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Gruesome Evidence and Emotion: Anger, Blame, and Jury Decision-Making

David A. Bright · Jane Goodman-Delahunty

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Abstract Judges assume that gruesome evidence can influence juror verdicts, but little is known about the manner in which the influence is manifested. In a 2×3 study that varied the gruesome content of photographic and verbal evidence, gruesome verbal evidence did not influence mock juror emotional states, and had no impact on the conviction rate. Mock jurors who saw gruesome photographs, compared with those who saw no photographs, reported experiencing significantly more intense emotional responses, including greater anger at the defendant. The conviction rate when visual evidence in the form of gruesome or neutral photographs was included was significantly higher than the conviction rate without photographic evidence. Mean ratings of the inculpatory weight of prosecution evidence by mock jurors presented with gruesome photographs were significantly higher than those by mock jurors who did not view any photographs. Further analyses revealed that mock juror anger toward the defendant mediated the influence of the gruesome photographs in enhancing the weight of inculpatory evidence.

Keywords Gruesome evidence · Emotion · Jury decision making

In the criminal trial of Simpson (*People of the State of California v. Orenthal James Simpson*, 1995), the prosecutors' closing arguments concluded with an audiotape of Nicole Simpson's 911 calls to the police, whereas color photographs of the bloodied bodies of Nicole Simpson and Ron Goldman were displayed on a screen. The legal systems in the United States, Australia, and other common law countries assume that this type of gruesome evidence can exert a prejudicial influence on culpability determinations in criminal cases. However, little is known about precise ways in which gruesome evidence affects juror decision-making. Emotional reactions to the grisly evidentiary details may inhibit logical and rational decision processes and impair jurors' ability to deliver a verdict based only on the probative value of evidence in a case. Jurors who attribute weight to gruesome evidence in determining their verdict separate and apart from the probative value of the evidence, violate core assumptions of the criminal justice system, such as

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the defendant's right to a fair trial, the jury's role as impartial finders of fact, and the defendant's right to be considered innocent until proven guilty beyond reasonable doubt. Considering the magnitude of these issues, there are correspondingly few references to the potential influence of gruesome evidence on legal decision-making in the statutory law, the common law, or in psycholegal research.

Prejudicial and probative evidence

To ensure a fair trial for the defendant in criminal proceedings, many common law countries permit the exclusion of evidence that is determined to be more prejudicial than probative. In the United States, the rules of evidence in most states are consistent with the Federal Rules of Evidence (FRE; 2004). According to FRE 401, relevant evidence means "evidence having any tendency to make the existence of any fact that is of consequence to the determination of the action more probable or less probable than it would be without the evidence," (p. 3). Rule 403 on the "exclusion of relevant evidence on grounds of prejudice; confusion or waste of time" reads, "although relevant, evidence may be excluded if its probative value is substantially outweighed by the danger of unfair prejudice," (p. 4). Notes from the Advisory Committee on the Federal Rules of Evidence state that unfair prejudice means "an undue tendency to suggest decision on an improper basis, commonly, though not necessarily, an emotional one" Legal Information Institute (n.d.).

In Australia, "probative value" is defined in the *Evidence Act* (1995) as, "the extent to which the evidence could rationally effect the assessment of the probability of the existence of a fact in issue" (Section 3; Part 1). "Danger of unfair prejudice" is explained by the Australian Law Reform Commission (1985) as follows:

By risk of unfair prejudice is meant the danger that the fact-finder may use the evidence to make a decision on an improper, perhaps emotional, basis, i.e., on a basis logically unconnected with the issues in the case. Thus, evidence that appeals to fact-finders' sympathies, arouses a sense of horror, provokes an instinct to punish, or triggers other mainsprings of human action may cause the fact-finder to base his decision on something other than the established propositions of the case. Similarly, on hearing the evidence, the fact-finder may be satisfied with a lower degree of probability than would otherwise be required. (pp. 351–352)

A common theme in both the jurisdictions is the concern that some types of evidence can prejudicially impact juror decision-making, especially when that evidence induces emotional responses in jurors. The current study examines the impact of a specific type of potentially prejudicial evidence on juror decision-making in criminal trials: verbal and photographic evidence that contain gruesome details.

Gruesome evidence and jury decision-making

In both the United States and Australia, statutory provisions allow for a more punitive sentence when gruesome evidence, such as a description of a postmortem mutilation, is submitted at a sentencing hearing. There are no statutory or common law provisions that allow jurors to be more punitive toward defendants in making determinations about culpability when gruesome evidence is presented during a trial. However, preliminary research suggests that mock jurors are biased toward conviction by gruesome evidence adduced at trial.

One of the earliest studies on the influence of gruesome evidence on juror decision-making examined the issue in the context of a mock civil trial (Oliver & Griffitt, 1976). Participants read one of two cases in which the severity of the injury (no permanent damage vs. amputation of a limb) was varied. Half of the participants in each condition viewed four slides depicting

the victim's injuries and the other half were not shown any slides. Participants who saw the injury slides awarded a significantly greater proportion of the requested damages than did the participants who did not see the slides. The authors concluded that gruesome visual evidence influenced mock juror decisions by increasing the damages awarded to the plaintiff-victim. However, the observed effect may have been a methodological artifact, as all participants awarded damages, irrespective of the degree to which they found the defendant negligent. Although no measures of mock juror affective states were gathered, the researchers attributed the biasing effect of the photographs to emotional arousal in mock jurors who viewed the gruesome visual evidence.

In another examination of the impact of gruesome photographs in the context of a civil trial, three groups of participants read a transcript of a trial in which parents sued a building construction company for injuries to their child who fell through a floor of the building while trespassing (Whalen & Blanchard, 1982). One-third of the participants were shown a color photograph of the boy lying face down, with his leg at an unnatural angle, and a pool of blood nearby from cuts to his hand and arm. One third saw a black and white version of this photograph, and one third did not see any photograph. In addition, the severity of the victim's injury (temporary injuries vs. permanent blindness) and the blameworthiness of the defendant (level of safety precautions exercised) were varied. Participants who viewed the color photographs awarded significantly higher sums in damages than did the participants who viewed either black and white or no photographs, but only when the severity of the injury was permanent and the defendant was portrayed as more blameworthy. Although identical information was provided in the color and black and white photographs, a biasing effect was found only in response to color photographs, and only in the presence of other facts (permanent victim injury and greater defendant blameworthiness). The authors submitted that the result could not simply be attributed to an increase in the amount of information available in the photographs, and suggested that the emotional arousal of mock jurors produced this result. In an extension of these two studies, the current study investigates the impact of gruesome evidence in a criminal context and measures mock juror emotional arousal.

The effects of exposing mock jurors to videotaped evidence displaying an image of a murder victim were investigated by Kassir and Garfield (1991). Although no direct effects on verdict were found, mock jurors who viewed gruesome visual evidence and were told it depicted the crime scene in their case applied significantly lower thresholds of proof for conviction (76%) compared to mock jurors in two other conditions (93%). Use of a lower threshold of proof for conviction can transform acquittals into convictions. The threshold of proof used by mock jurors in the case relevant videotaped evidence condition fell short of the interpretation of "beyond reasonable doubt" reported by mock jurors in the nonrelevant and no videotaped evidence conditions, and short of quantified thresholds of reasonable doubt established in other empirical research (Kassin & Wrightsman, 1979; Kerr, Atkin, Stasser, Meek, Holt, et al., 1976; Simon & Mahan, 1971). In other words, jurors exposed to gruesome evidence may employ a lower threshold in applying the legal standard "beyond reasonable doubt," and may convict on the basis of less convincing evidence than mock jurors who render verdicts in the same case absent the visually gruesome, case-specific evidence.

The impact of visually presented gruesome evidence on mock juror verdicts was assessed in a study by Douglas, Lyon, and Ogloff (1997). Three groups of mock jurors read transcripts of a murder case and viewed (1) neutral photographs and postmortem photographs of the victim in color; or (2) neutral photographs and postmortem photographs of the victim in black-and-white; or (3) neutral photographs only, presented in color. Those who saw the photographs were more emotionally affected (based on self-report measures), and were significantly more likely to render a guilty verdict, compared with jurors who did not see the photographs. These findings suggest that gruesome visual information arouses mock juror emotional states, and influences

their culpability decisions. Scores on self-report scales of emotional distress demonstrated a significant positive correlation with the extent to which mock jurors believed the accused was guilty. Interestingly, all participants indicated that the photographs should not and did not influence their verdicts, and claimed that they acted in a fair and impartial manner as jurors. Although the graphic photographs influenced verdicts, mock jurors were unaware of or unwilling to admit the influence of this evidence.

In a subsequent study (a replication of the study by Douglas et al., 1997) Nemeth (2002) used the Profile of Mood States (POMS) (McNair, Lorr, & Droppleman, 1981) to measure mock juror emotional arousal to investigate the contention that gruesome evidence exerts its prejudicial effect through juror emotional arousal. Mock jurors were presented with either weak or strong gruesome verbal testimony plus neutral, weak, or strong gruesome photographs. Neither gruesome photographs nor gruesome verbal testimony influenced dichotomous or continuous measures of the defendant's guilt. Emotional arousal measured by the POMS did not vary significantly in response to the neutral versus gruesome photographs or verbal testimony. However, a manipulation check revealed no difference between gruesome and nongruesome conditions, which may account for the null findings.

More recently, the impact of verbal gruesome evidence on mock juror decisions was examined in the context of a criminal case (Bright & Goodman-Delahunty, 2004). Mock jurors were assigned to one of two evidence quality conditions (gruesome and nongruesome), and to one of two evidence sufficiency conditions (evidence was either legally sufficient or legally insufficient to sustain a conviction). When verbal gruesome evidence was presented, mock jurors were significantly more prone to convict the defendant compared with those who read an equivalent case in which no verbal gruesome evidence was submitted. Mock jurors who read gruesome evidence combined with weak inculpatory facts also rated the defendant significantly more culpable than those who had not read gruesome evidence. The authors suggested that when faced with gruesome evidence, mock jurors might have relied more on their affective states than on the probative value of the evidence in forming judgments about the guilt of the defendant. However, no measures of mock juror emotional states were used, so firm conclusions were not possible.

Together, the studies outlined earlier offer some preliminary evidence of the potentially prejudicial influence of gruesome evidence on juror culpability decisions. When gruesome evidence is presented, jurors may assess the weight of the inculpatory evidence differently from the assessment of its weight when no gruesome evidence is present. The preceding studies do not establish clear indications of the impact of gruesome evidence (verbal or visual), nor the precise role played by juror emotional states. The current study seeks to fill the gap in the psychological literature regarding affective reactions to gruesome evidence in criminal cases.

Psychological theories to account for the prejudicial impact of gruesome evidence

Potential explanations for any prejudicial influence of gruesome evidence on legal decision-making can be collected under two theoretical umbrellas: the vividness effect and affective influences. The current study focused on the investigation of the influence of affect and did not directly investigate the vividness theory. The relevant literature on affective influences is reviewed next.

Affective influences

When individuals are in the middle of formulating a decision, they may use their emotional states as a source of information. According to the “affect-as-information” model, “rather than

computing a judgment on the basis of recalled features of the target, individuals may . . . ask themselves, How do I feel about it?” (Schwarz, 1990, p. 529). In this model, affect functions as a judgment-simplifying heuristic device. People are presumed to consult their affective state to infer a judgment (Clore & Parrott, 1991).

Much psychological research on the role of affective states on decision-making has focused on mood and the differential impact of positive versus negative moods (Forgas, 2000; Petty, DeSteno, & Rucker, 2001; Schwarz & Clore, 1996). However, some investigators have argued plausibly that distinct emotions exert differential influences on decision-making in a way not captured by a simple positive–negative mood dichotomy (DeSteno, Petty, Rucker, Wegener, & Braverman, 2004). Whether distinct emotional states exert a differential influence on many cognitive and motivational processes is a topic of current research.

Discrete emotional states

In contrast to the view that negative affective states enhance message processing more than do positive states (Petty & Wegener, 1998; Schwarz, Bless, Strack, Klumpp, Rittenauer-Shatka, et al., 1991, Schwarz & Clore, 1996, Schwarz & Clore, 1996), more recent findings suggest that not all negative emotional states increase the processing effort devoted to the consideration of persuasive appeals (DeSteno et al., 2004). These processing differences may stem from the specific appraisal patterns attached to discrete emotions. Discrete emotions relevant to discussions of gruesome evidence and to attributions of blame and responsibility include anger, disgust, fear and anxiety, and sadness. Research on emotional states and their specific appraisal patterns relevant to jury decision-making are reviewed next.

Anger. Anger is of particular relevance to juror decision-making about guilt because a critical cognitive component of anger is assumed to be the attribution of blame (Averill, 1982). People who are angry are prone to blame others (Keltner, Ellsworth, & Edwards, 1993, Lerner, Goldberg, & Tetlock, 1998). In another formulation, anger is regarded as a combination of reproach and distress (Ortony, Clore, & Collins, 1988): anger is the affective response to holding someone responsible for blameworthy behavior (reproach) and being upset at the outcome (distress).

Angry individuals were more likely than were sad individuals to attribute responsibility for an accident to the persons involved than the circumstances (Keltner et al., 1993). The emotional experience of anger may focus people on seeking someone to hold responsible for blameworthy behavior, thus enhancing the salience of the role of others in causing negative events, consequently leading the angry person to attribute the harm to human agency (Keltner et al., 1993). Participants who were induced to feel angry were more likely to blame the defendant in subsequent accident vignettes, compared with participants in a control condition. Consistent with affect-as-information theory (Schwarz, 1990), participants may have misattributed their angry mood to the vignettes and consulted their mood to inform their judgments of responsibility.

Further, research has demonstrated that angry as opposed to sad people tend to rely more on heuristic cues when processing social information (Bodenhausen, 1993; Bodenhausen, Sheppard, & Kramer, 1994). In one study, people who were induced to feel angry were later asked to assess a completely unrelated civil case. Angry people awarded more damages to the plaintiff and judged the defendant to be more deserving of punishment than did people who were not angry, even though anger was unrelated to the case in controversy (Lerner et al., 1998). Psychological processes similar to those reviewed above may be activated in cases in which anger is induced by the presentation of gruesome evidence.

Disgust. A cluster of “other-critical moral emotions” that are affective responses to the moral violations of others, have been identified (Rozin, Lowery, Imada, & Haidt, 1999). Disgust (or socio-moral disgust) (Rozin, Haidt, & McCauley, 1993) has been shown to be triggered by a variety of situations in which people behave without dignity or in which people strip others of dignity. Socio-moral disgust is often triggered by third-party violations of others (Rozin et al., 1999). Gruesome photographs that focus on victim harm (e.g., postmortem photographs) may fit into this category. Disgust may be one possible reaction to viewing or listening to gruesome elements of a criminal trial.

Fear. Some research has demonstrated that when injuries to an accident victim are more severe, decision-makers attribute more blame and responsibility to the person who caused the accident (Robbennolt, 2000). One explanation for this finding is that people make defensive attributions: when harm is severe, people are threatened by the possibility that similar harm will befall them. To restore a sense of safety, people reassure themselves that such harm does not occur accidentally, and assign more responsibility to the actor. Fear can be considered the affective component of the defensive attribution reaction.

Emotions and blame

Theories of blame and responsibility are dominated by decision-stage models (Shaver, 1985; Weiner, 1995) that prescribe the factors a rational perceiver should consider in assessments of blame, but are unable to account for psychological processes that produce deviations from rational outcomes. Alternatively, the “culpable control” model (Alicke, 2000) offers an explanation of the process of blame that incorporates personal expectations and emotional reactions as central components and that can account for biased information processing and decision outcomes.

According to the culpable control model, affective reactions (or “spontaneous evaluations”) to characteristics of a harmful event or the people involved, influence blame attributions. In the model, affective reactions include positive and negative attitudinal judgments about the events and the people involved, as well as emotional responses that moderate the strength of the spontaneous evaluation (Alicke, 2000). The model suggests that spontaneous emotional reactions to the evidence activate the desire to blame the person or persons who evoke the most negative affect. One useful component of the model in relation to the impact of gruesome evidence on decision-making is that it offers three empirically testable mechanisms for these effects: (1) altered evidentiary standards; (2) altered perceptions of the evidence; and (3) biased information search.

Altered evidentiary standards. Common to cognitive information processing models of jury decision-making in criminal cases is the view that the task of the juror is to listen to conflicting evidence from multiple sources and integrate or synthesize that information in reaching a decision to convict or acquit the defendant (Hastie, 1993; Kerr, 1993; Pennington & Hastie, 1993). Jurors are presumed to arrive at a subjective estimate of guilt and then compare that estimate with a threshold of reasonable doubt, on the basis of a judicial instruction. If the juror’s subjective estimate of guilt exceeds the threshold of reasonable doubt, then the decision is to convict (Ostrom, Werner, & Saks, 1978).

As discussed earlier, mock jurors who viewed a videotape of a murder scene applied lower conviction standards than did those who saw no video or a video depicting an unrelated crime scene (Kassin & Garfield, 1991). The alteration in conviction standards may have been influenced by the unfavorable responses evoked by the graphic crime scene video (Alicke, 2000). The culpable control model asserts that the need to restore or preserve justice results in “unfavorable” spontaneous emotional reactions to a victim’s suffering, and a consequential lowering

of the evidential threshold in ascribing blame and responsibility. Criminal prosecutors routinely introduce graphic crime scene photographs or videotapes in an apparent attempt to influence the jury toward conviction (Alicke), as occurred in the criminal trial of OJ Simpson.

Altered perceptions of the evidence. The model predicts that observers who spontaneously evaluate the actor's behavior unfavorably will exaggerate inculpatory evidence and de-emphasize exculpatory evidence. For instance, negative reactions to harmful outcomes in a civil case led observers to skew the evidence in a way consistent with blaming the decision-maker for the consequences (Alicke, Davis, & Pezzo, 1994). In another study, when verbal gruesome evidence was submitted, mock jurors rated other (i.e., non-gruesome) items of evidence as more inculpatory compared with mock jurors who were not exposed to the gruesome evidence, suggesting that their assessments of the weight of evidence were influenced by their reactions to the gruesome details (Bright & Goodman-Delahunty, 2004).

Biased information search. Observers may engage in a biased information search to support a desired blame attribution. Results of one study (Mazocco & Alicke, 2005) suggested that participants who reacted more negatively to the actor who killed innocent victims favored information that supported a blame attribution.

The current study investigates the impact of gruesome verbal and visual evidence on mock jurors' affective responses, especially anger, disgust, and sadness, and on mock juror decision processes, within the context of the "culpable control" model. This study examines (1) whether mock jurors' evaluation of evidence is influenced by gruesome evidence presented visually and verbally; (2) whether gruesome evidence (verbal and/or visual) influences mock juror affective states; and (3) whether this affective reaction exerts a prejudicial influence on mock juror judgments. The gruesome evidence in this study included details (presented verbally or visually) of wounds inflicted on a murder victim.

The specific hypotheses tested in this study were (1) mock jurors would render more guilty verdicts, and report elevated subjective estimates of the factual guilt of the defendant, elevated ratings of the sufficiency of prosecution evidence, elevated confidence in their verdicts, and less doubt about the defendant's guilt when the evidence includes gruesome visual and verbal factors; (2) mock jurors who read and/or see gruesome evidence would report higher levels of negatively valenced affective states (specifically, anger, sadness, fear, and disgust); (3) mock jurors presented with gruesome evidence would rate individual items of evidence as more inculpatory than would mock jurors presented with non-gruesome evidence; (4) mock jurors presented with gruesome evidence would be more sympathetic to the victim and more angry toward the defendant than would mock jurors who are not presented with gruesome evidence; and (5) negatively valenced emotional states (in particular, anger) would mediate the influence of gruesome evidence on mock juror decisions.

Method

Pilot study

Seventy-eight undergraduates at the University of New South Wales, Sydney, Australia, participated in this study during a third year Psychology and Law tutorial. We randomly assigned participants to one of four groups: verbal gruesome, verbal non-gruesome, color photographs, and black-and-white photographs.

Participants in the two verbal conditions received a booklet containing two trial excerpts ranging in length from one-third of a page to two pages. The gruesome version contained detailed descriptions of the wounds to the victim's neck. These detailed descriptions were omitted from the verbal non-gruesome trial excerpts. Participants in the two photograph conditions viewed 20 photographs from a real murder case tried in NSW (*R v. Valevski*, 2000) in color or black and white, with dimensions approximately 15 cm × 20 cm, selected to include both neutral and differentially gruesome photographs (e.g., close-up of victim's neck wound vs. blood stained clothing).

To assess the effectiveness of the manipulation of gruesome evidence, participants in the verbal conditions rated each of the two written passages and participants in the photograph conditions rated each of the 20 photographs on 5-point scales assessing evidence as *gruesome*, *upsetting*, and *disgusting*. Response scores were summed to create an index of how gruesome, upsetting, and disgusting the evidence was perceived to be. Higher scores indicated more gruesome evidence (maximum score of 15 per item). Mock juror ratings of the two verbal passages were summed to produce a total score for the verbal passages (maximum score of 30). Mock juror responses to the measures of gruesome evidence in this study indicated that the verbal evidence, which described the victim's wounds in lurid detail, were rated significantly more gruesome than the non-gruesome verbal evidence. A one-way ANOVA yielded a significant result, $F(1, 35) = 4.32$, $p < .05$. Verbal evidence describing the injuries to the murder victim was rated significantly more "gruesome, upsetting, and disgusting" (15.47) than was the evidence that did not include this detail (12.45).

The 20 photographs were ranked on the basis of the mean aggregated total scores. The five photographs with the lowest total scores (under 4) were designated as neutral. The five photographs with the highest total scores (over 8, four photographs had total scores exceeding 12) were designated as gruesome. The five neutral photographs depicted an internal door with damage to the outer panel, an external view of a house, a close-up of a gold necklace, a laundry containing a sink and washing machine, and a bed. Four of the gruesome photographs depicted the victim postmortem, displaying deep wounds to her neck from different angles. The fifth gruesome photograph showed a blood spatter on a set of drawers.

In sum, the experimental variation of the evidence to produce visual and verbal gruesome and non-gruesome versions was successful.

Participants

One hundred and two first-year undergraduate psychology students (age range 17–54 years; 30% male and 70% female) at the University of New South Wales participated in the study for course credit. All participants provided informed consent and were fully debriefed at the conclusion of the study.

Design

A 2×3 between-participants design was used. We assigned participants to one of the two verbal evidence conditions: gruesome and non-gruesome evidence differed in the amount of detail that was presented regarding the wounds to the victim. We further assigned participants to one of the three visual evidence conditions: no photographs, neutral photographs, or gruesome photographs.

Materials

Trial transcripts

Participants read a 20-page, double-spaced summary of a trial involving a defendant charged with his wife’s murder. The materials were drawn from a real murder case. The summary was constructed from judicial comments contained in the appellate opinion. The materials consisted of (1) a summary of the opening statement by the prosecution and the defense; (2) extracts from the direct and cross-examination of witnesses, taken from the trial transcript, in question and answer format; and (3) a judicial summary of the evidence, and the judge’s instructions to the jury. The judge’s instructions outlined the role of jurors, the elements of the crime of murder, and the definition of reasonable doubt. The instructions were identical to those administered by judges in similar cases in criminal courts in New South Wales (Judicial Commission of New South Wales, 2002). Apart from the manipulation varying the verbal and visual gruesome evidence, all other information in the trial summary was held constant across experimental conditions.

Affect measure

The Juror Negative Affect Scale (JUNAS) was constructed by combining items on three subscales (anger, fear/anxiety, and sadness) from the Profile of Mood States (POMS; McNair, Lorr, & Droppelman, 1981) and the Positive and Negative Affect Scale (PANAS; Watson, Clark, & Tellegen, 1988). A fourth subscale, disgust, was added by including parallel items using common synonyms for the word “disgust.” The JUNAS comprises 30 items and four subscales (fear/anxiety, sadness, anger, and disgust) shown in Table 1.

Procedure

Participants completed the JUNAS to provide a baseline measure of negative affect before reviewing the case materials. Mock jurors were instructed to “circle the response that best describes how you feeling right now” on a 5-point scale from *not at all* to *extremely*. Next, participants read one of six versions of the trial transcript, and then completed the JUNAS again. They indicated (1) legal guilt in the form of a dichotomous culpability judgment (guilty/not guilty); (2) confidence in their verdict, on a 7-point scale from *not at all confident* to *completely*

Table 1 Items and subscales of the JUNAS (Juror Negative Affect Scale)

Fear/anxiety	Anger	Sadness	Disgust
Tense	Angry	Unhappy	Disgusted
Shaky	Annoyed	Sad	Repulsed
On edge	Resentful	Discouraged	Disturbed
Panicky	Bitter	Miserable	Revolted
Uneasy	Furious	Gloomy	Shocked
Restless	Bad tempered	Helpless	
Nervous	Hostile		
Anxious	Irritable		
Distressed			
Upset			
Afraid			

confident; (3) factual guilt in the form of the likelihood that the defendant took the life of the victim, on a 7-point scale from *very unlikely* to *very likely*; (4) the degree to which the prosecution evidence was sufficient to support conviction, on a 7-point scale from *not at all sufficient* to *completely sufficient*; and (5) the amount of doubt in their minds about the defendant’s guilt, on a 7-point scale from *no doubt* to *complete doubt*. Finally, mock jurors rated how sympathetic they felt toward the victim and how angry they felt toward the defendant, on a 5-point scale from *not at all* to *extremely*.

Results

Dichotomous verdict

Overall, 29% ($n = 30$) found the defendant guilty. Table 2 displays the conviction rates (percentage who found the defendant guilty) in the six groups. A logistic regression analysis was performed on verdict to analyze differences in verdict as a function of photographic evidence and verbal evidence. This analysis produced a significant overall effect, $\chi^2 = 12.20, p = .007, df = 3$. Mock jurors in the neutral photograph condition rendered more guilty verdicts (38.2%) than did those in the no photograph condition (8.8%), $B = -1.86$, Wald’s statistic = 7.04, $p = .008$. Mock jurors in the gruesome photograph condition rendered more guilty verdicts (41.2%) than did mock jurors in the no photograph condition (8.8%), $B = -1.98$, Wald’s statistic = 8.05, $p = .005$. Figure 1 displays conviction rates in the three photographic evidence groups (no photographs, neutral photographs, and gruesome photographs). There was no significant relationship between type of verbal evidence and participants’ verdict ($B = -.21$, Wald’s statistic = 0.21); 27.5% of participants in the low verbal gruesome condition and 31.4% of participants in the high verbal gruesome condition rendered a guilty verdict. There was no significant interaction between verbal and photographic evidence conditions.

Continuous culpability measures

A two-way between groups MANOVA was performed on the four continuous dependent measures related to verdict decisions: mock juror confidence in verdict, factual guilt (the likelihood that the defendant killed the victim), the sufficiency of the prosecution evidence, and doubt about the defendant’s guilt. Table 3 displays the means (with significant differences indicated) for the verbal and photographic evidence conditions for each of these dependent measures. There was a significant main effect of photographic evidence on the continuous measures, multivariate

Table 2 Percentage of mock jurors voting to convict, by experimental condition

Form of gruesome evidence	Conviction rate (%)
No photographs	
Verbal low gruesome	17.6
Verbal high gruesome	0
Neutral visual	
Verbal low gruesome	41.2
Verbal high gruesome	35.3
Gruesome visual	
Verbal low gruesome	23.5
Verbal high gruesome	58.8

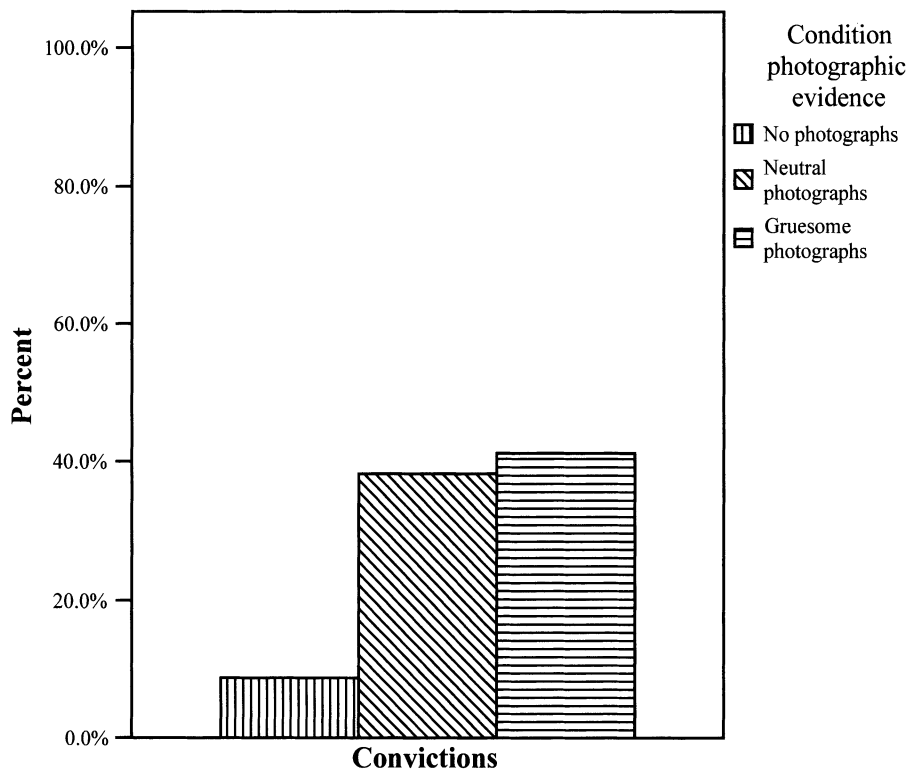


Fig. 1 The influence of photographic evidence on verdict

$F(4, 93) = 2.34, p < .5, \eta^2 = .09$. Univariate tests revealed that this effect held only for mock juror ratings of the sufficiency of prosecution evidence, univariate $F(2, 96) = 5.35, p < .01$. Post hoc Tukey HSD analyses revealed that mock jurors who saw gruesome photographs rated the prosecution evidence as significantly more adequate or sufficient (3.21) than did mock jurors who saw no photographs (2.15). There were no significant differences between the neutral photograph condition and either the no photograph condition or the gruesome photographs condition. Post hoc contrast tests revealed that mock jurors who saw gruesome photographic evidence rated the prosecution evidence as significantly more sufficient than did mock jurors who saw either neutral photographs or no photographs, univariate $F(2, 99) = 5.47, p < .05$. Contrast tests also revealed that mock jurors who saw any photographic evidence rated the prosecution evidence as significantly more sufficient than did mock jurors who saw no photographs, univariate $F(2, 99) = 5.47, p < .01$.

There were no significant main effects for type of verbal evidence, multivariate $F(4, 93) = .66, p = .62, \eta^2 = .03$, and no significant interactions between verbal evidence and photographic evidence on the continuous measures, multivariate $F(8, 186) = 0.55, p = .82, \eta^2 = .02$.

Emotion measures

A 2 (verbal evidence) $\times$ 3 (photographic evidence) ANOVA was conducted on the total pre–post difference score on the JUNAS. Table 4 displays the means for verbal and photographic



Table 3 Continuous measures by experimental condition

	Photographic evidence			Verbal evidence	
	No photographs	Neutral photographs	Gruesome photographs	Low verbal gruesome	High verbal gruesome
Sufficiency of evidence	2.15 ^a	2.82	3.21 ^a	2.69	2.76
Factual guilt	3.94	4.32	3.62	3.80	4.12
Doubt that defendant guilty	3.82	3.65	3.65	3.65	3.76
Confidence in verdict	3.88	3.65	4.12	4.00	3.76

Note. Means sharing the same superscript were significantly different ($p < .01$).

evidence conditions for the JUNAS subscales pre–post difference scores and total pre–post difference scores. This analysis yielded a significant main effect of photographic evidence, $F(2, 96) = 3.87, p < .05, \eta^2 = .08$. Post hoc comparisons using the Tukey HSD test confirmed that the mean difference score for the participants who saw gruesome photographs was significantly higher (19.24) than that of the participants who did not see any photographs (8.62). There were no significant differences between the neutral photograph condition and either the condition without photograph or the condition with gruesome photographs.

Post hoc contrast tests revealed that the mean difference score for mock jurors who saw gruesome photographic evidence was significantly higher than that for mock jurors who saw either neutral photographs or no photographs, univariate $F(2, 99) = 6.54, p < .01$. Contrast tests also revealed that the mean difference score for mock jurors who saw any photographic evidence was significantly higher than that for mock jurors who saw no photographs, univariate $F(2, 99) = 6.54, p < .01$.

A two-way between groups MANOVA was performed on the pre–post difference scores (i.e., posttrial score minus the pretrial score to account for baseline emotional responses) on the JUNAS subscales of fear, anger, sadness, and disgust. There was a marginally significant main effect of photographic evidence on the pre–post difference scores, multivariate $F(8, 186) = 1.97, p = .05, \eta^2 = .08$. Univariate tests revealed that this effect held only for pre–post differences on the disgust subscale, univariate $F(2, 96) = 6.51, p = .002$. Post hoc Tukey HSD analyses indicated that mock jurors who saw gruesome photographs had

Table 4 Affect measures by experimental condition

Difference between pre- and posttrial score	Photographic evidence			Verbal evidence	
	No photographs	Neutral photographs	Gruesome photographs	Low verbal gruesome	High verbal gruesome
JUNAS					
Disgust subscale	2.71 ^b	3.94 ^c	6.79 ^{b,c}	4.80	4.16
Fear subscale	3.35	3.03	5.88	4.90	3.27
Anger subscale	1.15	2.09	3.41	2.51	1.92
Sadness subscale	2.44	3.47	4.41	3.80	3.08
Total	8.62 ^d	11.15	19.24 ^d	14.78	11.21

Note. Means sharing the same superscript were found to be significantly different ($p < .05$).

significantly higher pre–post disgust scores (6.80) than did mock jurors who saw no photographs (2.71) or neutral photographs (3.94).

Post hoc contrast tests revealed that the mean difference score for mock jurors who saw gruesome photographic evidence was significantly higher than that for mock jurors who saw either neutral photographs or no photographs, univariate $F(2, 99) = 6.54, p < .01$. Contrast tests also revealed that the mean difference score for mock jurors who saw any photographic evidence was significantly higher than that for mock jurors who saw no photographs, univariate $F(2, 99) = 6.54, p < .01$.

A two-way between groups MANOVA was performed on mock juror ratings of their emotional reactions to the defendant and the victim, that is, anger toward the defendant and sympathy for the victim. Table 5 displays the means for verbal and photographic evidence conditions for mock juror affective responses to the victim and defendant. There was a significant main effect of photographic evidence on mock juror ratings of their emotional reactions, multivariate $F(4, 190) = 2.94, p < .05, \eta^2 = .06$. Univariate tests revealed that this effect held only for ratings of anger toward the defendant, univariate $F(2, 96) = 5.95, p = .004$. Post hoc Tukey HSD analyses confirmed that mock jurors who saw gruesome photographs rated their anger toward the defendant significantly higher (2.20) than did mock jurors who saw no photographs (1.47). There were no significant differences between the neutral photograph condition and either the condition without photograph or the condition with gruesome photographs. Post hoc contrast tests revealed that the mock jurors who saw gruesome photographic evidence rated their anger at the defendant significantly higher than did mock jurors who saw either neutral photographs or no photographs, univariate $F(2, 99) = 3.93, p < .01$. There was no significant difference between mock jurors who saw any photographic evidence compared with those who saw no photographs on ratings of anger toward the defendant.

Mediation analysis

Given the significant findings regarding the influence of photographic evidence on mock juror ratings of the sufficiency of prosecution evidence and the experience of both disgust and anger toward the victim, four mediation analyses were conducted to investigate whether anger and/or disgust mediates the influence of gruesome photographic evidence on the sufficiency of prosecution evidence and verdict. For the mediation analyses, four multiple regression analyses were conducted. This analysis involves demonstrating that (a) gruesome photographic evidence significantly affects sufficiency of evidence/verdict ratings; (b) gruesome photographic evidence

Table 5 Affective responses to victim and defendant by experimental condition

	Anger at defendant	Sympathy for victim
Photographic evidence		
No photographs	1.47 ^e	3.09
Neutral photographs	1.76	3.18
Gruesome photographs	2.21 ^e	3.18
Verbal evidence		
Verbal low gruesome	1.76	3.06
Verbal high gruesome	1.86	3.24

Note. Means sharing the same superscript were found to be significantly different ($p < .01$).



significantly affects ratings of anger/disgust toward the defendant; (c) anger/disgust significantly affects sufficiency of evidence; and (d) when anger/disgust toward the defendant is controlled, the effect of gruesome photographic evidence on ratings of sufficiency of evidence should decrease significantly (Baron & Kenny, 1986).

Two orthogonal contrasts were substituted in each analysis for photographic condition (contrast Y_1 compared gruesome photographs with no and neutral photographs, and orthogonal contrast Y_2 compared no photographs with neutral photographs) to allow for meaningful interpretations of the results.

The first mediation analysis investigated anger as a potential mediator between gruesome photographic evidence and sufficiency of evidence ratings. The first regression analysis was a standard multiple regression with ratings of the sufficiency of prosecution evidence as the criterion variable and photographic condition (contrasts Y_1 and Y_2) as the predictor variable. Gruesome photographic evidence significantly predicted ratings of evidence sufficiency, adjusted $R^2 = .08$, $b = .25$, $F(2, 99) = 5.47$, $p = .001$. Gruesome photographic evidence also significantly predicted participant anger at the defendant, adjusted $R^2 = .09$, $b = .30$, $F(2, 99) = 6.05$, $p < .003$. Ratings of anger at the defendant significantly predicted ratings of the sufficiency of prosecution evidence, adjusted $R^2 = .11$, $b = .35$, $F(1, 100) = 13.58$, $p < .005$. Consistent with the requirements for mediation, when anger at the defendant was controlled, the effect of gruesome photographic evidence on ratings of evidence sufficiency diminished (adjusted $R^2 = .14$, $b = -.16$, *ns*). However, the effect of anger at the defendant on sufficiency of evidence was significant, $b = .28$, $F(3, 98) = 6.56$, $p = .006$. Thus, mock jurors in the gruesome photographic evidence condition rated the prosecution evidence as more adequate or sufficient to support a guilty verdict compared with mock jurors who saw no photographs or who saw neutral photographic evidence, because the gruesome photographic evidence enhanced mock juror anger at the defendant.

The second mediation analyses investigated disgust as a possible mediator between gruesome photographic evidence and sufficiency of evidence ratings. The first regression analysis was identical to the one conducted for anger. Gruesome photographic evidence significantly predicted ratings of evidence sufficiency, adjusted $R^2 = .08$, $b = .25$, $F(2, 99) = 5.47$, $p = .001$. Gruesome photographic evidence also significantly predicted participant ratings of their disgust, adjusted $R^2 = .10$, $b = .32$, $F(2, 99) = 6.51$, $p = .002$. However, ratings of disgust did not significantly predict ratings of the sufficiency of prosecution evidence (adjusted $R^2 = -.005$, $b = .02$, *ns*). Therefore, there was no evidence that disgust mediates the influence of gruesome photographs on mock juror ratings of the sufficiency of the evidence.

The third mediation analysis investigated anger as a potential mediator between gruesome photographic evidence and verdict. The first regression analysis was a logistic regression with verdict as the criterion variable and photographic condition (Contrasts Y_1 and Y_2) as the predictor variable. Gruesome photographic evidence significantly predicted verdict decisions, $R^2 = .16$, $b = -.35$, Wald's statistic = 4.53, $p < .05$. Gruesome photographic evidence also significantly predicted participant ratings of their anger, adjusted $R^2 = .10$, $b = .32$, $F(2, 99) = 6.51$, $p = .002$. Ratings of anger at the defendant significantly predicted verdict decisions, $R^2 = .12$, $b = -.69$, Wald's statistic = 8.08, $p < .005$. Consistent with the requirements for mediation, when anger at the defendant was controlled, the effect of gruesome photographic evidence on the ratings of evidence sufficiency diminished ($R^2 = .12$, $b = -.25$, *ns*). However, the effect of anger at the defendant on verdict was significant, $b = .69$, Wald's statistic = 8.08, $p < .005$. Thus, mock jurors in the gruesome photographic evidence condition were more likely to convict the defendant, compared with mock jurors who saw no photographs or who saw neutral photographic evidence, because the gruesome photographic evidence enhanced mock juror anger at the defendant.

The fourth mediation analysis investigated disgust as a potential mediator between gruesome photographic evidence and verdict. The first regression analysis was a logistic regression with verdict as the criterion variable and photographic condition (Contrasts Y_1 and Y_2) as the predictor variable. Gruesome photographic evidence significantly predicted verdict decisions, $R^2 = .16$, $b = -.35$, Wald's statistic = 4.53, $p < .05$. Gruesome photographic evidence also significantly predicted participant ratings of their disgust, adjusted $R^2 = .10$, $b = .32$, $F(2, 99) = 6.51$, $p = .002$. However, ratings of disgust did not significantly predict ratings of the sufficiency of prosecution evidence ($R^2 = .04$, $b = .07$, *ns*). Therefore, there was no evidence that disgust mediates the influence of gruesome photographs on mock juror verdict decisions.

Discussion

In the United States and Australia, trial courts routinely admit visually presented gruesome evidence in the form of verbal accounts and photographs, and appellate courts are hesitant to reverse such decisions. A decision to admit gruesome evidence is usually based on an assessment that the probative value of such evidence outweighs any potential prejudicial impact on the fact-finder. This study tested the hypotheses that verbally and/or visually presented gruesome evidence influences mock jurors' evaluations of the inculpatory evidence presented, their subjective estimates of the defendant's guilt, and their verdicts.

Verdict

In this study, verbal gruesome evidence had no influence on mock juror verdicts. This is contrary to the hypotheses and to findings in previous research (Bright & Goodman-Delahunty, 2004). As predicted, the conviction rate when visual gruesome evidence in the form of photographs was included exceeded the conviction rate in the absence of any photographic evidence (see Fig. 1). The increase in convictions in response to gruesome photographs confirmed the hypothesis that jurors are more prone to convict a defendant when gruesome photographic evidence is led in evidence, compared with the equivalent case in which no such gruesome evidence is submitted, or where such evidence is excluded by the judge, irrespective of the inculpatory strength of the balance of the evidence. However, a similar and unexpected pattern of results emerged in response to the neutral photographs. The conviction rate when neutral photographic evidence was included exceeded the conviction rate in the absence of photographic evidence. Photographic evidence, with either gruesome or neutral content, appears to have a similar influence on the conviction rate. It may not be the gruesome content of the photographs, but the visual mode of presentation that influences mock juror decision making toward conviction. Such evidence may be more easily encoded and subsequently recalled at judgment. Nonetheless, it is interesting that the highest conviction rate in the six experimental conditions was obtained when gruesome verbal evidence was accompanied by gruesome photographic evidence (58.8%, more than double the overall mean conviction rate; see Table 1) providing preliminary support for the notion that gruesome evidence presented in the context of a criminal case can increase the likelihood of a conviction, especially when the evidence is presented in both verbal and visual modes.

The relatively low conviction rate overall is a likely consequence of the circumstantial nature of the inculpatory evidence, generally viewed as less persuasive than the direct evidence (Aronson & Hunter, 2001). More direct inculpatory evidence (e.g., eyewitness evidence) may produce higher conviction rates.

Culpability measures

Contrary to the hypotheses and to findings in some previous research (Bright & Goodman-Delahunty, 2004), verbal gruesome evidence exerted no influence on measures of culpability. Neither verbal nor photographic gruesome evidence influenced mock juror ratings of the factual guilt of the defendant, doubt in the defendant's guilt, or confidence in their verdict. One possible explanation for this outcome is that the brief excerpts of gruesome testimony (although rated significantly more gruesome and upsetting in the pilot study), were less prominent, and exerted little impact when contained within 25 pages of other evidence and testimony.

Mean ratings of the sufficiency of the prosecution evidence (3.21) by mock jurors who were presented with gruesome photographic evidence were significantly greater than those of mock jurors who saw no photographs (2.15). The gruesome photographic evidence appeared to enhance mock jurors subjective perception of the sufficiency of the prosecutorial evidence, compared with an identical case in which no photographic evidence was shown to jurors. Mock jurors who saw gruesome photographs rated the sufficiency of evidence as more sufficient compared with mock jurors who saw no visual gruesome evidence. These findings further support the hypothesis that gruesome evidence, once admitted, can influence the evaluation of evidence during the culpability phase of a criminal proceeding, compared with an analogous case in which such evidence is excluded. This suggests that any photographic evidence, neutral or gruesome, may have the same impact on ratings of the sufficiency of prosecution evidence.

Interestingly, mock jurors who saw any photographic evidence rated the sufficiency of evidence higher than those who saw no photographic evidence. This suggests that both the mode of evidence presentation (i.e., visual) and the gruesome quality of visual evidence can increase the perceived weight that jurors ascribe to evidence. This unexpected pattern of results requires further exploration in future research.

The ALRC (1985) suggested that prejudicial evidence might cause jurors to inflate the weight of evidence or make decisions on the basis of extra-legal information. The current study provides preliminary empirical support for these concerns, especially when comparing the exclusion versus admission of such evidence. A real case would usually involve the presentation of both neutral and gruesome photographs. The current study did not investigate the combined influence of neutral and gruesome photographs, thus firm conclusions on this issue are not possible.

Mock juror affect

As expected, mock jurors who saw gruesome postmortem photographs of the victim reported experiencing significantly more intense emotional responses than did mock jurors who saw no photographs. Mean pre–post difference scores on the JUNAS were inflated among mock jurors who saw gruesome photographs compared with those who saw no photographs, suggesting increased emotional responses in mock jurors who saw gruesome photographs. The presentation of evidence visually compared with verbally, and the gruesome quality of evidence appeared to enhance mock juror emotional reactions. Although gruesome evidence was expected to influence emotional reactions, the impact of any photographs on emotional reactions was unexpected and requires further exploration.

Mock jurors who saw gruesome photographs also reported higher levels of anger directed at the defendant compared with mock jurors who did not see any photographs. Anger at the defendant was not influenced by the mode of evidence presentation (visual vs. nonvisual), but mock jurors who saw gruesome photographs were more angry at the defendant than those who did not see gruesome photographs. Mock juror pre–post ratings on the disgust subscale of the

JUNAS were significantly greater when gruesome photographs were presented, compared to those scores in response to neutral photographs or no photographs.

The finding that specific negatively valenced emotions (anger and disgust) were induced by gruesome photographs specifically, suggests that rather than impacting on negative affect in general, or producing a generally negative mood, gruesome visual evidence influences specific emotions (DeSteno et al., 2004). Mock jurors reported elevated anger toward the defendant and general disgust in response to the gruesome evidence compared with mock jurors who saw no photographs, supporting the contention that specific emotions are influenced by admitting rather than excluding such evidence. Disgust has been associated with the violation of sociocultural norms (Rozin et al., 1999) and anger related to blame attributions (Averill, 1982). The experience of disgust and anger may activate a desire to blame the person who elicits the most negative affect, in accord with the “culpable control” model (Alicke, 2000). Further support for this notion could be demonstrated if the emotional reactions of mock jurors mediate the influence that gruesome evidence has on mock juror culpability decisions.

Mediation analysis

Mediation analyses were conducted to evaluate the hypothesis that mock jurors’ anger/disgust toward the defendant mediated the influence of gruesome evidence on ratings of the sufficiency of prosecution evidence and verdict. Results indicated that for the influence of gruesome photographs on both sufficiency of anger and verdict, anger, but not disgust, mediated the relationship. This effect did not hold for neutral photographs. Results indicated that the inclusion of gruesome photographic evidence compared with neutral or no photographs increased the level of anger that mock jurors reported toward the defendant. Gruesome photographic evidence also increased mock juror ratings of the sufficiency of inculpatory evidence and convictions, holding constant any influence of anger. Consistent with the hypotheses, mock juror anger toward the defendant mediated the influence of the gruesome photographs in enhancing the perceived weight of inculpatory evidence and in increasing the likelihood of conviction.

This finding, in combination with the previous findings, suggests that gruesome photographs, compared with neutral or no photographs, elicit emotional reactions such as anger that may generate blame attributions, which in turn increases the likelihood of conviction. Neutral photographs may elicit similar affective reactions, but these emotional responses do not mediate the relationship between neutral photographs and increased convictions. It appears that although any photographic evidence can increase the likelihood of conviction, the process by which gruesome evidence influences verdict appears to be mediated via emotional responses. When jurors see gruesome photographs they may react with disgust and become angry specifically toward the defendant, possibly because of their aversion to the suffering of the victim or the perception of the injustice of the treatment of the victim. This anger, directed specifically toward the defendant, may then lead to biases in the processing of evidence, such as subjective assessments of the sufficiency of prosecution evidence, leading to an increased likelihood of conviction. Of the three ways suggested by Alicke (2000) that this bias can be produced, the current study produced data indicating that this prejudicial influence is generated through changes in the way mock jurors evaluate the evidence such that in the presence of gruesome photographic evidence, mock jurors experienced anger (at the defendant) and disgust, such that the prosecution evidence appears to be more strongly supportive of conviction than it was in the absence of gruesome photographic evidence.

Photographic evidence in general may exert an influence via an alternate and probably nonaffective route (possibly memory). This requires further empirical exploration.

Implications for the legal system

The current study indicates that photographic evidence, irrespective of whether this evidence is neutral or gruesome, can increase the likelihood of conviction. Admitting gruesome photographic evidence, rather than excluding this evidence, appears to increase the inculpatory value that jurors ascribe to prosecutorial evidence by influencing the emotional state of jurors. Further, although any photographs appear to have similar effects on mock juror overall affect, emotional reactions to gruesome photographic evidence appear to lead to changes in the processing of evidence and to an increased likelihood of conviction compared with neutral and no photographs. The current research provides empirical support for concerns about prejudicial evidence outlined by the Advisory Committee on the Federal Rules of Evidence (Committee on the Judiciary House of Representatives, 2004) and the Australian Law Reform Commission (1985), in particular the notion that prejudicial evidence (such as gruesome photographs) can lead fact-finders to (1) use evidence to make a decision on an emotional basis; (2) give evidence more weight than it should have; and (3) base their decisions on something other than the established propositions in the case.

In criminal cases that involve visual presentations of evidence, including gruesome evidence, jurors' decisions about culpability may be biased because available legal safeguards are not used to exclude such evidence. The results of this study suggest that any photographic evidence may exert a prejudicial influence on jurors. The current study suggests that affective reactions to gruesome photographs may impact juror information processing and judgments. Further research is necessary to examine this issue more precisely.

Methodological limitations

A few methodological limitations in the present research deserve mention. First year psychology students may not be representative of citizens in the general community who serve in criminal trials. The study used mock-trial transcripts containing controverted witness testimony and photographs derived from a real case. Although the 25-page case synopsis with extracts from the transcript has greater verisimilitude than materials used in the earlier studies, mock jurors read these transcripts rather than viewing live witnesses. Greater ecological validity can be attained using videotaped trial materials.

Jury deliberation was not employed in the current study, which examined individual, and not group, decision-making. Whether deliberation can reduce biases that operate at the individual juror level is untested. Future studies should also investigate whether judicial warnings are effective in counteracting the influence of gruesome evidence on juror decision-making.

This study raises questions about what comprises a useful control group for the investigation of gruesome photographs. From an experimental perspective, neutral photographs may make the best control to investigate the specific impact of the gruesome content of the photographs above and beyond the impact of presentation in a visual mode. However, from a real-world courtroom perspective, the fundamental issue relates to admission versus exclusion of gruesome photographic evidence, such that a difference between a gruesome photograph and no photographs conditions has real-world implication regarding the potential for prejudice. This issue requires further theoretical and empirical investigation.

Overall, the current research provides preliminary support for the notion that photographic evidence can exert a prejudicial influence on mock juror decision-making in criminal cases, and that in the case of gruesome photographs, this influence is mediated by emotional reactions of jurors to such evidence. Future research is required to further explore this issue.

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References

- Alicke, M. D. (2000). Culpable control and the psychology of blame. *Psychological Bulletin*, 126, 556–574.
- Alicke, M. D., Davis, T. L., & Pezzo, M. V. (1994). A posteriori adjustment of a priori decision criteria. *Social Cognition*, 12, 281–308.
- Aronson, M. I., & Hunter, J. (2001). *Litigation: Evidence and procedure*. Chatswood, Australia: Butterworths.
- Australian Law Reform Commission. (1985). *Evidence* (Vol. 26). Canberra: Australian Government Publishing Service.
- Averill, J. (1982). *Anger and aggression: An essay on emotion*. New York: Springer-Verlag.
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173–1182.
- Bodenhausen, G. (1993). Emotions, arousal, and stereotypic judgments: A heuristic model of affect and stereotyping. In D. Mackie & D. Hamilton (Eds.), *Affect, cognition, and stereotyping* (pp. 13–37). San Diego, CA: Academic Press.
- Bodenhausen, G. V., Sheppard, L. A., & Kramer, G. P. (1994). Negative affect and social judgment: The differential impact of anger and sadness. *European Journal of Social Psychology*, 24, 45–62.
- Bright, D. A., & Goodman-Delahunty, J. (2004). The influence of verbal gruesome evidence on mock juror verdicts. *Psychiatry, Psychology, and Law*, 11, 154–166.
- Clore, G., & Parrott, G. (1991). Moods and their vicissitudes: Thoughts and feelings as information. In J. Forgas (Ed.), *Emotion and social judgments* (pp. 107–123). Oxford: Pergamon Press.
- Committee on the Judiciary House of Representatives. (2004). *Federal Rules of Evidence*. Washington, DC: U.S. Government Printing Office.
- DeSteno, D., Petty, R. E., Rucker, D. D., Wegener, D. T., & Braverman, J. (2004). Discrete emotions and persuasion: The role of emotion-induced expectancies. *Journal of Personality and Social Psychology*, 86, 43–56.
- Douglas, K. S., Lyon, D. R., & Ogloff, J. R. P. (1997). The impact of graphic photographic evidence on mock juror decisions in a murder trial: Probative or prejudicial. *Law and Human Behavior*, 21, 485–501.
- Evidence Act. (1995). Canberra: Australian Government Publishing Service.
- Forgas, J. P. (2000). Affect and information processing strategies: an interactive relationship. In J. P. Forgas (Ed.), *Feeling and thinking: The role of affect in social cognition*. New York: Cambridge University Press.
- Hastie, R. (1993). Algebraic models of juror decision processes. In R. Hastie (Ed.), *Inside the jury*. Cambridge, MA: Harvard University Press.
- Judicial Commission of New South Wales. (2002). *Criminal courts bench book*. Sydney, Australia.
- Kassin, S. M., & Garfield, D. A. (1991). Blood and guts: General and trial specific effects of videotaped crime scenes on mock jurors. *Journal of Applied Social Psychology*, 21, 1456–1472.
- Kassin, S. M., & Wrightsman, L. S. (1979). On the requirements of proof: The timing of judicial instruction and mock juror verdicts. *Journal of Personality and Social Psychology*, 37, 1877–1887.
- Keltner, D., Ellsworth, P., & Edwards, K. (1993). Beyond simple pessimism: Effects of sadness and anger on social perception. *Journal of Personality and Social Psychology*, 64, 740–752.
- Kerr, N. (1993). Stochastic models of juror decision making. In R. Hastie (Ed.), *Inside the jury*. Cambridge, MA: Harvard University Press.
- Kerr, N. L., Atkin, R. S., Stasser, G., Meek, D., Holt, R. W., & Davis, J. H. (1976). Guilt beyond a reasonable doubt: Effects of concept definition and assigned decision rule in the judgments of mock jurors. *Journal of Personality and Social Psychology*, 34, 282–294.
- Legal Information Institute. (n.d.). Federal Rules of Evidence: Notes of advisory committee on rules. Retrieved July 17, 2005, from <http://www.law.cornell.edu/rules/fre/ACRule403.htm>
- Lerner, J., Goldberg, J., & Tetlock, P. (1998). Sober second thoughts: The effects of accountability, anger, and authoritarianism of attributions of responsibility. *Personality and Social Psychology Bulletin*, 24, 563–574.
- Mazocco, P. J., & Alicke, M. D. (2005). The effects of outcomes on the selection, interpretation, and recall of outcome-relevant information. Manuscript submitted for publication.
- McNair, D. M., Lorr, M., & Droppleman, L. F. (1981). *EDITS manual: Profile of mood states*. San Diego, CA: Educational and Industrial Training Service.
- Nemeth, R. J. (2002). *The impact of gruesome evidence on mock juror decision making: The role of evidence characteristics and emotional response*. Unpublished doctoral dissertation, Louisiana State University, Baton Rouge.

- Oliver, E., & Griffitt, W. (1976). Emotional arousal and objective judgment. *Bulletin of the Psychonomic Society*, 8, 399–400.
- Ortony, A., Clore, G., & Collins, A. (1988). *The cognitive structure of emotions*. Cambridge, UK: Cambridge University Press.
- Ostrom, T. M., Werner, C., & Saks, M. J. (1978). An integration theory analysis of jurors' presumptions of guilt or innocence. *Journal of Personality and Social Psychology*, 36, 436–450.
- Pennington, N., & Hastie, R. (1993). The story model of juror decision making. In R. Hastie (Ed.), *Inside the jury*. Cambridge, MA: Harvard University Press.
- People of the State of California v. Orenthal James Simpson*. (Case: BA097211) Proceedings, September 29, 1995.
- Petty, R. E., DeSteno, D., & Rucker, D. D. (2001). The role of affect in attitude change. In J. P. Forgas (Ed.), *Handbook of affect and social cognition* (pp. 212–233). Mahwah, NJ: Erlbaum.
- Petty, R., & Wegener, D. (1998). Attitude change: Multiple roles for persuasion variables. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *Handbook of social psychology* (4th ed., Vol. 1, pp. 323–390). Boston: McGraw-Hill.
- R v. Valevski*. (2000). NSWCCA 445.
- Robbennolt, J. K. (2000). Outcome severity and judgments of "responsibility": A meta-analytic review. *Journal of Applied Social Psychology*, 30(12), 2575–2609.
- Rozin, P., Haidt, J., & McCauley, C. R. (1993). Disgust. In M. Lewis & J. Haviland (Eds.), *Handbook of emotions* (pp. 575–594). New York: Guilford Press.
- Rozin, P., Lowery, L., Imada, S., & Haidt, J. (1999). The CAD trial hypothesis: A mapping between three moral emotions (contempt, anger, disgust) and three moral codes (community, autonomy, divinity). *Journal of Personality and Social Psychology*, 76(4), 574–586.
- Schwarz, N. (1990). Feelings as information: Informational and motivational functions of affective states. In E. T. Higgins & R. Sorentino (Eds.), *Handbook of motivation and cognition* (Vol. 2, pp. 527–561). New York: Guilford Press.
- Schwarz, N., Bless, H., Strack, F., Klumpp, G., Rittenauer-Shatka, H., & Simons, A. (1991). Ease of retrieval as information: Another look at the availability heuristic. *Journal of Personality and Social psychology*, 61, 195–202.
- Schwarz, N., & Clore, G. L. (1996). Feeling and phenomenal experiences. In E. T. Higgins & A. W. Kruglanski (Eds.), *Social psychology: Handbook of basic principles* (pp. 433–465). New York: Guilford Press.
- Shaver, K. G. (1985). *The attribution of blame: Causality, responsibility, and blameworthiness*. New York: Springer-Verlag.
- Simon, R. J., & Mahan, L. (1971). Quantifying burdens of proof: A review from the bench, the jury, and the classroom. *Law and Society Review*, 5, 319–330.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54(6), 1063–1070.
- Weiner, B. (1995). *Judgments of responsibility: A foundation for a theory of social conduct*. New York: Guilford Press.
- Whalen, D. H., & Blanchard, F. A. (1982). Effects of photographic evidence on mock juror judgment. *Journal of Applied Social Psychology*, 12, 30–41.