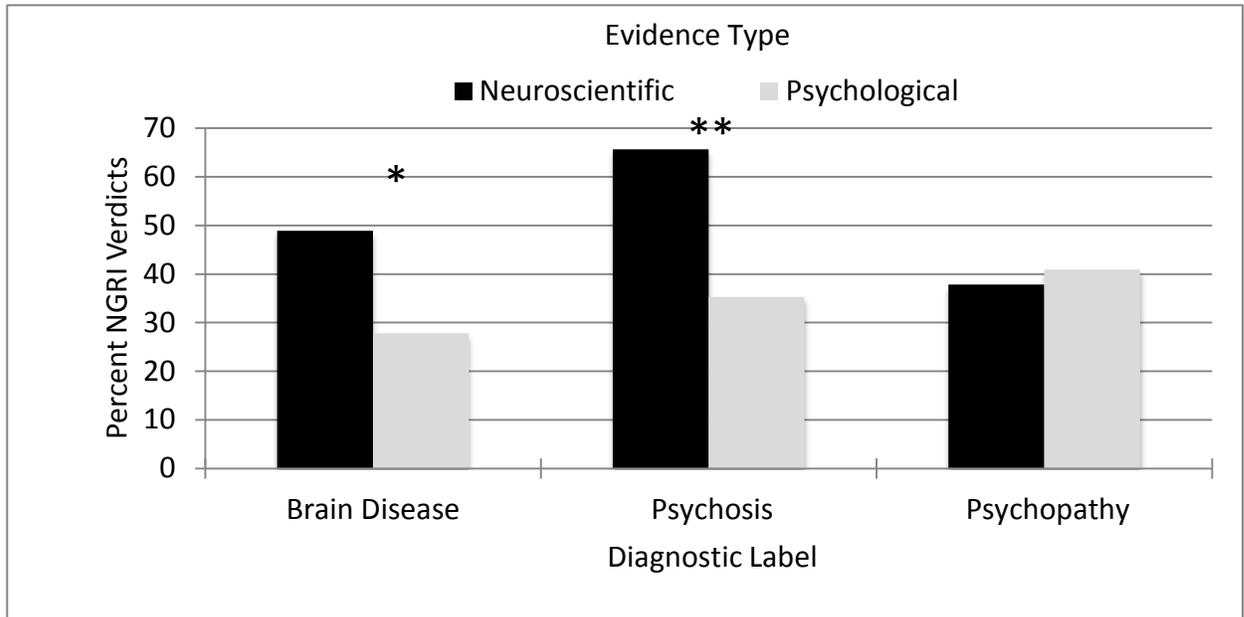*Figure 1.* The percentage of not guilty by reason of insanity (NGRI) verdicts delivered across

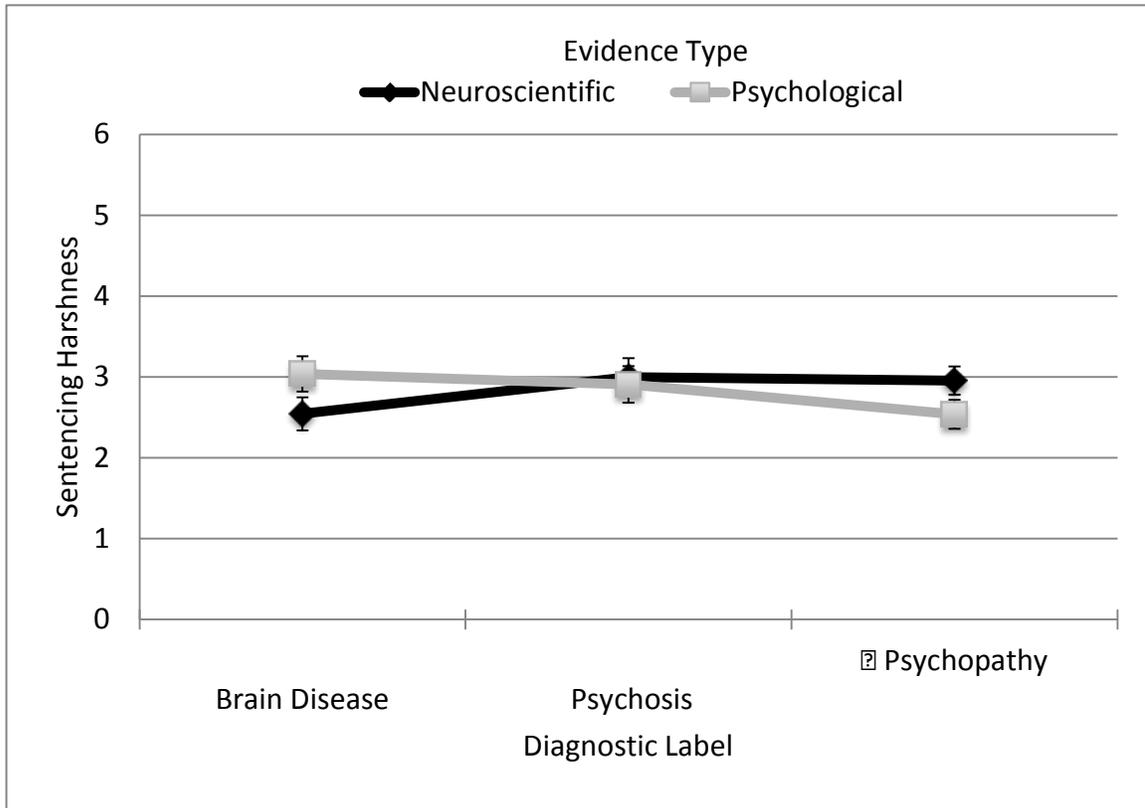all conditions. * indicates p < .10; ** indicates p < .05.

Figure 2. Mean ratings of appropriate sentencing harshness indicated by participants who ruled the defendant guilty across all conditions. Error bars represent standard errors of the mean. Note that 1 refers to *very harshly*, while 6 refers to *very leniently*.
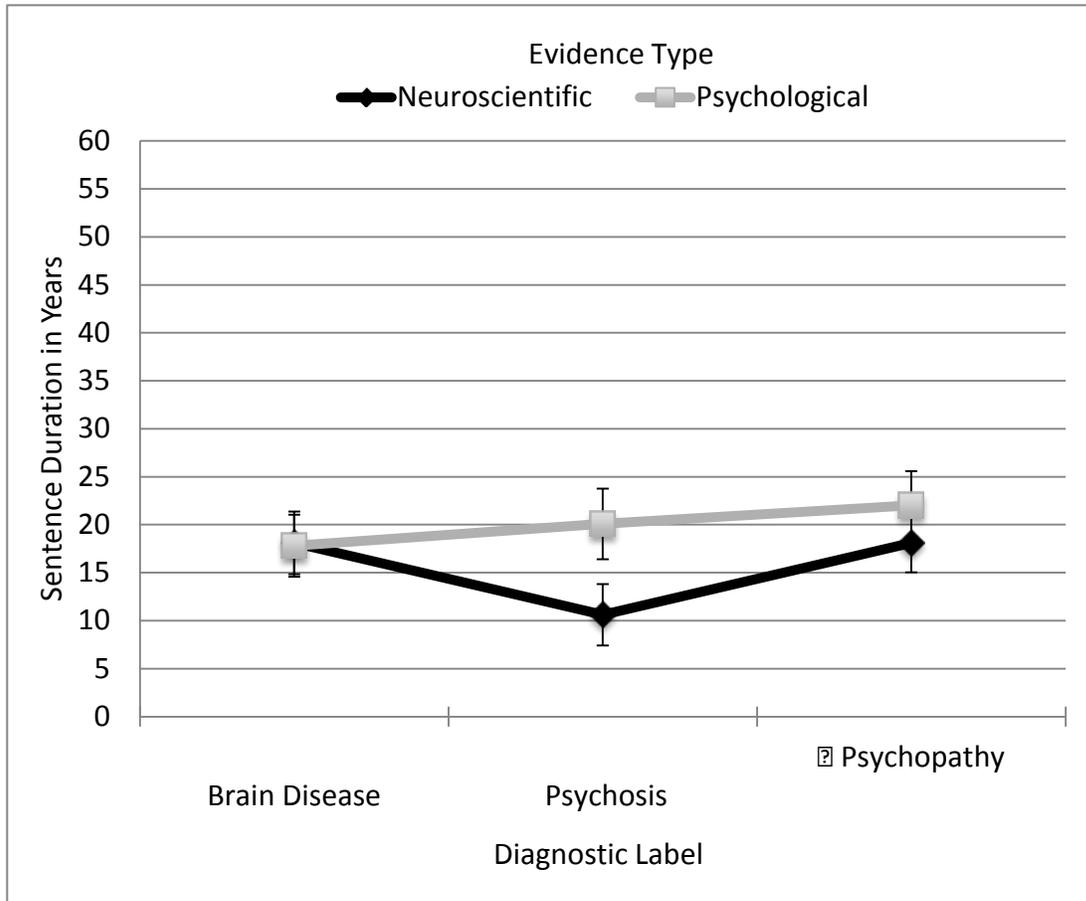
Figure 3. Mean sentence duration assigned to the defendant across all conditions. A not

guilty by reason on insanity verdict (NGRI) would result in a sentence of 0 years. Error bars

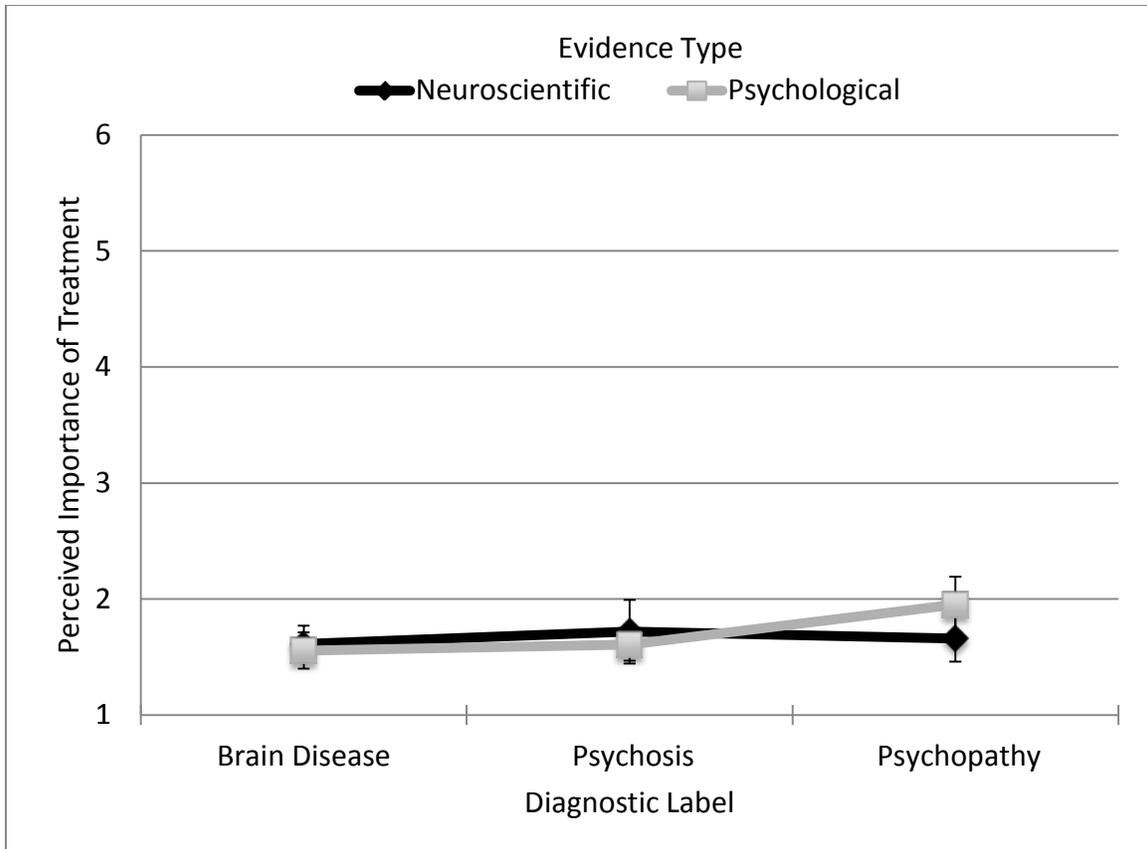represent standard errors of the mean.

Figure 4. Mean ratings of the perceived importance of treating the defendant's disorder across all conditions. Error bars represent standard errors of the mean. Note that 1 refers to *very important*, while 6 refers to *very unimportant*.
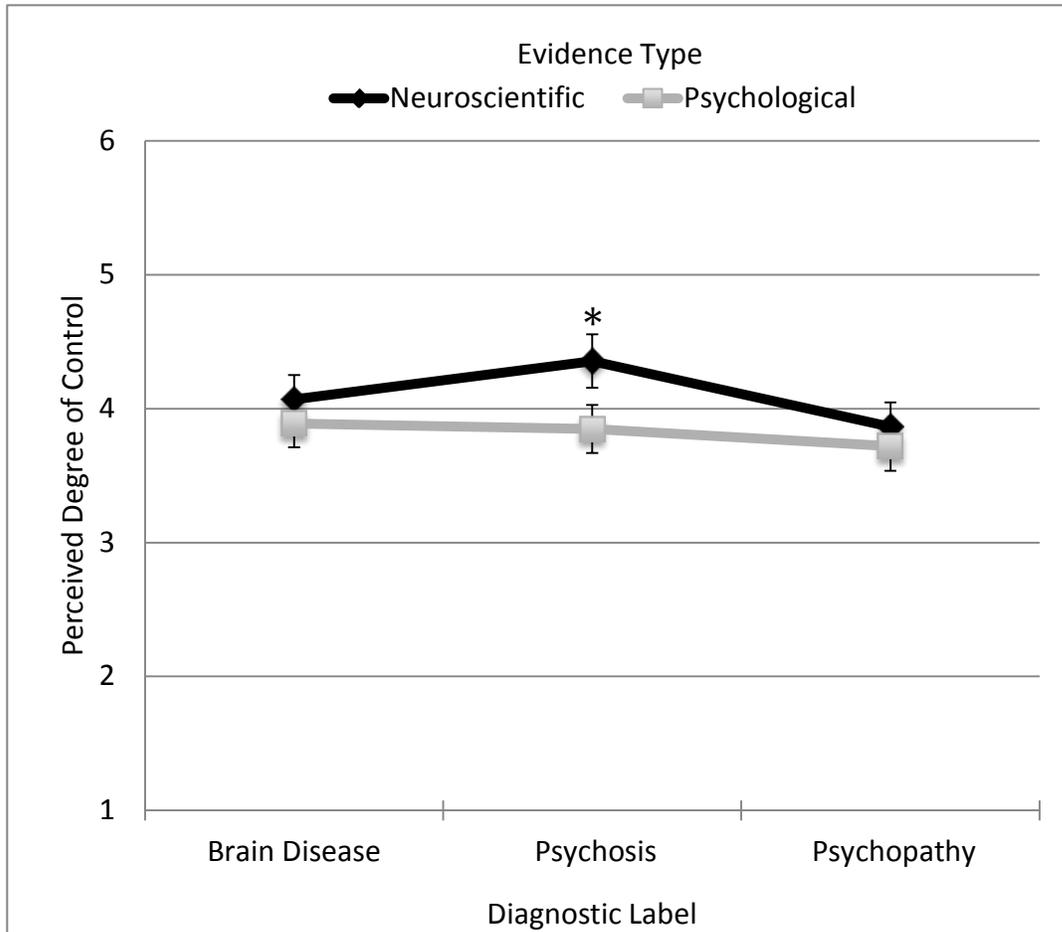
Figure 5. Mean ratings of the level of behavioral control the defendant was perceived to have exercised at the time of the crime across all conditions. Error bars represent standard errors of the mean. Note that 1 refers to *very strong control*, while 6 refers to *very weak control*. * indicates p < .05.

Sample Survey

Please answer the following demographic questions:

1. What is your gender? _____

2. What is your age? _____

3. What race do you primarily identify yourself as? (Choose one)

   Asian or Pacific Islander _____   Black or African American _____

   Hispanic _____   Native American _____   White, non-Hispanic _____

   Other _____

4. Have you ever been contacted to serve on a jury? (Circle one)

   Yes   No

5. Have you taken any classes on psychopathology (abnormal psychology)?

   Yes   No

6. If you were to serve on a jury and you found the defendant guilty of murder, would you automatically vote to impose the death penalty no matter what the facts of the case were? (Circle one)

Definitely	Probably	Possibly	Possibly Not	Probably Not	Definitely Not
1	2	3	4	5	6

The following fictional passage contains a summary of evidence and testimony in the trial of Christopher S. Durham, who has been charged with homicide. Mr. Durham has waived his right to a trial by jury, and thus you, as the judge, are responsible to weigh the facts of the case and reach a verdict.

On March 29, 2011, the defendant, Christopher S. Durham, aged 23, was caught on a surveillance camera entering a pawnshop, owned by the victim, 60-year-old Alyona Ivanovna. Ten minutes later, he was recorded hurrying from the premises. No one entered or exited the shop until later that night, when the victim's sister discovered her body.   Forensics determined that Ivanovna had been killed with an ax, which was not found at the scene.

In the ensuing investigation, Durham was questioned by police, and a search warrant was issued for his apartment. The murder weapon was found hidden in the apartment, and DNA evidence confirmed that trace amounts of Ivanovna's blood were left on the blade. The defendant confessed to the murder and pled not guilty by reason of insanity (NGRI).

[Insert manipulation paragraph (see Appendix B) here]

The prosecution acknowledges Mr. Durham has a serious condition, but argues that it did not prevent him from understanding his actions at the time of his crime. He knew that what he was doing was wrong, and made the choice to do it anyway. The defendant should be found guilty.

The defense argues that Mr. Durham has severe impairments that prevented him from understanding the significance of what he was doing. His deficits kept him from processing emotions and making decisions in the same way someone without his condition would. He should be ruled NGRI.

According to the law in your jurisdiction, to establish a successful insanity defense, Mr. Durham must show beyond a reasonable doubt that, at the time of his crime, he was unable to understand the nature or wrongness of his actions, because of mental illness or defect. Mental illness or defect alone do not constitute an insanity defense.

If you rule Mr. Durham guilty, he will be sentenced to a prison term. (Your state does not allow capital punishment.) If he is found NGRI, he will be kept in custody pending legal proceedings to secure his commitment to a mental facility for treatment.

1. Based on the evidence above, is Mr. Durham: (Check one)

   Guilty _____   NGRI _____

(If you selected NGRI, skip question 2)

2. Within the possible duration range of sentences for his crime, how harshly would you sentence Mr. Durham? (Circle one)

Very Harshly	Harshly	Somewhat Harshly	Somewhat Leniently	Leniently	Very Leniently
1	2	3	4	5	6

3. How many years of punishment do you believe Mr. Durham deserves? (If you believe he is NGRI, you would indicate "0") (Write a number from 0 to 60) _____

4. Regardless of which verdict you chose, how important is it to treat Mr. Durham for his condition? (Circle one)

Very Important	Important	Somewhat Important	Somewhat Unimportant	Unimportant	Very Unimportant
1	2	3	4	5	6

5. Given his condition, how much control over his actions do you think Mr. Durham was exercising when he committed his crime? (Circle one)

Very Strong Control	Strong Control	Somewhat Strong Control	Somewhat Weak Control	Weak Control	Very Weak Control
1	2	3	4	5	6

The following are summary questions about the case above.

6. Was the case a true or fictional account? (Circle one)

    True   Fictional

7. What was the murder weapon? _____

8. What was Mr. Durham's diagnosis? _____

Thank you for your time!

Manipulation Paragraphs

Brain Disease, Neuroscientific Evidence

An expert for the defense testified that, on the basis of a PET scan of his brain, Mr. Durham has a serious medical condition—a brain disease. His condition is characterized by reduced activity and abnormal functioning in the frontal cortex and limbic system. His particular deficits involve lack of impulse control, inability to experience emotions, lack of remorse, irresponsibility, and impaired moral judgment. An expert for the prosecution agreed with these findings.

Brain Disease, Psychological Evidence

An expert for the defense testified that, on the basis of psychological testing, Mr. Durham has a serious medical condition—a brain disease. His condition is characterized by abnormal emotions, actions, thoughts, and interpersonal behavior. His particular deficits involve lack of impulse control, inability to experience emotions, lack of remorse, irresponsibility, and impaired moral judgment. An expert for the prosecution agreed with these findings.

Psychosis, Neuroscientific Evidence

An expert for the defense testified that, on the basis of a PET scan of his brain, Mr. Durham has a serious mental illness—a psychotic disorder. His condition is characterized by frontal cortex impairments and neurotransmitter irregularities. His particular deficits involve delusions, hallucinations, disorganized thought and speech, engagement in bizarre behaviors and mannerisms, and display of inappropriate emotional responses. An expert for the prosecution agreed with these findings.

Psychosis, Psychological Evidence

An expert for the defense testified that, on the basis of psychological testing, Mr. Durham has a serious mental illness—a psychotic disorder. His condition is characterized by abnormal emotions, actions, thoughts, and interpersonal behavior. His particular deficits involve delusions, hallucinations, disorganized thought and speech, engagement in bizarre behaviors and mannerisms, and display of inappropriate emotional responses. An expert for the prosecution agreed with these findings.

Psychopathy Diagnosis, Neuroscientific Evidence

An expert for the defense testified that, on the basis of a PET scan of his brain, Mr. Durham has a serious mental illness—psychopathic personality disorder (psychopathy). His condition is characterized by reduced activity and abnormal functioning in the frontal cortex and limbic system. His particular deficits involve lack of impulse control, inability to

experience emotions, lack of remorse, irresponsibility, and impaired moral judgment. An expert for the prosecution agreed with these findings.

Psychopathy Diagnosis, Psychological Evidence

An expert for the defense testified that, on the basis of psychological testing, Mr. Durham has a serious mental illness—psychopathic personality disorder (psychopathy). His condition is characterized by abnormal emotions, actions, thoughts, and interpersonal behavior. His particular deficits involve lack of impulse control, inability to experience emotions, lack of remorse, irresponsibility, and impaired moral judgment. An expert for the prosecution agreed with these findings.