

THE INFLUENCE OF EYEWITNESS SIMILARITY TO A CRIME VICTIM AND VICTIM CULPABILITY ON EYEWITNESS RECALL

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Participants watched a videotape depicting a street robbery and completed a questionnaire relating to their recall of the stimulus. It was predicted that recall would be biased as a result of motivation to reduce threat posed by viewing a similar victim not engaging in culpable behavior. Results showed that those who viewed a similar victim who was not culpable tended to exaggerate the distance between the criminal and the victim and the duration of the incident. The results are consistent with the assumption that such biased recall allowed participants to reduce the threat by blaming the victim for not taking advantage of the opportunity to avoid the victimization.

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It is well known both within the legal community and the general public that eyewitness testimony has a strong impact on criminal investigations and courtroom verdicts (Greenberg & Ruback, 1982; Loftus, 1974; Visher, 1987; Wells & Olson, 2003). Moreover, research conducted in the last 25 years demonstrates that eyewitness recall is often erroneous (Pansky, Koriat, & Goldsmith, 2005; Scheck, Neufeld, & Dwyer, 2000), distorted (Loftus, 1979), easily influenced by others (Kohnken & Brockmann, 1987; Schooler, Gerhard, & Loftus, 1986), and can result in innocent persons being wrongly accused and imprisoned (Radelet, Bedan, & Putnam, 1992). Based on over 200 cases, Rattner (1988) concluded that eyewitness misidentification was the factor most often associated with wrongful conviction (52%) while perjury by witness, the second leading cause, was involved in 11% of the cases. Analysts' estimates for wrongful convictions that result from erroneous testimony vary from .5% to 5% (Gross, 1987; Huff, 1987), which would lead to a minimum of 7,500 people falsely convicted or convinced to plead guilty per year in the United States (Huff, 1987).

When one considers the importance that eyewitness testimony has for the criminal justice process and how faulty recall can result in tragic consequences, it is not surprising to find a substantial amount of research focusing on factors that might affect eyewitness recall (Cutler & Penrod, 1995; Cutler, Penrod, & Martens, 1987; Egeth, 1993; Gudjonsson, 1992; Pansky et al., 2005; Wells & Olson, 2003). One variable that has been the subject of research is the eyewitness' level of stress and discomfort (Deffenbacher, Bornstein, Penrod, & McGorty, 2004). Research shows that like victims, eyewitnesses often experience shock, confusion, anxiety, and fear when witnessing a crime (Frieze, Hymer, & Greenberg, 1987; Greenberg & Ruback, 1992; Riggs & Kilpatrick, 1990) and that such stress can impair the accuracy of eyewitness memory (Deffenbacher et al., 2004). In this paper we propose that the motivation to reduce one's stress can produce distortions in memory. One source of stress that has been the subject of empirical investigation is the threat to eyewitness' belief in a just world.

According to Lerner and Miller's (1978) just world

hypothesis, observing or learning of another's victimization has the potential for threatening one's belief in a just world—a world where people get what they deserve and deserve what they get. Witnesses may feel particularly threatened when the victim resembles them and has acted in a non-culpable way. Observing an “innocent” victim like ourselves being victimized can shatter the belief that our world is predictable, controllable, and comprehensible and severely compromise our sense of invulnerability (Janoff-Bulman, 1992; Janoff-Bulman & Frieze, 1983; Norris & Kaniasty, 1991). Research has shown that eyewitnesses attempt to cope with such threats by distancing themselves from the victim (Pyszczynski, Greenberg, Solomon, Sideris, & Stubing, 1993). Eyewitnesses can accomplish this by attributing the victimization to features of the victim or his or her behavior, features that are not shared by the eyewitnesses. By magnifying the differences between themselves and the victim, eyewitnesses can assure themselves that they are unlikely to suffer a similar fate.

Another option for decreasing the perceived threat is for eyewitnesses to selectively recall or distort their recollection for event-related information. Such distorted recall then allows eyewitnesses to blame the victim. Eyewitnesses can distort their recall of the victim's characteristics and/or event-related information, with the degree to which this occurs being a function of the ease with which each can be accomplished. In either case, whether the distortion involves the memory of the victim or of related details, for the distortion to be effective the observer must not be cognizant of its occurrence. Pratto (1994) describes similar non-conscious cognitive processing termed “automatic evaluation.” She compares this sort of evaluation before recognition to pulling one's hand away from a painful stimulus such as a hot pan and suggests that a person's affective reaction to a stimulus is not necessarily dependent on the person's conscious awareness of the stimulus. She states that automatic processes are characterized by being unintentional, involuntary, effortless, and autonomous. Likewise, it may be that an observer alters the memory of a threatening event in order to reduce the threat without even having been consciously aware of the threat or of the distortional cognitive process.

Crime Incident Information Subject to Distortion

If the threat to the witness posed by a criminal incident can be limited through distorted and/or biased recollections, what kind of information would be susceptible to such distortion on the part of the witness? Two possibilities that have special significance are time and distance. Presumably, the less time the witness perceives the victim had to react to a dangerous situation (e.g., it happened in a split second) and the closer the witness perceives the danger is to the victim (e.g., she didn't see the robber till he was right next to her), the more threatening and stressful the situation would be perceived. However, if the estimated time to react is extended and the estimated distance between the victim and the attacker is increased, then the greater is the victim's opportunity to prevent the crime. Failing to take advantage of such opportunities might allow eyewitnesses to find the victim more behaviorally blameworthy and thereby reduce the threat and stress that they experience.

These two elements of a crime, time and distance, have been the focus of past research because they are often crucial both in the investigation of the crime and in subsequent legal proceedings (Loftus, 1979). Time estimation can be important as in the time needed to commit a crime or to travel between two points (e.g., the time it would have taken for a suspect to drive to and from the crime scene). Loftus (1979) drew from her personal experience as an expert witness to demonstrate why estimates of time can be crucial to the outcome of a case. The case involved a young woman who had killed her boyfriend. During an argument with her boyfriend the woman ran to the bedroom, grabbed a gun, and shot him six times. What was in dispute was the amount of time that elapsed between grabbing the gun and the first shot. The defendant claimed that only two seconds had elapsed (suggesting self-defense) while a prosecution witness estimated the interval at five minutes. The jury apparently believed the defendant and voted for acquittal. The United States Supreme Court (Neil v. Biggers, 1972) called attention to the importance of time in judging the credibility of an eyewitness. In this decision, one of the guidelines provided by the Court for assessing the accuracy of eyewitness identification is the opportunity to view the criminal at

the time of the crime, which is often defined in terms of the length of time that the criminal was in view. A potential problem is that the estimation of the length of time the criminal was observed must often come from the witness.

Distance estimation could also have important implications for determining guilt or innocence. Confidence in a victim's identification of an assailant often depends on a witness' estimation of the distance between the victim and the accused assailant. Presumably, the greater the distance between the victim and the assailant, the poorer would be the victim's opportunity to correctly identify the suspect. For example, an eyewitness might estimate a shooting victim as having been 20 feet from a suspect, while the victim claimed the distance to be only 10 feet. A defense attorney could use such an inconsistency to cast doubt on the victim's testimony and the victim's identification of the suspect. Studies have shown that errors occur in people's estimates of the duration of an incident and in estimates of distances (Loftus & Doyle, 1992). These errors tend to be in the direction of overestimation (Loftus, Schooler, Boone, & Kline, 1987; Yarmey, 1979) and, furthermore, there is evidence that when a person is feeling stress or anxiety, the tendency to overestimate is magnified (Sarason & Stoops, 1978). Previous research on eyewitness arousal has focused on the capacity of arousal to diminish the witness' ability to process information by narrowing and/or distracting their attention, such as in the weapon-focus effect (Christiaanson & Loftus, 1991; Loftus, Loftus, & Messo, 1987). However, no research has examined the motivational significance of such arousal on eyewitness memory for a criminal incident. A major advantage of a motivational approach is that it provides a theoretical rationale for predicting the direction of witness errors.

The Present Study

This study investigated the impact of victim-witness physical similarity and the victim's culpability on eyewitness' recall of time and distance. We hypothesized that participant-eyewitnesses will experience the greatest threat to their assumptions of invulnerability when observing the victimization of a similar, non-culpable other. In an effort to reduce this threat, they will distort their memory by overestimating time and distance factors, thereby providing greater opportunity for the victim to

have taken preventative action. The victim's failure to take advantage of this opportunity allows for behavioral blaming and thereby reduces the threat to the observer. In contrast, participant-eyewitnesses will experience the least threat when witnessing the victimization of a dissimilar culpable other. Because such a situation poses little threat to the observer, there is less motivation to distort memory of the event, which will result in greater accuracy for estimates of time and distance. In effect, we predicted two main effects: one for victim-witness physical similarity and one for victim culpability. More specifically, we predicted greater memory distortion of time and distance when the victim was similar to the eyewitness rather than dissimilar, and when the victim's behavior was non-culpable rather than culpable. The experimental design allowed for the exploration of a possible interaction between the two, but none was predicted.

METHODOLOGY

Participants and Design

A total of 187 Caucasian participants (90 women and 97 men, ranging in age from 18-24 [$M = 19.4$]) were randomly assigned to one of four cells in a 2 X 2 between-subjects factorial design. The two independent variables were (1) physical similarity between participant-observers and the victim (similar, dissimilar) and (2) victim culpability (culpable, non-culpable). All participants were undergraduates enrolled in introductory psychology classes who participated to receive course credit.

Materials

The stimuli consisted of video tapes of four versions of a criminal victimization scenario that resulted from the manipulation of the two independent variables; physical similarity and culpability of the victim in the scenario. Participants viewed a one-minute video of a simulated street robbery in which the victim's physical similarity was varied by presenting a victim of the same or opposite sex of the participant. The age and race of the victim were controlled for -- both the male and female victims in the video were Caucasian and appeared to be of college age (actual ages were 24 and 22 years). The culpability of the victim's

behavior was varied by having the victim either behave in a manner that was not blameworthy (putting the money in their pocket immediately after the ATM withdrawal) or was blameworthy (walking away from the ATM machine while openly counting the money).

There were two scenes in the video. The opening scene involved a close-up of the victim sitting in his/her car in a parking lot. Although the scene was brief, about five seconds, it permitted participants to easily identify the victim as being male or female, Caucasian, and similar in age. In the second scene, the victim walked from the car, crossed a parking lot to an ATM machine, and made a withdrawal. It was daytime and, although there were other cars in the parking lot, no passersby were visible in the area. The victim began walking back to the car and was suddenly confronted by the robber brandishing a small knife and demanding money. The robber appeared to be in his early twenties (actual age is 24), of average height (actual height is five foot, nine inches), and average build (actual weight is 155 pounds). He was wearing blue jeans, sneakers, a gray sweatshirt, and a reddish-brown knit cap. The non-culpable victim (i.e., put money in pocket immediately after withdrawal) reached in his/her pocket and handed the money to the robber. The culpable victim (i.e., openly counting the money while walking back to car) already had the money in his/her hand and simply handed it over. The robber then ran off leaving the victim unharmed.

After viewing the video, participants completed a questionnaire that consisted of a mix of 28 forced-choice and open-ended items. The questionnaire utilized multiple measures to assess victim blame (both characterological and behavioral) and the participant's perceived similarity to the victim. Other items focused on the participant's recall for elements in the video such as the duration of incident and the distance between criminal and the victim. Another item asked the participant for an estimate of the amount of cash loss.

To obtain measures of blame, participants were asked to indicate the extent of their agreement with 12 statements on a rating scale that ranged from (1) strongly disagree to (6) strongly agree. The first six statements were related to blaming the victim's behavior (e.g., not being more observant, not behaving

responsibly, not resisting, not finishing transaction quickly, not using ATM when others were there, or going to the ATM machine alone), while the last six statements were concerned with the victim's supposed character (e.g., type of person that gets into trouble, too trusting, not assertive, poor judge of others, not "street-wise" or responsible). Statements two and ten were reverse scored to control for response set. The sum of each set of six ratings provided a composite measure of behavioral blame and characterological blame. Internal consistency coefficients (Cronbach's alpha) for the two sets of six items ranged from .62 to .89 across the four groups (similar-non-culpable victim; similar-culpable victim; dissimilar-non-culpable victim; dissimilar-culpable victim).

Two items assessed the participants' perceived similarity to the victim. A nonspecific measure of similarity was obtained by asking participants to rate, on a 9-point scale, how similar they were to the victim (1 = nothing in common at all, 9 = very similar). Another item asked participants to rate, on a 9-point scale, how similar their physical appearance was to the victim (1 = not similar at all, 9 = very similar).

To obtain measures for the major dependent variables in the design, memory for distance and time, participants were asked to provide estimates of the minimum and maximum distance between the criminal and the victim and an estimate of time duration, in seconds, for the incident.

Procedure

Experimental sessions were conducted using same-sex groups of four to eight participants. Participants were told they would be shown a video lasting no longer than an average television commercial. Each group viewed only one randomly chosen video of the four versions of the robbery. The questionnaire was administered immediately afterwards. Upon completing the questionnaire, participants were debriefed.

RESULTS

Manipulation Checks

The manipulation of witness-victim similarity was successful based on the results of two separate ANOVA's. The

first ANOVA conducted on the measure of non-specific similarity yielded a significant main effect, $F(1, 186) = 8.61$, $p = .004$, with participants rating a same sex victim as more similar ($M = 5.26$, $SD = 1.94$) than an opposite sex victim ($M = 4.31$, $SD = 1.89$). The ANOVA performed on the ratings of physical similarity to the victim also yielded a significant main effect, $F(1, 186) = 155.4$, $p = .001$, with participants rating a same sex victim as being more physically similar ($M = 5.45$, $SD = 1.74$) than an opposite sex victim ($M = 2.12$, $SD = 1.97$).

The manipulation of the victim's behavioral culpability approached significance. The ANOVA yielded a marginally significant main effect, $F(1, 186) = 3.49$, $p = .06$, for the participants' ratings of behavioral blame for culpable ($M = 21.17$, $SD = 5.44$) versus non-culpable ($M = 19.87$, $SD = 3.93$) victims. Ratings for characterological blame failed to attain significance, $F(1, 186) = .21$, $p = .65$.

Major Analyses

Participants were asked to judge the minimum and maximum distance between the victim and criminal and to estimate the duration of the incident. The criminal actually made contact with the victim when he grabbed the money so the minimum distance was zero. The maximum distance between the victim and criminal was approximately 8 feet. The actual time that the incident lasted in the different videos varied from 2.05 to 2.67 seconds ($M = 2.33$). Actual differences in the incident duration across the different versions were corrected by adding or subtracting a quarter of a second to the participants' estimates depending upon the version they were shown. Subsequent analyses found no difference in results between the original or adjusted values and therefore the original data were used for final analysis.

Estimates of the minimum distance ranged from 0 to 10 feet with an average of .99 feet ($SD = .95$). Estimates of the maximum distance ranged from 1 to 100 feet with an average of 8.12 feet ($SD = 11.12$). When the minimum and maximum distances were combined, the average overall distance estimate was 9.11 ($SD = 11.35$). Estimates of time duration ranged from 2 to 30 seconds with an average of 7.53 ($SD = 5.55$).

With regard to estimates of distance, there were significant main effects for participant-victim similarity, $F(1, 186) = 6.48$, $p = .01$, and culpability, $F(1, 186) = 14.78$, $p < .001$. As predicted, distance estimates from participants who viewed a physically similar victim were significantly greater ($M = 11.18$, $SD = 11.41$) than from those who viewed a physically dissimilar victim ($M = 7.07$, $SD = 10.98$) and estimates from those who viewed a non-culpable victim were significantly greater ($M = 12.19$, $SD = 14.64$) than from those who viewed a culpable victim ($M = 6.07$, $SD = 5.19$). There was no significant interaction effect, $F(1, 186) = 1.81$, $p = .18$.

For estimates of time duration, as predicted, there were significant main effects for participant-victim similarity, $F(1, 186) = 28.50$, $p < .001$, and culpability, $F(1, 186) = 28.01$, $p < .001$. Consistent with expectations, participants who viewed a physically similar victim had a significantly higher estimate of time ($M = 9.46$, $SD = 6.27$) than those who viewed a dissimilar victim ($M = 5.61$, $SD = 3.90$) and estimates for those who viewed a non-culpable victim were significantly higher ($M = 9.45$, $SD = 5.51$) than those who viewed a culpable victim ($M = 5.63$, $SD = 4.92$). The interaction effect was not significant, $F(1, 186) = 2.73$, $p = .10$.

It was also possible for participants to reduce the threat by minimizing the amount of money lost by the victim when the victim was similar and non-culpable. This mode of threat reduction was assessed by a question that asked for an estimate of how much money the victim lost. Across all conditions, the average estimate of cash lost was \$37.37 ($SD = 22.56$) with a range of \$5 to \$100. The actual amount was \$25. An ANOVA yielded a significant main effect for culpability, $F(1, 182) = 9.04$, $p = .003$. Consistent with expectations, the non-culpable victim was judged to have lost less ($M = \$32.54$, $SD = 18.19$) than the culpable victim ($M = \$42.37$, $SD = 25.48$). The main effect for similarity was not significant nor was the interaction effect significant.

DISCUSSION

Results support the reasoning that participants who

observed a robbery of a similar victim who had not engaged in blameworthy behavior biased their recall in an apparent effort to "distance" themselves from the threatening situation. As compared to participants who viewed a dissimilar and/or blameworthy victim, participants in the similar-non-culpable condition increased the distance between the victim and the criminal and overestimated the duration of the event. By recalling the victim and criminal as being farther apart, the witness could view the opportunity of escape as being greater. By recalling the event's duration as greater, the witness could imagine other possible, more positive scenarios (e.g., the victim being able to call for help or a passerby intervening). Thus, the data are consistent with our hypothesis that cognitive distortion serves to reduce threat by providing grounds for blaming an otherwise non-culpable victim.

Findings from another dependent measure, the estimated cash lost by the victim, provide additional support for the hypothesis. Participants who viewed a non-culpable victim gave significantly lower estimates of material loss. It was impossible to see the denominations of the bills, therefore, the estimates represented pure guesswork. But by keeping the costs of the victimization to a minimum, the participant was able to further reduce the perceived threat posed by an innocent victim. The lower estimate of cash loss is consistent with the estimates of distance and time, which we believe are the result of a desire to reduce the threat posed by a similar, non-culpable victim.

The findings are important in two respects. First, whereas previous research has shown that many eyewitness errors derive from faulty information processing occasioned by stress, the results of the present study suggest that such errors may also reflect defensive motivation—a desire to minimize threats to self. Second, and perhaps more importantly, this is the first study to demonstrate the capacity of motivational factors to distort memory for specific details of a criminal incident. In contrast, previous research on the need to believe in a just world (Lerner & Miller, 1978) has focused on more global distortions such as the general attribution of responsibility to the victim (e.g., Walster, 1966).

There are, of course, important limitations to this study. The participants consisted of undergraduates, which could limit the external validity of the results. In order to enhance the

generalizability of the findings, the study should be replicated with a more diverse sample. In addition, the simulated crime depicted in the video produced a level of involvement that is probably lower than what a real eyewitness would experience. Participants were able to concentrate on a brief video that depicted a street robbery, whereas, in an actual criminal incident, witnesses may be wrestling with the decision of how to respond – to intervene, call the police, or flee the situation. Moreover, participants' recall was measured immediately after viewing the video and under non-stressful conditions. In contrast, real witnesses are sometimes asked to recall information long after the event has occurred. And the questioning is often conducted face-to-face by police or detectives and under stressful conditions. Although these factors raise the question of external validity, memory distortion obtained immediately after viewing the event under non-stressful conditions testify to the robustness of the findings. Under more realistic conditions, one might expect even greater distortion.

Perceptions of similarity and culpability are just two factors that may affect recall of a criminal incident. Research has identified a whole host of potential influences on eyewitness recall and testimony that can impair accuracy such as cross-racial identification, influence of alcohol, and methods of interview (Wells & Olson, 2003). The present study adds one more variable to the list of potential influences on eyewitness memory.

Finally, the present study focused on two important elements of a criminal incident, time and distance, and how they are affected by the witness' biased recall. There may be other important details of a crime scene that are distorted when the witness perceives the victim as similar and is unable or unwilling to blame the victim in order to reduce threat. Other features of the crime that might be subject to distortion include witnesses' recall of what they heard (earwitness testimony), such as threats made by an assailant or the last words of a victim, threatening gestures by the assailant, and whether the assailant displayed a weapon.

If the present findings are replicated by future research, the results may have important implications for criminal investigations and courtroom testimony. Criminal investigators should be aware of any factor that could hamper their search for accurate information. In the courtroom, judges, jurors, and attorneys should

be informed about potential influences on a witness' testimony. Knowing the conditions under which memory for time and distance are exaggerated could prove crucial when a judge or jury is trying to determine the credibility of a witness' testimony.

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