

Emotional Presentation Can Alter Processing of Evidence in Criminal Cases

Steven M. Estrada¹, Shannon D. Johnson¹, Lisa D. Topp-Manriquez², and Emily S. Sutton¹

Stephen F. Austin State University¹, University of North Texas²

Author Note

Steven M. Estrada, Department of Psychology, Stephen F. Austin State University; Shannon D. Johnson, Department of Human Services, Stephen F. Austin State University; Lisa D. Topp-Manriquez, Department of Psychology, University of North Texas; Emily S. Sutton, Department of Psychology, Stephen F. Austin State University.

Abstract

The study investigated how evidence presentation can influence judgments of guilt and suggested sentencing in cases of criminality. Participants read a vignette presenting details for a crime of murder that varied in emotionality, amount of evidence, and the strength of the evidence. Participants' verdicts of guilt, suggested sentencing, perceptions of the amount and strength of evidence, and emotionality of the crime were recorded. The key prediction was that emotions would increase guilty verdicts independent of the strength and amount of evidence, and further, bias suggested sentencing. No effect of emotionality on guilt was found, however, greater emotionality significantly increased suggested sentencing. The findings suggest that emotional language can influence jurors' decisions, independent of the evidence, thereby providing one mechanism for bias found the judicial system. Future studies should examine whether emotional presentation differs across race and SES, and the degree to which this difference affects verdicts of guilt and sentencing.

Keywords: psychology and law, decision-making, extralegal, legal

Emotional Presentation Can Alter Processing of Evidential Information in Criminal Cases

Bias is defined as the tendency to formulate judgements of individuals or groups consistent with pre-conceived attitudes or judgments. With respect to the judicial system, bias is problematic because it may lead to wrongful decisions of guilt or innocence, or affect sentencing length (Kang et. al, 2012; Lehmann, 2020; Matsuo & Yuji, 2016; Wevodau et al., 2014). It is therefore important to understand how pre-conceived attitudes or judgments can bias judiciary judgment. For example, is it only explicit prejudicial attitudes that govern the bias exhibited, or is it possible implicit biases are just as if not more pervasive?

Implicit bias is the idea that individuals are influenced in judgements and decisions by information processed below the level of awareness and often without intentional control (Banaji & Heiphetz, 2010). An empirical review of criminal cases has shown that even under instruction to follow the standard of proof needed (i.e. guilty beyond reasonable doubt) jurors' decisions are still unknowingly influenced by previously held beliefs (Reynolds, 2013). Levinson (2007) demonstrated implicit biases may cause jurors to misremember information in racially biased ways. Jurors in this study lacked explicit racial biases, yet remembered facts of the same case differently depending on the race of the individual in the case description. If implicit processes do, in part, drive bias in courtroom proceedings, it is imperative to identify the factors that lead to implicit bias and how implicit bias manifests during courtroom procedure. For example, does the bias work at the time judgment is rendered, in essence, affecting an emotional response that influences at the time of judgement, or does the influence happen earlier in the process, biasing how information is processed and encoded in the juror's memory?

During deliberation and sentencing, jurors and judges are expected to base their verdict and sentencing decisions solely on legal factors, such as the evidence presented during the trial's proceedings. These factors are made explicit to jurors, and jurors are asked not to consider extralegal factors, factors that are not governed by law and are not expected to be taken into consideration by jurors during deliberation. This can be problematic because these extralegal factors may have no bearing on the likelihood of guilt. These extralegal factors can include characteristics such as race and/or sex of the defendant or victim, the language used during the proceedings, and the emotion inherent in the crime or evidence presented.

In trials that involve violent or catastrophic events, such as the crime of murder, jurors are oftentimes exposed to disturbing information that could influence a juror's decision-making process. In the case of violent crimes, how crimes are described and how evidence is presented throughout trial proceedings may be an extralegal factor that may lead jurors to bias their interpretations of the information, causing systematic errors in their verdicts (guilty vs. not guilty). These errors may lead to more false convictions and/or less true convictions and impact sentencing (Wevodau et al, 2014; Matsuo & Yuji, 2016). In addition, this influence may occur below awareness, producing the bias observed in judgment and sentencing.

The aim of the current study was to establish whether variability in emotional presentation of evidence can influence verdicts of guilt and sentencing in criminal cases. The purpose of the study is an attempt to identify emotionality and its relationship to other variables (e.g., strength and amount of evidence) as a possible factor in producing implicit biases in judgement.

True convictions, verdict decisions that lead to conviction of individuals whom are guilty of committing the crime, are the impetus for focusing on strong legal factors. Therefore, legal factors are of great importance because of their ability to prevent the *wrongful* convictions of individuals. Past research has found that strength of evidence (weak vs. strong) is a strong legal factor that influences jurors' verdict decisions (Eva Martin et al., 2007; Reskin & Visser, 1986). Strong evidence strength (i.e., DNA) leads to more true convictions and fewer false convictions; weak evidence strength (i.e., eyewitness testimony) leads to more false convictions, fewer guilty verdicts, and an increase in true acquittals (i.e., exonerating an individual whom was wrongfully convicted) (Gould et al., 2013). Furthermore, research has found that mock-jurors who received strong evidence (i.e., evidence proven to be factual) perceived the defendant as having a higher likelihood of guilt than those who received weak evidence (Reskin & Visser, 1986).

Wells, Memon, and Penrod (2006) argued that due to DNA exonerations, eyewitness testimony has poor validity in producing true convictions due to susceptibility to human error in memory. In fact, the proportion of DNA exonerations of criminals convicted due to flawed eyewitness testimonies is estimated at around 75% (Wells, Memon, & Penrod, 2006). This work suggests that evidence can be characterized as strong or weak by the tendency of that evidence to lead to more true convictions, convicting a guilty defendant, versus when that evidence leads to greater false convictions, conviction of an innocent defendant.

In conjunction with evidence strength, the amount of evidence presented is also an influential legal factor that is expected to produce more true convictions. One could argue that presenting more pieces of strong evidence (i.e., DNA and possession of the weapon) to jurors will lead to more true convictions than the presentation of several pieces of weak evidence (i.e., eyewitness testimony and no alibi). For the legal system, a "preponderance of the evidence" edict implies that more evidence will generally be better than less evidence in producing true verdicts of guilt (Shaviro, 1989). In court proceedings, the amount of evidence presented is governed by law and expected to aid in the production of true convictions.

One key question that the current study investigated was whether the emotionality of a crime's description (e.g., a woman was tortured versus a woman was stabbed) lowers (i.e., less evidence for verdict decisions) or heightens (i.e., more evidence for verdict decisions) the necessary threshold for a guilty verdict in jurors' judgments. Salerno and Bottoms (2009) asserted that juror decision-making could potentially be influenced by emotion elicited from disturbing information presented in court. They propose that evidence such as gruesome photographs and victim impact statements could heighten jurors' emotional arousal, influencing the way jurors' process the information (Salerno & Bottoms, 2009). Given that jurors create their own mental representations of the information presented to them, it is increasingly likely that the emotionality of the crime's description will greatly influence jurors' emotions towards the victim and/or defendant and increase bias in the jurors' or judges judgments (Pennington & Hastie, 1992).

Past research has found that jurors' emotions towards the defendant can indeed influence their verdict decisions (Haegerich & Bottoms, 2000). When mock-jurors were asked to take into account the defendant's perspectives, it was found that mock-jurors reported higher levels of compassion towards the defendant and delivered fewer guilty verdicts in a trial involving allegations of sexual assault towards children (Haegerich & Bottoms, 2000). Therefore, by extension, the argument can be made that jurors' emotions elicited from the information presented can also act as an extralegal factor and influence their verdict decisions.

The purpose of the present study was to examine the effects of the emotionality of the crime's description and the amount and strength of evidence on juror decision-making. Participants were asked to read a short vignette and answer a questionnaire assessing their perceptions of the defendant's guilt and supportive evidence, as well as the emotional context of the scenario presented and provide suggested sentencing for the crime. It was expected that more evidence, strong evidence and when the descriptions of the crime were more emotional would all lead to an increase in guilt ratings and more severe sentencing. In addition, it was also expected that emotions would influence jurors' judgments independent of the strength and amount of evidence, providing some evidence that the influence was implicit rather than explicit. If it were explicit, it would interact with the deliberations of the evidential information presented, facilitating or attenuating the deliberations towards guilt and sentencing.

Method

Participants

One hundred ninety-five participants were recruited from a southwestern university and social networking websites. Thirty-five participants were excluded from the analysis based on their submission of incomplete surveys. Of the completed participants, 72.6% were female ($M = 22.91$ years, $SD = 9.03$). Participants were 48% Caucasian, 28.8% African American, 16.9% Hispanic, 1.9% Asian, and 3.8% identified as other.

Materials

Vignettes. Vignettes were constructed depicting a murder that was a factorial combination of the description's emotionality, strength of evidence, and amount of evidence. Vignettes contained either emotionally arousing descriptions of the crime, (i.e., A young woman's *slaughtered* body was found earlier this morning) or less emotionally arousing descriptions (i.e., A young woman's *decomposed* body was found earlier this morning).

The words used for the emotionality of the crimes descriptions were based on their arousal and valence ratings from the Affective Norms of English Words (ANEW) scale developed by Bradley and Lang (1999). For this scale, words are rated along three dimensions; Valence, Arousal, and Dominance. Valence ratings range from negative to positive on a 1 to 9 scale with 5 being a rating of neutrality (the word is neither negative nor positive). Valence was controlled in the current study by assuring that all the words used displayed non-significant differences in valence ratings and all words were on the negative end of the scale (< 5).

Arousal measures were used to vary arousal in our study by using words rated as higher versus lower in our vignettes. Arousal ratings range from low to high on a 1 to 9 scale with 5 being a rating of neutrality. All vignettes were identical in the information they provided by constructing a vignette template. The template presented 11 place holders for emotional word pairs throughout the vignette so that arousal (i.e., highly arousing vs. less arousing) could be changed by substituting corresponding words into the place holders. Words from the ANEW scale were inserted into the vignettes place holders depending on the condition (i.e., emotionality of the description – less vs. more emotionally arousing). Appropriate word pairs were chosen for each of the 11 place holders available. Words in the more emotional condition were the appropriate word with the highest average valence from the ANEW wordlist. Words in the less emotional condition were the appropriate word with the lowest average valence. Words used in the highly emotional description were more arousing ($M = 6.60$, $SD = 2.59$) than words used in the less emotional description ($M = 4.36$, $SD = 2.59$).

Past research has categorized strong evidence as that which leads to more true convictions and weak evidence as that which leads to more false convictions (Gould et al., 2013). Therefore, in our vignettes strong evidence consisted of DNA, video surveillance, and possession of a weapon. Weak evidence consisted of hearsay, eyewitness testimony and no alibi (Gould et al., 2013; Wells, Memon, & Penrod, 2006). Wells, Memon, & Penrod, 2006). The amount of evidence was also varied; either one or three pieces of evidence were presented. Placeholders were implemented into the vignette template so that the strength and amount of evidence could be varied throughout each condition. All vignettes were identical in length (except for those in the more evidence condition) to ensure that participants' judgments would not be influenced due to some participants receiving more information than others. Eight vignettes depicting the crime of murder, emotionally arousing descriptions (i.e., more or less), presented with fewer or more pieces of strong or weak evidence strength, were used in this study (see example below). All vignettes ended with the police naming a suspect. An example of the vignette is as follows:

Crime Scene: Murder (L = Lower Emotionality; H = Higher Emotionality)

A young woman's (L-Decomposed, H-Slaughtered) body was found earlier this morning. A (L-Messy, H-Violent) cut was present across her throat. Detectives concluded that the (L-Corpse, H-Victim) was (L-Deformed, H-Tortured). It was later discovered that the (L-Corpse, H-Victim) was (L-Deformed, H-Mutilated) by the use of (L-Scissors, H-Fire). Detectives concluded that the suspect (L-Deformed, H-Tortured) the (L-Corpse, H-Victim) before arriving at the crime scene. Blood and disturbed dirt that was found at the crime scene not far from the (L-Corpse, H-Victim) body, suggest that the young woman was still alive when she and the suspect arrived at the crime scene, and that there was a struggle. Blood was also found under the victim's finger nails. Detectives were later informed that there were signs that the young woman had been (L-Sick, H-Raped). The young woman was later identified as Jenna Blake.

Number of Evidence Low (1 piece)- Strength of Evidence (W = weak evidence; S = Strong Evidence)

The detectives obtained a (W – eyewitness statement's, S - surveillance video's) that included a description of the suspect as well as the vehicle the suspect was fleeing the scene in. Jenna Blake's body was found by locals within 24 hours of the time stamped on the (statement, video). The evidence revealed that the suspect stop by a local convenience store, and purchased their items with a check. The check was recovered; the suspect had signed the check as Joe Newton.

Number of Evidence High (3 pieces) – Strength of Evidence (W = weak evidence; S = Strong Evidence)

The detectives obtained (W - eyewitness statement's, S- surveillance video's) that included a description of the suspect as well as the vehicle the suspect was fleeing the scene in. Jenna Blake's body was found by locals within 24 hours of the time stamped on the (statement, video). The evidence revealed that the suspect stop by a local convenience store, and purchased their items with a check. The check was recovered; the suspect had signed the check as Joe Newton. Evidence such as (W-No alibi, S- DNA) and (W-hearsay, S-and possession of the weapon) became the concluding pieces of evidence the detectives needed to bring Joe in for questioning.

Questionnaires. A questionnaire was used to assess participants perceptions of the defendant's (named Joe Newton) guilt [e.g., "On a scale from 0 (innocent) to 100 (guilty), what percentage do you believe that Joe Newton is likely to be the perpetrator?"] and their perceptions of supportive evidence [e.g., "Do you believe that there is enough supportive evidence confirming that Joe Newton (suspect) is guilty of committing the crime against Jenna Blake?"] responded with a Yes/No answer. Participants were also asked to report a suggested sentencing for the defendant in which the participants had to select one (forced response) of the answer choices provided either no sentence, 5 to 99 years, or Life imprisonment. Participants also reported a single numerical value (free response) (e.g., "If Joe Newton was found guilty, how many years, between 5 - 99 years, would you recommend?"). The scenario questionnaire also assessed participants' ability to identify with the defendant (e.g., "Do you identify with the defendant?"), as well as participants emotional reactions to the crime committed. (e.g., "What was your emotional reaction to the crime committed (1 *not emotional* at all to 5 *very emotional*)?") Lastly, a demographic questionnaire consisted of three questions regarding the participants' age, race, and gender was used.

Procedure

Upon signing their consent form, participants were randomly assigned to one of eight conditions; half were assigned to read a description of the crime scene that was more emotionally arousing, and the other half were assigned to read a description of the crime scene that was less emotionally arousing. Following the description of the crime scene, participants were asked to read the investigation of the crime, which varied in the amount and strength of evidence presented (i.e., less or more evidence; weak or strong evidence). Participants were then asked fill out the scenario questionnaire which measured participants' perceptions of guilt, supportive evidence, participants' emotional reaction to the scenario and demographic information. Debriefing occurred upon completion of the survey.

Results

The experimental design for this study was a 2 (Emotionality of the description- less vs. more) X 2 (Amount of evidence- fewer vs. more) X 2 (Strength of evidence- weak vs. strong) between-groups factorial design.

Manipulation Checks

To assess the effectiveness of the emotionality manipulation, a t-test was performed with emotionality of the description as the independent variable and emotional ratings as the dependent variable. Levene's test for homogeneity of variances was non-significant, indicating equal variances for our two samples. The data analysis revealed a main effect of emotionality of the crimes on participants emotional ratings, $t(158) = 2.14, p = .034$. Participants who received a more emotional crime description reported higher emotional reactions to the description ($M = 4.08, SD = 1.04$) than participants who received a less emotional crime description ($M = 3.74, SD = .95$). This finding suggests that our manipulation of emotion was effective across our conditions.

To assess the effectiveness of our evidence manipulations, a logistic regression was performed with perception of supportive evidence (yes, no) as the criterion, and amount of evidence (less, more), strength of evidence (weak, strong), and the interaction of amount and strength as the predictors. Participants were 6.74 times more likely to endorse supportive evidence when the amount of evidence was more compared to less, $B = 1.91, SE = .676, p = .005, exp(B) = 6.74$. In addition, participants were 4.02 times more likely to endorse supportive evidence when the strength of evidence was strong compared to weak, $B = 1.4, SE = .532, p = .009, exp(B) = 4.02$. The interaction was not found to marginally contribute to prediction, $B = -1.65, SE = .9203, p = .072, exp(B) = 3.23$. Overall, the results of our manipulation checks suggest that our manipulations produced the intended effects.

Guilt Ratings

A 2 (Emotionality) X 2 (Amount of Evidence) X 2 (Strength of Evidence) fully factorial analysis of variance (ANOVA) was performed on ratings of guilt. No main effect for emotionality was found, $F(1,152) = 1.60, p = .21, partial \eta^2 = .10$. Therefore, the prediction that the emotionality of the crime description would influence guilt ratings was not supported (More Emotional: $M = 63.62, SD = 23.12$; Less Emotional: $M = 59.59, SD = 24.35$). However, amount of evidence on guilt ratings was found to be marginally significant, $F(1,152) = 3.281, p = .072, partial \eta^2 = .021$. Participants who received more evidence rated the defendant as having a higher likelihood of guilt ($M = 65.00, SD = 24.10$) than participants who received less evidence ($M = 57.44, SD = 22.95$).

As predicted, a main effect of strength of evidence on guilt ratings was found, $F(1, 152) = 4.618, p = .033, \text{partial } \eta^2 = .03$. In the presence of strong evidence, participants rated the defendant as having a higher likelihood of guilt ($M = 66.48, SD = 25.17$) than when participants were presented with weak evidence ($M = 56.80, SD = 21.58$). These effects were qualified by an interaction between amount and strength of evidence, $F(1,152) = 5.271, p = .023, \text{partial } \eta^2 = .023$. Simple effect tests reveal that when participants were presented with more evidence, guilt ratings were significantly higher with strong evidence ($M = 70.58, SD = 22.97$) than when the evidence was weak ($M = 58.02, SD = 21.94$; see Figure 1). This suggests that participants had a conservative threshold for assessing guilt in that increases in perceived guilt required both more evidence and for the evidence to be strong and further suggests that deliberations of guilt included both strength and amount of evidence, but not emotionality. (Insert Figure 1. Interaction between amount and strength of evidence on guilt ratings.)

Suggested Sentencing

A 2 (Emotionality) X 2 (Amount of Evidence) X 2 (Strength of Evidence) fully factorial multivariate analysis of variance (MANOVA) was performed on both measures of suggested sentencing (forced response and free sentencing). The forced choice response was recoded into an ordinal measure, with 1 = no sentence, 2 = 5 to 99 years, or 3 = Life imprisonment. Box's test of equality of covariance matrices was not significant, indicating homogeneity. Using Wilks' Lambda, there was a significant effect of emotionality on suggested sentencing, $\Lambda = .911, F(2,151) = 7.37, p = .001$. Separate univariate ANOVAs revealed a main effect of the emotionality of the crimes description on participants suggested sentencing (forced response), $F(1, 152) = 6.136, p = .014, \text{partial } \eta^2 = .039$. Participants who received a more emotional crime description suggested a harsher sentencing for the defendant ($M = 1.11, SD = .77$) than participants who received a less emotional crime description ($M = .80, SD = .70$). In addition, a main effect of the emotionality of the crimes description on participants free responses of suggested sentencing was found, $F(1, 152) = 11.65, p = .001, \text{partial } \eta^2 = .071$. Harsher sentencing was reported when the crime description was more emotional ($M = 69.31, SD = 38.19$) than when the crime description was less emotional ($M = 47.75, SD = 40.89$). Given emotionality did not interact with evidence; this result is consistent with the idea that emotions influenced sentencing independent of amount and strength of evidence.

(Insert Figure 2. Main effect of emotionality on sentencing.)

A follow-up analysis was run to test whether emotional influences on suggested sentencing was conditional on guilt ratings. Guilt ratings were divided into two groups of responses, less likely (ratings of 50% and lower, $n = 76$) and more likely (ratings of guilt greater than 50%, $n = 84$). A 2 (Guilt groups: Less, More) X 2 (Emotionality of Description) analysis of variance was performed on suggested sentencing (free response) to test whether the interaction was significant. A marginally significant interaction was found between Guilt groups and Emotionality, $F(1,156) = 3.274, p = .072, \text{partial } \eta^2 = .021$. When participants rated guilt as 50% or lower, lower sentencing was found when the information was less emotional ($M = 40.07, SD = 39.73$) compared to more emotional ($M = 73.58, SD = 36.4$). This difference was larger than when participants perceived more guilt (greater than 50%) across the less emotional ($M = 54.43, SD = 41.14$) to the more emotional ($M = 65.26, SD = 39.87$) conditions. Because the shift in emotional influences on suggested sentencing was found greater for the lower guilt group, this further suggests that emotional information influenced sentencing (punishment conditional of committing a crime) independent of perceptions of guilt.

Discussion

Prior to opening statements, the judge will note that jurors should not consider attorneys opening and closing arguments as evidence, as they are often an appeal to juror emotion. This suggests awareness on the part of those involved in the judicial practice that emotion can influence judicial decisions. Though this attempt to address explicit appeals to emotion is meant to reduce explicit emotional influence (we found no empirical studies examining this issue), it does not rule out the implicit influence of emotion.

Results from the current study suggest that emotion can influence how evidential information is processed and further bias sentencing. Given that participants also reported higher emotional reactions when the description was highly emotional, suggests that strong emotions were the driving factors that led jurors to suggest a harsher sentencing for the crime committed, murder. This suggests that under certain circumstances, jurors' verdicts may be influenced by their emotions as well as the evidence presented. These findings are congruent with Hegerich and Bottoms (2000) findings regarding induced empathy/compassion for the defendant, with the advantage of the current study being the focus on implicit processing of emotion.

The present study's findings regarding strength of evidence are consistent with past research (Reskin & Visher, 1986). Higher guilt ratings were reported when the participants received strong evidence than weak evidence and more evidence led to reports of the defendant having a higher likelihood of guilt than less evidence as predicted. Overall, given all evidence presented was directed toward conviction of the defendant; participants in our study were able to logically incorporate amount and strength of evidence into their decision process.

The impetus for this study was an effort to identify factors that can lead to the expression of implicit biases. Proposed here is that emotion eliciting presentations of evidential information can act as one of these factors. Future studies should examine the extent to which race and other factors, like sex and socioeconomic status are mediated by the emotional presentation of evidential information. Bias against persons of color in the judicial system has been well-documented. For example, reports from the U.S. Department of Justice suggests that people of color are stopped by the police more often than whites, and that racial profiling, though illegal, is still pervasive (Department of Justice, 2016; Smith et.al, 2004). This bias extends further through the judicial process. For example, prison sentences for colored men are nearly 20% longer than those of men who are not of color that commit similar crimes (Turner, 2014). Further, Abrams, Bertrand, and Mullainathan found that race was a factor in differences in incarceration rates for whites versus black defendants in verdicts provided by judges (2012). Of note, this effect emerged even when controlling for alternative explanations for different incarceration rates, including, racial differences in criminal behavior and differences in attorney quality. This effect is even evident in studies using mock juries (Mitchell, Haw, & Meissner, 2005). One source of this bias may be that emotional language differs with respect to race and SES, and this could be one source of the bias found in the judicial system. To examine whether this is the case, transcripts of court cases could be coded with respect to emotionality (using established norms for emotionality in words, see ANEW) of presentation and researchers could examine if emotionality varies as a function of race, socioeconomic status, own versus other race, and other factors identified as problematic in the judicial process. The extent to which emotional presentations independently contribute to bias in courtroom proceedings can also be examined in this way as well. This would increase the external validity of our findings and highlight the importance of taking into account how information is presented as a key component of fair trial practices across trials.

One advantage of the current study is that it provides an external observable mechanism in explaining implicit bias, as opposed to an explanation hinging around individual differences, i.e., prejudicial attitudes or beliefs (Kang et.al 2012). Though bias in courtroom presentation may be the product of implicit prejudicial attitudes and beliefs, the mechanism for change may be hard to identify and even harder to implement corrective practices. If it does indeed turn out that one way prejudicial attitudes and beliefs instantiate in the courtroom is in language use, than regulatory or instructional corrective practices can be developed and implemented to reduce the practice, thereby reducing implicit biases. Again, more research is needed to examine if this is true.

Again, our study did not include measures of prejudice or bias, nor did our study include actual deliberations by a mock-jury, a factor which may alter or buffer the impact of emotional language on decisions. In addition, our study did not include a live presentation of the material, as would occur in judicial practice. Future studies should attempt to move towards inclusion of these factors, in order to increase the external validity of our findings.

Overall, identification of the factors that both indicate and produce bias in judicial proceedings is of the utmost importance. The current study is an attempt to identify such factors, suggesting that one such factor may be how the emotionality of the descriptions of the evidence can produce alterations of judgements of guilt and affect sentencing of the accused. Should this result prove reliable, it would provide an objective, measureable, source for implicit bias in courtroom practice, and provide those involved in the legal system a concrete action to bear in mind and monitor to establish fair practices in the courtroom, namely, the degree to which evidence is presented with emotional language.

References

- Abrams, D.S., Bertrand M., & Mullainathan, S. (2012). Do judges vary in their treatment of race? *The Journal of Legal Studies*, 41(2), 347-383.
- Banaji, M., & Heiphetz, L. (2010). Attitudes. In S. Fiske, D. Gilbert, & G. Lindzey (Eds.), *Handbook of social psychology*, 5th edition (pp. 348-388). New York: Wiley.
- Bradley, M.M., & Lang, P.J. (1999). *Affective norms for English words (ANEW): Instruction manual and affective ratings*. Technical Report C-1, The Center for Research in Psychophysiology, University of Florida.
- Department of Justice. (2016). *Investigation of the Baltimore Police Department*. Report prepared by the Department of Justice, Washington, D.C.
- Eberhardt, J., Davies, P., Purdie-Vaughns, V. & Johnson, S. (2006). Looking deathworthy: Perceived stereotypicality of Black defendants predicts capital-sentencing outcomes. *Psychological Science*, 17, 383-386.
- Eva Martin, M., De La Fuente, L., Immaculada De La Furente, E., & Garcia, J. (2007). The influence of sample type, presentation format, and strength of evidence on juror simulation research. *Psychology, Crime & Law*, 13(2), 139-153. <https://doi.org/10.1080.10683160500537431>
- Gould, J., Hail-Jares, K., & Carrano J. (2013). New data, new findings: An updated assessment of wrongful convictions. *Judicature*, 97, 167-171.

- Haegerich, T. M., & Bottoms, B. L. (2000). Empathy and jurors' decision in patricide trials involving child sexual assault allegations. *Law and Human Behavior, 24*, 421-448.
- Horowitz, I. A., Bordens, K. S., Victor, E., Bourgeois, M. J., & ForsterLee, L. (2001). The effects of complexity on jurors' verdicts and construction of evidence. *Journal Of Applied Psychology, 86*, 641-652. doi:10.1037/0021-9010.86.4.641
- Kang, J., Bennet, M., Carbado, D., Casey, P., Dasgupta, N., Faigman, D., Godsil, R., Greenwald, A.G., Levinson, J., & Mnookin, J. (2012). Implicit Bias in the Courtroom. *UCLA Law Review, 1124*, 1124-1186
- Lehmann, P. S. (2020). Race, ethnicity, crime type, and the sentencing of violent felony offenders. *Crime & Delinquency, 66*(6-7), 770-805. <https://doi.org/10.1177/0011128720902699>
- Levinson, J. D. (2007). Forgotten racial equality: Implicit bias, decisionmaking, and misremembering. *Duke LJ, 57*, 345-424.
- Matsuo, K., & Yuji, I. (2016) Effects of emotional testimony and gruesome photographs on mock juror's decisions and negative emotions. *Psychiatry, Psychology, and Law, 23*(1), 85-101. <https://doi.org.10.1080/13218719.2015.1032954>
- Mitchell, T.L., Haw, R.M., Pfeifer, J.E., & Meissner, C.A. (2005). Racial bias in mock-juror decision-making: a meta-analytic review of defendant treatment. *Law and Human Behavior, 29*(6), 621-637.
- Reskin, B. F., & Visser, C. A. (1986). The impacts of evidence and extralegal factors in juror's decisions. *Law and Society Review, 20*, 423-438.
- Rettinger, D. A., & Reid, H. (2001). Content effects on decision-making. *Organizational Behavior and Human Decision Processes, 85*, 336-359.
- Reynolds, C. (2013). Implicit bias and the problem of certainty in the criminal standard of proof. *Law & Psychology review, 37*, 229-248.
- Russell, J. A. (1980). A circumplex model of affect. *Journal Of Personality And Social Psychology, 39*(6), 1161-1178. doi:10.1037/h0077714
- Salerno, J. M., & Bottoms, B. L. (2009). Emotional evidence and jurors' judgments: The promise of neuroscience for informing psychology and law. *Behavioral Sciences and the Law, 27*, 273-296. doi: DOI: 10.1002/bsl.861
- Shaviro, D. (1989). Statistical-probability evidence and the appearance of justice. *Harvard Law Review, 103*(2), 530-554.
- Smith, W.R., Tomaskovic-Devey D., Zingraff, M. T., Mason, H.M., Warren, P.Y., Wright, C.P. (2004). *The North Carolina Highway Traffic Study*. Report prepared for the Department of Justice, Washington, D.C.
- Wells, G. L., Memon, A., & Penrod, S. D. (2006). Eyewitness evidence: Improving its probative Value. *Psychological Science In The Public Interest, 7*, 45-75. doi:10.1111/j.1529-1006.2006.00027.x
- Wevodau, A. L., Cramer, R. J., Kehn, A., & Clark, J. W., (2014). Why the impact? Negative affect change as a mediator of the effect of victim impact statements. *Journal of Interpersonal Violence, 29*(16), 2884-2903. <https://doi.org/10.1177/0886260514527170>

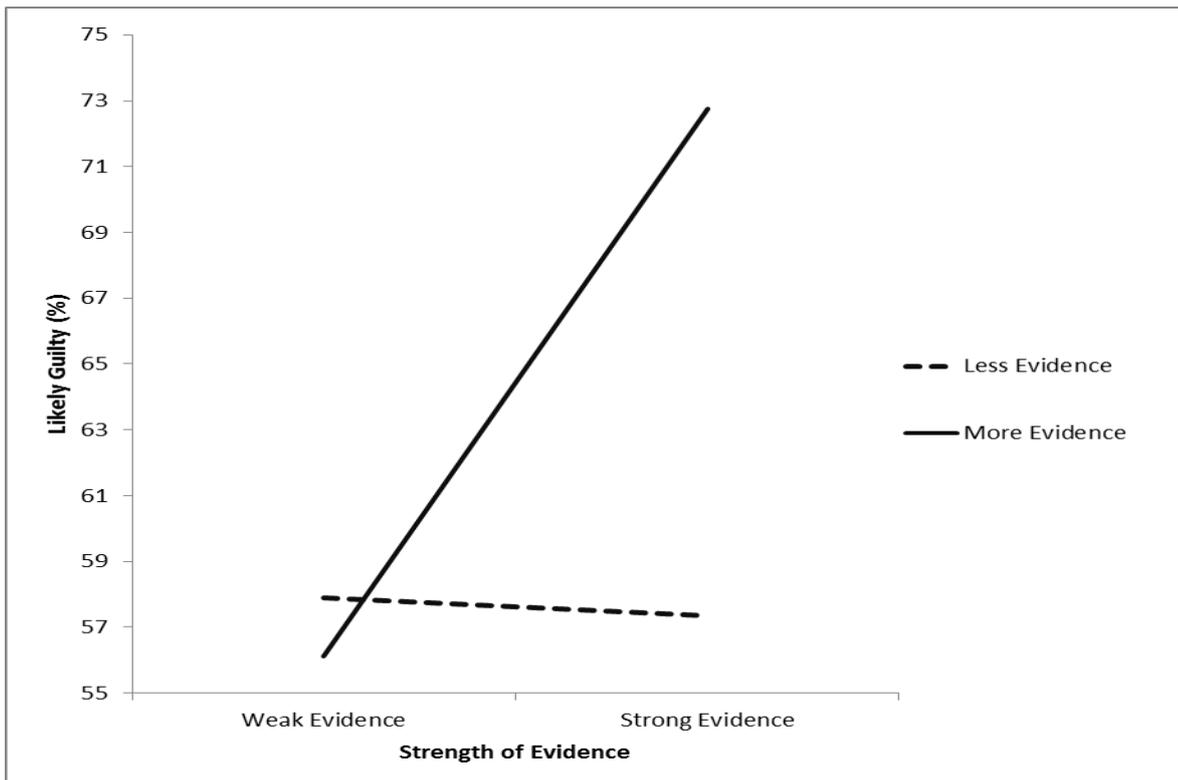


Figure 1. Interaction between Amount and Strength of Evidence on Participant Ratings of Guilt (Percentage). Guilt Ratings were highest when participants saw more evidence when that evidence was strong.

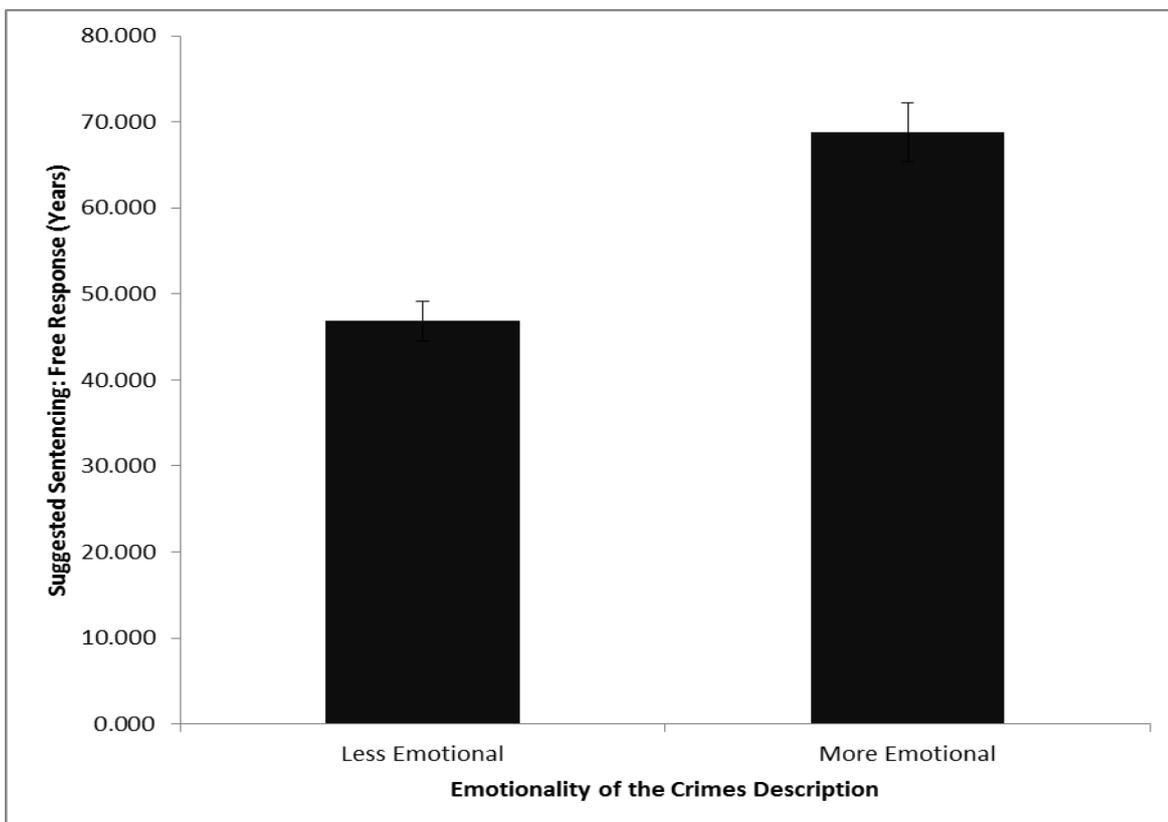


Figure 2. Main effect of Emotionality of the crimes description on Suggested Sentencing (years in jail). Participants gave harsher sentences when the description of the crime was more emotional compared to less emotional. Standard errors are represented in the figure by the error bars attached to each column.