Mock Jurors' Assessments of Blind Experts in Criminal Trials

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Abstract: Prior experimental research has shown that using a "blinded" expert witness, one proposed method to reduce the problem of bias in expert witness testimony, can influence juror decision-making. In an experiment in a mock medical malpractice trial, mock jurors tended to vote for the party that employed a blind expert witness, and rated such an expert as more credible and trustworthy (Robertson and Yokum 2012). This study tests whether blinded expert witnesses also impact juror verdicts in a criminal trial, and whether attacking the credibility of a non-blind expert relative to a blind expert witness during cross-examination has an impact on juror verdicts. A national sample of 444 mock jurors, recruited via Amazon Mechanical Turk, read vignettes of a fictionalized criminal trial in which the defendant was accused of theft, and in which the evidence in question was a partial fingerprint. The mock jurors read testimony from one expert witness for the defense, and one expert witness for the prosecution, and were then asked to render a verdict. Participants were randomly assigned to the control condition in which neither expert witness was blinded, to a condition where the defense expert was blinded, or to a condition in which the prosecution's expert was blinded. Additionally, we manipulated whether, in the blinded conditions, the opposing attorney attacked the credibility of the non-blind expert for not being blinded. The results show that jurors were 3.62 times more likely to vote not guilty when the defense used a blinded expert, but that there was no statistically significant effect of the blinded expert for the prosecution, nor for the attack conditions. It appears that using blinded experts might be a beneficial strategy for the defense team.

[1] The authors would like to thank the University of Arizona Honors College and the University of Arizona Department of Psychology for funding this research. Additionally, the authors thank Christopher Robertson and David Yokum for feedback on every stage of this research.

Introduction

Expert witnesses are often necessary in criminal and civil trials to answer technical or scientific questions for lay factfinders such as lawyers, judges, and juries. For example, the average person does not have the expertise necessary to understand: the standard of care for treating a specific medical condition and whether a particular doctor has met that standard of care (e.g. *Matsuyama v. Birnbaum et al*); whether a particular technology is a violation of a patent (e.g. *Apple v. Samsung*); or, whether company policies lead to sex discrimination (e.g. *Dukes v. Walmart*). Crucially for this paper, the average person also does not know how to interpret DNA or fingerprint evidence found at the scene of a crime (e.g. the case of Shirley McKie in Scotland, wherein a fingerprint at a crime scene was incorrectly identified as hers).

Given the average person's lack of technical and scientific knowledge, expert witnesses offer interpretations necessary for the average person to understand the facts of a case. However, expert witnesses are often biased towards the party that has hired them and have a financial incentive to provide the desired assessment about the facts in the case, something jurors are sensitive to (Ivkovic and Hans 2003). After all, the average hourly pay for testimony during the trial is often several hundred dollars per hour for both non-medical and medical experts[2], and they are also paid similar rates for time spent reviewing documents and during depositions[3] (ExpertPages Summary Report 2012; Seak 2004); some DNA testing companies charge $1,200-$1,400 a day for the services of an expert witnesses with a Ph.D. (Daemmrich 1998). If they cannot produce the desired opinion, the experts are not hired.

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[2] Experts hired by public defenders may be paid much less than this, however, because of the limited budgets available to public defenders (for example, see rates paid by Wisconsin public defenders: http://www.wisspd.org/htm/ATPracGuides/Experts/ExpertsFAQ.asp).

[3] Some criminal experts make $147 an hour for judiciary preparation, and 60% increase their fee if requested to appear in court and deliver their expertise. Additionally some forensic experts charge a flat fee of $5,564 per case (ExpertPages Summary Report 2012:3-5).

Additionally, expert witnesses may be unconsciously cognitively biased when they are given contextual information prior to being asked to render a judgment. This has been demonstrated in numerous empirical studies (see work by Dror and colleagues, for example), and was also an issue in the case of *State of Wisconsin v. Brian K. Avery*. The defendant, Avery, was convicted of armed robbery in 1994, but appealed. One reason for his appeal was that there was new evidence: a new method of enhancing the surveillance video of the robbery that made it possible to determine the height of the actual robber, a person alleged to be several inches shorter than Avery. Experts in photogrammetry, which "involves applying the science of measurement to still pictures and videos," testified for both the defendant and for the prosecution (*State of Wisconsin v. Brian K. Avery*:4). The defense's expert witness was not given information about Avery's height (6'3") prior to offering his assessment that the person in the surveillance video was 5'10.5" with a margin of error of one inch. However, the prosecution's expert witness was told that the suspect was 6'3" and asked not to rule out that height when conducting his analysis (*State of Wisconsin v. Brian K. Avery:16*). In order to meet this request, the prosecution's expert witness selected different frames from the surveillance video to analyze than did the defense's expert witness, and used frames where the person in the frame was moving, which creates more uncertainty and thus a higher margin of error. Even after these unusual decisions, the upper limit of the prosecution's expert witness' margin of error was still off by 1.5 inches in order to include a height of 6'3". Despite this analysis, the prosecution's expert testified that he could not definitely rule out a height of 6'3". This is an example of how biasing information—such as being told the height of the suspect in advance—leads to a flawed scientific analysis (Amici Curiae Brief 2012).

It is important to reduce expert witness bias not only because there is an interest in finding "truth," but also because the stakes are high—millions of dollars or years in prison. One proposal to reduce such bias is to have expert witnesses be blinded (Robertson 2010; Semelka et al. 2010). Experts would be selected through an intermediary without knowing which party requested their opinion. Being blind to this information should reduce the expert's cognitive bias. One recent study has demonstrated an effect of blind expert witnesses on juror verdicts in a medical malpractice mock trial (Robertson and Yokum 2012). However, additional studies are necessary to determine whether this effect can be replicated for different types of trials, using different types of evidence, and different types of attorney strategies for attacking the credibility of unblinded expert witnesses.

The question for our study is whether blind expert witnesses also will have an effect in a *criminal* trial where the science in question—fingerprint analysis—is thought of as "established" and "objective" (Dror 2012), and where the burden of proof is "beyond a reasonable doubt." That is, does using blinded expert witnesses result in more favorable verdicts for the party employing them? Additionally, this study tests whether attacks on the credibility of unblinded expert witnesses has an effect on verdicts. We find that using a blinded expert more than triples the odds of a favorable verdict for the defense, but has no impact for the prosecution. Additionally, attacking the credibility of the unblinded expert *for not being blind* has no impact on juror verdicts.

Literature Review

Because expert witnesses are often hired by a party in a legal dispute rather than court-appointed (Lee 1988), their role is to be a convincing, persuasive interpreter of facts. Given that

experts are participating in an adversarial setting in which their credibility is openly questioned or even attacked by opposing counsel, they develop strategies to increase the likelihood that jurors will perceive them as more objective and credible and thus more persuasive (Daemmrich 1998; Halfon 1998). Some strategies include: only serving as a court-appointed expert witness; framing their expertise as limited or bounded; not straying beyond the bounds of their expertise; and attending seminars to improve their presentation skills (Daemmrich 1998; Halfon 1998).

Despite strategies to appear more credible, scientific experts have been found to be biased when presented with contextual information irrelevant to the forensic or scientific question (Risinger et al. 2002). Using with-in subject experimental designs, studies have shown that highly competent and experienced fingerprint experts are influenced by contextual information such as whether the suspect has an alibi or the suspect has confessed, and alter their findings of whether there was a fingerprint match based on this information (Dror and Charlton 2006; Dror and Rosenthal 2008).[4] This bias is cognitive, unconscious and thus unintentional, and can thus "affect hard-working, honest, and dedicated forensic experts" who are unaware that they are biased (Dror and Cole 2010:162). This extraneous information has also been found to influence findings in real cases in which knowing the suspected source of a print can lead to fingerprint analysts explaining away discrepancies in order to find a match, discrepancies which would usually indicate a non-match; additionally, cases have shown that the finding of an initial fingerprint examiner can influence another examiner's findings (Mayfield case described in Dror and Cole 2010; "snowball bias" described in Dror 2012).

Another type of bias is partisan bias. Judges perceive the problem of partisan bias on the part of expert witnesses as a common problem and serious impediment to determining accurate

[4] This study also demonstrated that fingerprint experts were also not always reliable. That is, when presented with fingerprints they had previously assessed without being told they were re-examining the fingerprints, they reached different conclusions than they had previously.

information (Sperling 2000). Although empirical studies have shown that experts underestimate the extent of their bias when acting as witnesses (Commons, Miller, and Gutheil 2004), some experts have admitted that their role in ligation is more than just science. One study found that expert witnesses in medical manslaughter cases in Britain view themselves as part of a legal team, and offer more than just a medical opinion when testifying (Quick 2011). They use their moral judgment and do legal research in order to offer their opinion, and the author refers to their role as "hybrid expert-lawyer" (Quick 2011:512; see also Hollien 1987). Because they stray from their area of expertise and are aligned with the legal team, Quick (2011) notes that their ability to be objective is reduced, and recommends the use of court-appointed expert witnesses in order to reduce this bias. Quick (2011) notes that court-appointed experts would only reduce partisan bias, however, and not other sorts of bias:

> It would be naïve to regard this as a panacea to the problems of expert evidence; after all, partisan adversarial bias is not the only type of bias—experts may be rigidly biased in terms of their own theory or analysis, for example. Moving to a court-appointed system would do nothing to counter this type of bias. Yet, if attachment to a case increases the risk of subconscious bias, then it should follow that detachment from a particular side decreases that risk. Whilst this cannot guarantee greater neutrality, reliability and fairness, it would at least improve the *perception* of such evidence, which is something worth striving for" (513-514, emphasis in original).

Numerous other experimental studies have also demonstrated that confirmation bias can impact the interpretation of evidence, especially if there is an incentive to prove what participants are tasked to prove (see, for example, Nickerson 1998).

Prior research has shown that jurors do not view expert witnesses as particularly credible and that expert witness testimony generally does not have a strong impact on jury decisions, which are mostly based on the strength of other evidence presented at criminal trials (Devine et al. 2000). In fact, a survey of 269 civil jurors demonstrated that 72% agreed that lawyers can always find an expert to back up their client, indicating that jurors understand that expert witnesses can be biased toward the party that has hired them (Ivkovic and Hans 2003). In qualitative interviews with 55 jurors, Ivokovic and Hans (2003) find that:

> "The juror's comments reveal that both the messenger and the message are important for a decision about the credibility of an expert witness. Not surprisingly, jurors associate the following with credible testimony: lack of bias; good credentials; a pleasant personality; a clear, objective, focused, not overly long presentation that utilizes diagrams and models; use of lay terms; a presentation that is complete, consistent, and not too complex; knowledgeability in the area of expertise; and familiarity with the case" (458).

Ivkovic and Hans (2003) also found that emphasizing bias because of financial incentives did not always work to discredit an expert witness, but could instead make the attorney "look cheap" (465).

One proposed reform for overcoming the problem of cognitive biases is to blind the expert witnesses from knowledge about the party that has hired them to offer an opinion. Such experts would be chosen by an intermediary, and would not be privy to which side they would possibly be testifying for, which would reduce their unconscious cognitive bias, increase the accuracy of their findings, and later lead to a more credible presentation to a jury (Robertson 2010). One study has shown that when external radiologists with no knowledge of a particular

medical and subsequent legal case reviewed CT images, they did not confirm the findings of the paid expert witnesses, and the authors suggest that radiologists will produce more objective findings if they are blind to the legal facts in the case (Semelka et al. 2010). Similarly, some forensic scientists are recommending that "examiners not be exposed to irrelevant contextual information that they do not need" in order to minimize bias (Dror 2012) and also that lay factfinders including juries be educated about the "strengths and weaknesses of forensic science" (Dror 2012:45).

Additionally, in an experimental study of the effects of a blinded expert witness in a mock medical malpractice trial, Robertson and Yokum (2012) found that using a blinded expert witness increases the likelihood of a favorable verdict, and that such witnesses are perceived as more credible by individual jurors. Moreover, the presence of a blinded expert witness hurts the credibility of the unblinded expert witness, although the study did not address whether explicit attacks on the objectivity of the unblinded expert witness affected the verdict, something our study will do.

Hypotheses

This study will extend the work of Robertson and Yokum (2012) to determine whether blinded expert witnesses have a similar effect on juror verdicts in *criminal* trials, which have a different standard of evidence than civil trials. The key forensic evidence introduced in our experimental vignette is fingerprint evidence, which is one of the most common types of forensic evidence, but which also is very difficult to interpret because prints are often partial and distorted (Dror and Cole 2010). We hypothesize that, similar to the results of Robertson and Yokum (2012), the presence of a blinded expert will increase the likelihood of a favorable verdict for the

party who employs them because these experts will be considered credible and thus be more convincing. However, the effect may not be as strong as that shown in Robertson and Yokum (2012) because the type of evidence in question is widely considered to be "objective" (Dror 2012) and because the burden of proof is higher. Because of this, our study is a strong test of the effect of blinded expert witnesses.

Because previous research on expert witness strategies for preserving their credibility (Daemmrich 1998; Halfon 1998) and on jurors' assessments of expert witnesses (Ivkovic and Hans 2003) do not include information about blind expert witnesses, our study will also examine how attacks on unblinded expert witnesses' credibility matter for verdicts. We hypothesize that a strong attack on the objectivity of an unblinded expert witness will interact with the use of a blinded expert witness to further increase verdicts for the side that uses a blinded expert witness.[5]

Method

Stimulus and Design

We used a three by two between-subjects fractional factorial design, wherein participants were randomly assigned to read one of five vignettes. The vignettes were 2,210-2,230 word transcripts of a fictionalized criminal jury trial and were designed to take participants approximately 15 minutes to complete. Each vignette contained the same introductory information. The vignette described a trial of a man named Matthew Smith, accused of stealing three laptop computers from a university computer lab and also damaging the lab equipment. Through the prosecution expert's testimony, it was revealed that Mr. Smith had a prior history of theft. Also, a partial fingerprint was found at the scene. One expert witness for each side

[5] This is an open question, however. Such attacks could increase the effect of blinding, or they could mitigate the effect of blinding if the attack makes the attorney—rather than the witness—look bad (see, for example, Ivokovic and Hans 2003).

testified about the likelihood that the fingerprint belonged to the accused, and with what certainty.

The study first instructed the participants that they would be reading from an abbreviated trial, *State v. Matthew Smith,* only hearing opening and closing statements from the attorneys, and testimony from the expert witnesses. The trial sequence consisted of judge's instructions explaining the duty of the jury, similar to the Revised Arizona Jury Instructions (RAJ) currently used in litigation. The judge's instructions were followed by opening statements from the prosecution and the defense, testimony of the prosecution's expert witness, cross-examination of the prosecution's witness, the testimony of the defense's expert witness, and the cross examination of the defense expert witness. The vignette ended with the closing statement by the defense attorney, followed by the prosecuting attorney's closing statement. This vignette constituted the control condition. The full vignettes of each condition are available upon request from the authors.

Each vignette was edited in such a manner that either the prosecution's expert witness was blinded, the defendant's expert witness was blinded, or neither expert witness was blinded. In order to assess the affect of attacks on credibility, the two conditions with blinded expert witnesses were evenly divided between those with an adversarial attack on the credibility of the non-blinded expert witness *for not being blinded*, and those without an attack. These manipulations resulted in five conditions: the control (no blind experts and no credibility attack); the presence of a blind expert for the prosecution, crossed with the presence or absence of an attack on the non-blind defense expert witness; and, the presence of a blind expert for the defense, crossed with the presence or absence of an attack on the non-blind prosecution expert witness.

Depending upon the condition, the expert witness testimonies could include information about the blinding expert witness process, as well as an attack within the cross-examination. For instance, the following shows how the blinded expertise process was discussed within the context of the blinded expert witness vignette conditions:

> Q: And Mr. Sorenson, how are you employed?
> A: I am employed as a fingerprint analyst.
> Q: How long have you done fingerprint analysis?
> A: 15 years.
> Q: How did you come to be involved in this case?
> A: I work for a company that does forensic analysis. An intermediary contacted my company, requesting an opinion on this case. I examined the evidence, and submitted a report with my findings. Then I was asked to testify at this trial about my findings.
> Q: So you weren't aware of which party had hired you?
> A: No, not until I was asked to testify. I was just given the print and a few comparison prints that were not identified. I found a conclusive match. Turns out, the print left at the lab matched Mr. Smith on eight points.
> Q: So you weren't biased to produce specific findings?
> A: Correct. I wrote the report based on my expertise in forensic science.

This witness testimony details the process in which a blinded expert witness selected—through an intermediary—as a way to both enlighten the participants on this process as well as establish credibility for the prosecution. The witness also stated at what point he was asked to testify, which was after already recording the results of the fingerprint analysis, to further illustrate that the results were not tainted by bias.

To avoid confounding variables, very similar language was used in the direct examination of the defense's expert witness. In each case, the blind expert explained that he was contacted by an intermediary, and unaware of who had hired him.

In addition, the excerpt below illustrates the attacking process that occurred during the cross-examination of a non-blinded expert witness for half of the conditions:

> Q: So isn't it possible that you're mistaken and that the fingerprint at the laboratory does match Mr. Smith's print.
> A: I mean, it's possible, but—
> Q: How can we trust your testimony given that you knew which side you were testifying for prior to offering your opinion?

A: I am an expert fingerprint examiner. I have over a decade of experience with this type of analysis.
Q: But you're not like our expert witness who offered an unbiased report of his findings prior to knowing we hired him?
A: I'm not biased. I have no reason to be biased. I don't know Mr. Smith. I have no stake in this case.
Q: Isn't it possible that knowing you were trying to exclude your client, Mr. Smith, influenced your fingerprint analysis?
A: No. I am a professional. I've been doing scientific fingerprint analysis for ten years.
Q: But you didn't go into your analysis blind like our expert, so isn't it fair to say that your analysis is untrustworthy?
A: No, I think my analysis is credible. I am a scientist!

This excerpt primarily focuses on attacking the witness by implying contextual bias and insinuating the witness's credibility is lessened by such a bias. This was the core attack manipulated during the attack and no attack conditions.

Instrument

After participants read the assigned vignette, they were asked to issue a binary verdict by responding to the question "Based on the instructions provided by the judge, do you believe that the prosecution has proved beyond a reasonable doubt that Mr. Smith is guilty as charged?" Response options were either "Yes, I find in favor of the prosecution. Mr. Smith is guilty as charged" or "No, I find in favor of the Defendant. Mr. Smith is not guilty." They were then asked to rate the credibility of the experts, after which they were asked to write a 25 word minimum response explaining the reasoning behind their verdict. We inductively analyzed these qualitative data to add context to our quantitative findings. This free-form response was followed by a demographics questionnaire.[6]

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[6] We asked participants to rank the credibility of each expert witness, blinded or not. To assess the relative credibility of each witness, participants were asked whether they agreed with the following: " the expert witness was… trustworthy, honest, clear, logical, fair, and knowledgeable" by selecting a response on a 6-point Likert scale that varied from "strongly disagree" to "strongly agree." This paper will focus solely on juror verdict as a dependant variable, however.

Additionally, we asked the participants to complete a cultural cognition questionnaire to determine if juror's general orientation toward risk would impact their decision-making in this mock trial (Kahan 2012). Cultural cognition had no statistically significant relationship to juror verdict, however.

Participants and Randomization

Participants were recruited for the online mock jury experiment via Amazon Mechanical Turk (for a discussion of the advantages and disadvantages of using MTurkers, see Berinsky, Huber, and Lenz 2012). Participants were told that the study involved a mock trial, but were not informed about the hypotheses to be tested, and were blinded as to what experimental condition they were assigned. All participants consented to participate according to Institutional Review Board standards. 486 people consented to participate in the study, and after eliminating responses that were incomplete, contained incorrect answers for the two quality assurance questions in the survey, and were completed in fewer than five or greater than 35 minutes, there were a total of 444 participants, which were successfully randomized across the experimental conditions. Participants tended to be white, non-Hispanic, and have at least some college education. Table 1 below illustrates the demographic profile of the sample size.

Results

Descriptive Statistics

As shown in Table 2 below, in the control condition, where neither the prosecution nor the defense employed a blind expert witness, 40 percent of participants found Mr. Smith guilty. A blind expert for the prosecution did not have a statistically significant effect on the verdict in either the attack or no attack conditions, but when the defense attorney used a blinded expert, the results were different from the control condition (χ^2 (4)=29.406, p <. 001). After reading testimony from blinded expert witnesses for the defense, only 14% of jurors voted guilty in the no-attack condition and 18% in the attack condition, which is both substantively and statistically

significant. The presence of adversarial attack on the non-blind witness did not have a statistically significant effect on the verdict or the confidence.[7]

Table 1: Demographics of Research Participants

	Control Neither BE (n = 89)	**BE for Prosecution** (n = 178)		**BE for Defense** (n = 177)		**Subject Totals** (N = 444)
		No Attack (n = 89)	**Attack** (n = 89)	**No Attack** (n = 86)	**Attack** (n = 91)	
Education						
Some high	0%	0%	1%	1%	1%	<1%
High School	8%	9%	12%	10%	12%	10%
Some College	31%	19%	34%	27%	27%	28%
Associate	9%	9%	8%	14%	7%	9%
Bachelors	43%	46%	34%	42%	44%	42%
Masters	8%	15%	8%	3%	7%	8%
Professional	1%	0%	2%	2%	1%	6%
Doctorate	0%	2%	1%	0%	1%	<1%
Gender						
Male	44%	43%	47%	49%	57%	52%
Female	56%	57%	53%	51%	43%	48%
Age						
18-24	18%	15%	29%	16%	13%	18%
25-34	46%	45%	30%	40%	45%	41%
35-44	15%	21%	17%	20%	14%	17%
45-59	19%	11%	16%	16%	21%	17%
60+	2%	8%	8%	8%	7%	7%
Race						
White	88%	82%	80%	81%	78%	82%
Black	2%	7%	7%	9%	11%	7%
Native	0%	1%	1%	1%	0%	<1%
Asian	8%	9%	7%	7%	8%	8%
Pacific	0%	0%	1%	0%	0%	<1%
Other	2%	1%	3%	1%	3%	2%
Ethnicity						
Non-Hispanic	96%	98%	94%	93%	95%	95%
Hispanic	4%	2%	6%	7%	5%	5%
Income						
Less than 10K	7%	8%	12%	8%	8%	8%
10-30K	22%	24%	27%	15%	21%	22%
30-50K	29%	18%	24%	32%	22%	25%
50-70K	19%	21%	10%	22%	23%	19%
70-100K	16%	20%	18%	12%	16%	16%
100K+	7%	9%	9%	11%	10%	10%

Note: Percentages were rounded to the nearest whole percent.

[7] While there is a nine point difference in percent of guilty verdicts between attack and no-attack conditions within the blind expert for prosecution condition, this is not a statistically significant difference.

Table 2: Verdict by Condition

Verdict	Control Neither BE (n = 89)	BE for Prosecution (n = 178)		BE for Defense (n = 177)		Subject Totals (N = 444)
		No Attack (n = 89)	Attack (n = 89)	No Attack (n = 86)	Attack (n = 91)	
Guilty	40%	34%	43%	14%	18%	30%
Not Guilty	60%	66%	57%	86%	82%	70%
Chi Square	29.406					
P-Value	<0.001					

Logistic Regression

We conducted a binary logistic regression to further assess our hypotheses about the effect of blinded experts and credibility attacks on jurors' verdicts. Our initial model contained our primary independent variables for presence or absence of a blinded expert witness and the presence or absence of an attack on the credibility of the non-blind expert for not being blind. In addition, the model contained participants' demographic information and scores on the cultural cognition scale (not shown). Regression results indicate that the only significant variables are the presence of a blinded expert for the defense, which is consistent with our descriptive statistics.[8] Because attack, demographic, and cultural cognition variables did not survive model selection, we then ran a simpler model with only one independent variable: the presence or absence of a blinded expert witness. Because the experimental design successfully randomized participants into the five conditions, this more parsimonious model is an acceptable substitute for the full model.

[8] Furthermore, additional linear statistical analysis demonstrates that there is statistically significant difference between the blinded defense expert witness condition compared to the control and blinded prosecution expert witness conditions.

Our study reveals that when mock jurors read testimony from a blinded defense expert witness, the odds of a not guilty verdict are 3.62 times higher than when not reading testimony from a blinded defense expert witness ($p < .001$, 95% CI [2.02, 6.54]). There is no statistically significant effect for blinding the prosecution's expert witness. See Table 3 for a summary of the results. These results suggest that defendant's in criminal cases have a self-interested reason to invest in blinding their expert witness.

Table 3: Logistic Regression Results

Predictor	B (SE)	*p*	Lower	Odds Ratio	Upper
Constant	3.87 (0.216)	0.073	-	-	-
Prosecution Blind Expert (1=present)	0.094 (0.265)	0.723	0.651	1.099	1.846
Defendant Blind Expert (1=Present)	1.285 (0.299)	0.001	2.022	3.615	6.537

Discussion

This study explored whether the use of blinded expert witnesses impacts juror verdicts in criminal jury trials, and if so, whether the effect was strengthened or weakened by attacking the credibility of the unblinded expert witness during cross-examination. Robertson (2010) theorized that using blinded experts would affect jury verdicts, and Robertson and Yokum (2012) have shown a significant bidirectional effect of blinded experts on *civil* mock juror verdicts and damage awards (Robertson and Yokum 2012). This current study adds to the literature on blinding expert witnesses by determining whether previously documented effects also exist in a *criminal* trial. Based on previous findings (Robertson and Yokum 2012), we hypothesized that if prosecutors or defense attorneys use a blind expert witness, they will increase the odds of a favorable verdict. Additionally, we hypothesized that attacking the unblinded expert witness *for*

not being blinded would further increase the odds of a favorable verdict for the attorney employing a blinded expert.

Our results show that in the particular mock trial we tested, a blinded expert witness matters only for the defense, and that when used, significantly (statistically and substantively) decreases the likelihood of a guilty verdict, our primary dependent variable of interest. There was no effect for the prosecution. In the control condition, only 40.45% of mock jurors voted to convict the fictional Mr. Smith of burglary and vandalism. A statistically indistinguishable percentage of mock jurors voted to convict in the conditions where jurors read testimony from a blinded expert witness for the prosecution, although this was not a statistically significant difference compared to the control condition. In the conditions where jurors read testimony from a blinded expert witness for the defense, however, only 15.82% of mock jurors found Mr. Smith guilty. Additionally, there was no effect when an attack was made on the credibility of an unblinded expert witness for not being blinded. In sum, our main hypothesis was supported in part, but our secondary hypothesis was not supported.

The qualitative data from the open-ended survey question that asked mock jurors to explain the reasoning for their verdict indicate that the likely reason there was no significant difference between the blind expert for the prosecution and the control conditions was because of the higher standard of proof ("beyond a reasonable doubt") in a criminal case compared to a civil case ("preponderance of evidence"). For example, one participant in the blind expert for prosecution with no attack condition said:

> "This whole case is ridiculous! Even if the fingerprint was a precise match, it would not implicate the janitor as the thief. Where are the stolen goods? Where is the proof that he did anything? Being there isn't proof of doing anything

criminal! Isn't it possible that he cleaned that lab at some point? No way would I vote guilty on this and with the evidence given!!!"

Another participant in the same condition stated:

"Everyone knows that fingerprint analysis is not 100%. The fact that the expert witness said that made me doubt whether or not he is a reliable witness. There is no way to know 100% that the fingerprints match. I just don't think that there is enough evidence to say it's been proven beyond a reasonable doubt."

Although participants in the blind expert for prosecution condition often noted that the prosecution's expert was more credible because of the blinding[9] (e.g. "The prosecutor's expert was also blind to the facts of the case and yet he matched the fingerprint. The defendant's expert was not. The fingerprint had to be Mr. Smith's."), when mock jurors are told that the burden of proof for the state is "beyond a reasonable doubt," the majority of mock jurors cannot bring themselves to convict when there is any doubt, especially when the defense uses a blinded expert witness.

One possible reason there was not support for our secondary hypothesis related to attacks on unblinded experts' credibility is because of the limitations of our research design. Because we designed an experiment that took participants approximately 15 minutes to complete, we did not have the space to fully develop an attack on the unblinded expert witnesses. From the qualitative data analysis, it appears that participants were unable to distinguish between an attack on the unblinded expert witness *for not being blinded* versus a typical attack on the expert during the cross examination in the adversarial justice system. That is, there were no distinct

[9] This was also reflected in the quantitative credibility ratings of the blinded prosecution expert.

differences in the participants' reasoning (as evidenced in the open-ended responses) between attack and non-attack conditions.

This study has other limitations. First, because the stimuli consisted of written vignettes, there are limits to the ecological validity of this study. Reading through mock jury transcripts is a qualitatively different experience than that of a real jury trial (Breau and Brook 2007). These experiments need to be replicated in the field in order to confirm the effects of using a blinded expert witness. That is, it is unknown whether similar effects would be found in actual criminal trials where real jurors hear and see testimony from multiple witnesses, and also have the opportunity to witness interaction between attorneys, witnesses, and the judge—including objections to attorney questioning of witnesses and witnesses statements.

Additionally, we did not have any sort of jury deliberation, and although there was an effect of a blinded defense expert witness for individual mock *jurors*, interaction during deliberations may reduce, eliminate, or strengthen the effect for mock *juries* (for a discussion of this, see Wright, Robertson, and Yokum 2013).

Second, this study only tested *one* type of scientific evidence in *one* criminal trial where the charges were burglary and vandalism. It may be that the effects of our independent variables of interest—blinded expert witnesses and attacks on the credibility of unblinded expert witnesses—are different when another type of evidence is used (e.g. DNA) or when the charges are more serious (e.g. murder).

Third, we used an online convenience sample of MTurkers, and it may be the case that the differences between MTurkers and the population of potential jurors is significant enough that if we used a random sample of potential jurors, we would have different findings (Berinsky,

Huber, and Lenz 2012). Our descriptive statistics and regression analyses do not indicate that any demographic variables impact mock juror verdicts, however.

All of these limitations could be addressed in future research. Additionally, future research should further test effects of prosecutors using blinded expert witnesses.[10] Moreover, future research should allot more time to fully explain the concept of blinded expertise and how witnesses are blinded in order to determine whether there may be even larger effects for blinding an expert witness (for a discussion of this, see Robertson and Yokum 2012:289).

Conclusion

We conceptualized this study as a strong test of Robertson and Yokum (2012). The science in our trial could be considered more "objective" than the evidence used in their medical malpractice stimulus. Forensic science, and in our case, fingerprint analysis is popularly thought to be infallible,[11] although there is room for biased interpretation of this science (Dror 2012); in contrast, however, determining whether a patient has neurological damage—the content of the mock trial in their experiment—may be more be considered more of a judgment call. Furthermore, the stakes could be considered higher in a criminal compared to a civil jury—a guilty verdict resulting in years in jail compared to an award of damages. Given these

[10] This experiment cannot definitely determine whether the mock jurors are no more likely to convict when the prosecution uses a blind expert because of something about the role of prosecution (representing "the government") or because the mock jurors are responding to the high burden of proof. A future experiment could use the same vignettes, but manipulate the burden of proof from "beyond a reasonable doubt" to a "preponderance of evidence." If the results are the same as this experiment, it would suggest that the reason that blind experts do not have an effect for the prosecution is something about the prosecution. If the results differ from this experiment, it would suggest that it is about the burden of proof.

It may also be the case that there is a ceiling effect, which would account for the unidirectional results in this study. Perhaps in a case like this, no more than 40% of jurors would ever convict the defendant regardless of what types of expert witnesses they heard testimony from.

[11] Our qualitative data, however, suggest that many participants did, in fact, recognize the fallibility of fingerprint analysis.

differences, we expected that if we found an effect of blinded expert witnesses, it may be smaller than that documented by Robertson and Yokum (2012). If we found a similar or larger effect of using a blinded expert witness, then our study would add significant support to the previous findings.

We were able to replicate an effect of using a blinded expert witness as shown in Robertson and Yokum (2012), although there was an important difference. Robertson and Yokum (2012) were able to demonstrate an effect of blinded experts for both parties in a civil dispute. However, we were only able to find an effect for the defense in a criminal trial. The effect is quite large, though, and so our research suggests that defense attorneys, in particular, might have an interest in using blinded expert witnesses in criminal trials.

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