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# The Role Of Empathy In Hindsight Bias

Malindi Jeri Gowen

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# **THE ROLE OF EMPATHY IN HINDSIGHT BIAS**

A Masters Thesis

Presented to

The Graduate College of

Missouri State University

In Partial Fulfillment

Of the Requirements for the Degree

Master of Science, Clinical Psychology

By

Malindi Gowen

December 2016

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# **THE ROLE OF EMPATHY IN HINDSIGHT BIAS**

Clinical Psychology

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Master of Science

Malindi Gowen

## **ABSTRACT**

Hindsight bias has been operationally defined as "...the tendency for people with outcome knowledge (hindsight) to believe falsely that they would have predicted the reported outcome of an event" (Hawkins and Hastie, 1990, pg. 311). The role of empathy in hindsight bias has not received systematic attention. Previous research has shown that giving participants prevention information increased hindsight bias (Kubany, 2005). Thus, the current study hypothesized that hindsight participants placed in empathic situations should show greater probability judgments for the outcome than hindsight participants in no empathic conditions, and both should be greater than participants in foresight conditions. Participants were 166 male and female college students recruited from Introductory Psychology classes at a Midwestern university. For the current study, the empathy manipulation did not produce significant results. This could be due to the story content, the empathy induction method, or the time of the empathy assessment. Overall, no effect for hindsight bias was demonstrated. The empathy manipulation was not shown to be effective nor did the prevention information appear to increase levels of Hindsight Bias/Responsibility. These results, which contradict previous research, indicate need for further exploration of hindsight bias, which could impact therapist effectiveness and the symptom severity of mental health diagnoses.

**KEYWORDS:** hindsight bias, empathy, foresight, retroactive pessimism, vicarious traumatization

This abstract is approved as to form and content

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Dr. David J. Lutz  
Chairperson, Advisory Committee  
Missouri State University

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## **Chapter 1**

### **INTRODUCTION AND LITERATURE REVIEW**

Hindsight bias has been operationally defined as "...the tendency for people with outcome knowledge (hindsight) to believe falsely that they would have predicted the reported outcome of an event" (Hawkins and Hastie, 1990, pg. 311). Fischhoff (1975) in his seminal studies pertaining to hindsight bias defined this idea as "the overestimation of the likelihood of an event, after learning the outcome" or the "I-knew-it-all-along" effect. In a series of studies, Fischhoff established that people judge event outcomes as more probable from a hindsight perspective if they are presented as the factual outcomes, as compared to judging the same outcomes as possibilities in foresight without actual outcome knowledge. He also showed that exaggerated hindsight probabilities persisted when participants were instructed to ignore the factual outcome and make their judgments as they would have done in foresight and when they were asked to put themselves in the shoes of others who did not possess outcome knowledge. He refers to this phenomenon as creeping determinism, which is the tendency to view event outcomes in hindsight as more inevitable or foreseeable than they appeared in foresight (Blank, Musch, & Pohl, 2007).

#### **Hindsight Bias in Context**

Hindsight bias can be seen in a variety of contexts. Participants demonstrated hindsight bias in making judgments about rape victims (Carli & Leonard, 1989; Janoff-Bulman, Timko, & Carli, 1985) and individuals who experienced negative environmental events (Williams, Lees-Haley, and Brown, 1993; Brown, Williams, & Lees-Haley, 1994; Williams, Lees-Haley, & Price, 1996). Relevant to counseling and clinical psychology,

hindsight bias creates problems in forensic evaluations (Borum, Otto, & Golding, 1993), and clinical judgments (Gilibert & Banovic, 2009). Arkes, Saville, Wortmann, and Harkness (1981) showed that hindsight bias can lead to compromises in diagnostic accuracy as physicians with hindsight information gave higher probability estimates to the known-to-have-occurred diagnoses than the corresponding probability estimate obtained from physicians who only had foresight and no after-the-fact knowledge.

### **Factors Influencing Hindsight Bias**

Despite the fact that the implications and impact of hindsight bias are widespread, not much is known about potential moderators of hindsight bias. According to the fluency attribution hypothesis, a variety of constructs can influence hindsight bias. Fluency can be defined as the speed, ease, and accuracy with which a stimulus is processed (Bernstein & Harley, 2007), and can be enhanced with numerous variables, including clarity, familiarity, and presentation duration. Specifically, one construct that has not been given much attention in its relationship to hindsight bias is empathy, which is defined as an affective response to the cognitive processing of information about another's state or condition (Zhou, Valiente, & Eisenberg, 2003). To qualify as empathy, the empathizer must recognize on some level the emotion he or she is experiencing is a reflection of the other's emotional, psychological, or physical state. Specifically, empathy induction has been shown by various researchers to have behavioral consequences. Empathy induction involves experimentally generating an other-oriented emotional response congruent with another's perceived welfare (Batson et al., 1997). Batson and Moran (1999) induced empathy for half of the participants and created a one-trial prisoner's dilemma. In a typical prisoner's dilemma, it makes sense for individuals to cooperate some of the time

but not every time. Women who were led to feel empathy for the other participant demonstrated significantly higher cooperation than those women who were not led to feel empathy, despite the fact that they had to bear the costs of cooperating. Batson, Early, and Salvarani (1997) and Batson, Chang, Orr, & Rowland (2002) showed that induced empathy toward a member of a stigmatized group led to improved attitudes toward these groups, including individuals with AIDS, homeless persons, and addicts. Shih, Wang, Trahan, and Stotzer (2009) found that taking the perspective of an outgroup member reduced prejudice and discriminatory behavior against other outgroup members. Johnson et al., (2002) demonstrated that empathy has an impact in judicial decision making. Participants were placed into one of three conditions: no empathy, low empathy, or high empathy for the defendant. Participants in the high empathy condition reported greater empathy and assigned more lenient punishments than those participants in the no empathy and low empathy conditions. Empathy has also been shown to be incompatible with aggression and can act as a relaxation technique (Tyson, 1998) as well as to inhibit aggressive and antisocial behaviors (Miller & Eisenberg, 1988). Empathic induction has even been documented in children. Thompson and Hoffman (1980) gave elementary aged children stories describing explicit wrongful acts. Participants were asked how they would feel if they were the wrongdoer and why. Children who had received prior encouragement to empathize with the victim exhibited more intense guilt than those who had not.

### **Implications for Applied Settings.**

The importance of empathy, although not experimentally induced, extends beyond research settings. Accurate empathy has been shown to be positively correlated

with patient improvement in therapy (Truax, 1970). According to Norcross (2002), empathy accounts for as much and probably more outcome variance than does specific intervention. Tempel (2007) demonstrated that social workers who experienced being with the client in certain situations or being in particular contexts related to the client could bring about changes in the worker, particularly leading to an increase in empathy. Exposure to educational activities in empathy, philosophical values and meaning, and wellness during medical school has been shown to increase empathy and wellness in medical practice (DiLalla, Hull, & Dorsey, 2004). In geriatric populations, empathy is considered a key factor in therapeutic treatment (Yesavage & Karasu, 1982). Finally, one study showed nursing home residents' perceptions of empathy were significantly related to the residents' self-rated depression (Hollinger-Samson & Pearson, 2000). Based on these studies, it is clear why empathy is an important construct to study, for both clinicians and researchers.

### **Empathy and Hindsight Bias.**

Despite the amount of interest empathy has generated (12,000+ articles found in the PsychInfo database alone), the role of empathy in hindsight bias has not received systematic attention. However, several investigators (Carli and Leonard, 1989; Kubany, Watson, Leisen, & Kaplan, 2005; Menec & Weiner, 2000; Tykocinski, Pick, & Kedmi, 2002) have provided empathy-like instructions to their participants for hindsight bias studies. Menec and Weiner (2000) conducted three studies to study the effects of hindsight bias and judgments of responsibility. One of the three studies of particular importance focused on genetic screening. Participants in the hindsight conditions were given a scenario to read in which a woman declined taking a genetic screening test and then gave birth to either a healthy child (positive outcome) or a child with a genetic disorder (negative outcome). Participants were told to *imagine* the scenario actually

occurred. After the participants learned whether or not the child had a genetic disorder, they recorded the probability of three outcomes: the probability that the child would be born with a specific genetic disorder, the probability that the child would be healthy, and a filler item, which was the probability that the child would have a different disorder. The probabilities were to sum to 100%. Participants in the foresight (no outcome information) condition were asked to estimate the likelihood that the child would or would not have a genetic disorder at birth without knowing the outcome. Participants in the negative-outcome condition judged the probability that the child would have the genetic disorder higher than did individuals in the no-information or the positive-outcome condition. However, the probability was only significantly higher between the negative-outcome and the positive-outcome groups.

Similarly, Kubany Et al. (2005) in a series of studies used empathy-like techniques for studies 2 and 3 in order to examine hindsight bias. Participants were asked to imagine themselves in the situation in an attempt to better identify with the victim in a traumatic scenario. Using a within-subjects design, participants first imagined themselves involved in a traumatic scenario. Results provided evidence that hindsight bias is a causal mechanism in trauma-related guilt. While Kubany did not look specifically at the difference empathic understanding could have on the hindsight bias response, it seems that identifying with the victim in the story could (in addition to the prevention materials) could have influenced his findings.

Carli and Leonard (1989) employed empathy-like techniques by creating three “vivid” scenarios in which participants were asked to assess the likelihood of a particular outcome. Participants were placed into three groups, and each group was asked to read a

scenario that either detailed a vivid negative (the woman was raped), a vivid positive (the woman received a promotion), or a neutral (the woman received a ride home) ending. Participants were then asked to rate the probability of three possible outcomes as if they did not know the ending of the story. Participants in each groups rated the outcome they received as significantly more likely than the other two outcomes, demonstrating the hindsight effect. In a second study conducted by Carli (1999) participants were placed in to four groups and given a story about a young woman living alone who meets a man in a graduate school class. All four groups received a different outcome: the woman was raped, the woman received a proposal, the woman began dating the man, or the woman and the man had a one night stand. The story was *written in the first person*. Participants were then asked to rate the likelihood of four possible endings to the story as if they did not know the actual ending. The hindsight bias effect was found for each outcome, with participants judging the outcome they received as significantly more likely than the other three outcomes.

In Tykocinski Et al. (2002) participants read a story in which a graduate student lost either a large or small stipend. The participants were randomly assigned to three conditions, two hindsight conditions (self and other) and one foresight condition. In the hindsight-self condition they were asked either to “imagine themselves in the situation described to them” as opposed to the hindsight-other condition, in which they were to “imagine that this story was told to them by a friend.” Participants in the foresight condition read the hindsight-self version of the scenario, but were not given the outcome. Students in hindsight-self and hindsight-other conditions rated the probability of regaining the lost stipend significantly lower than those in the foresight condition,



demonstrating the hindsight bias effect between the foresight and hindsight conditions, but not between the two hindsight groups. While the authors do not directly state why they created two hindsight conditions (self and other), the discussion states that people's foremost priority is to cope with personal misfortunes. Thus, these investigators felt that an empathy-like state was important for the production of hindsight bias and the magnitude of disappointment. This study exemplifies the importance of taking a closer look at the impact of empathy on hindsight bias.

### **Hypotheses for Empathy.**

The fluency attribution hypothesis and previous investigators' use of empathy-like instructions draw attention to the possibility that empathy may make certain information more accessible to people and may influence their view of events and outcomes, thus playing a role in hindsight bias. Based on these theories, hindsight participants placed in empathic situations should show greater probability judgments for the outcome than hindsight participants in no empathic conditions, and both should be greater than participants in foresight conditions.

### **Kubany's Multidimensional Model of Guilt**

Kubany et al. (2005) defined guilt as an unpleasant feeling with accompanying beliefs that one should have thought, felt, or acted differently—with implications of hindsight bias/responsibility, wrongdoing, and insufficient justification for acting as one did. Related to guilt cognitions in his multidimensional model is a subscale pertaining specifically to hindsight bias. Guilt magnitude is determined by the following variables: a) event-related distress, b) acceptance of personal responsibility for causing a negative outcome, c) beliefs that one violated personal values, d) beliefs that one's actions lacked

sufficient justification, and e) beliefs about outcome foreseeability and preventability (hindsight bias).

In the two studies conducted by Kubany et al. (2005), participants rated their levels of hindsight bias/responsibility, justification, wrongdoing, and preventability beliefs. Participants' ratings of distress, guilt, as well as beliefs about responsibility, justification, wrongdoing, and preventability increased significantly after they were provided with preventability information. Based on these results, Kubany concluded that giving participants prevention information increased hindsight bias.

Kubany's research does not allow for a complete demonstration of hindsight bias since he used a within-subjects design where participants in hindsight (outcome) made their hindsight bias/responsibility judgments, were given prevention information, and then were asked to do the ratings again. He did not have a control group, a group given additional but neutral information that should not affect the participants' hindsight judgments. Howell (2006) utilized a between-subjects design with foresight and hindsight conditions in an attempt to assess the importance of prevention materials on hindsight bias. However, her results for hindsight bias were, at best, ambiguous, and if anything revealed a tendency for reversing hindsight bias. Based on these results, there is little evidence to show that prevention material does indeed increase hindsight bias. Thus, in addition to the focus on empathy and as an exploratory investigation, the current study will look at the possible impact of prevention information on hindsight bias by employing a within-subjects methodology as Kubany did (2005) but will use a more traditional measure of hindsight bias (probability) along with his measure of hindsight bias/responsibility. The current study will also utilize a control group in which a foresight

condition will receive additional but neutral information that should have no effect on their hindsight ratings. Participants in the three conditions will (both hindsight groups) or will not (foresight group) receive prevention information to allow for an assessment of change in participants' ratings as a result of the prevention information and empathy. The inclusion of the repeated ratings for the foresight group allows for an assessment of the repeated ratings without empathy and the prevention information.

## **Chapter 2**

### **METHOD**

#### **Participants**

A sample of 166 male and female college students from Psychology 121 classes were recruited from undergraduate psychology courses at Missouri State University. Participants were given Informed Consent (see Appendix A) and filled out a Demographic Information Form (see Appendix B). Participants were tested in a group setting. Prior approval for this project was obtained from the Missouri State University IRB (March 31, 2010; approval #10363).

#### **Procedure**

The study used a single factor design with foresight no-empathy, hindsight no-empathy, and hindsight with empathy conditions, proportionally balanced for gender. Participants were randomly assigned to these conditions. Both hindsight groups received outcome information for an accident scenario whereas the foresight group did not have this outcome information prior to making their judgments. Also, participants in the hindsight conditions were asked to ignore the outcome information as they made their judgments. Prior to reading the accident scenario, the hindsight empathy participants were asked to place themselves in the scenario compared to the no-empathy participants, who were asked to imagine that a “friend tells you a story.” Participants completed the experiment in the following order: (1) read the scenario and completed empathy ratings, (2) completed the Trauma-Related Guilt Inventory (TRGI) and hindsight bias ratings, which were counterbalanced (3) were administered the prevention materials, and (4) completed the TRGI and hindsight bias ratings again, which were counterbalanced. The

foresight group was not be given any prevention materials; instead, they were given information to read regarding a neutral historical event that was the same length as the prevention material.

## **Measures**

**Scenarios and Prevention Information.** Contingent on condition, participants were given 1 of 3 different scenarios; these scenarios were hindsight (outcome) with empathy (see Appendix C), hindsight (outcome) without empathy (see Appendix D), and foresight (no outcome) without empathy (see Appendix E). Depending on the condition, participants received prevention information with an empathy context (see Appendix F), without an empathy context (see Appendix G) or no prevention information (see Appendix H).

**Empathy Manipulation.** Empathy was assessed using Batson's reaction questionnaire (Batson et al., 1997; Batson et al., 2002). The questionnaire contained adjectives describing different emotional states and was used to assess empathic feelings for the individual in the scenario. For each adjective, participants were asked to report how much they had experienced that emotion while reading the scenario (*1 = not at all, 7 = extremely*) (see Appendices I & J). The list included five characteristics: sympathy, compassionate, softhearted, kind, and tender. This scale functioned as a manipulation check to examine the extent to which participants identified with the individual in the scenario.

**Outcome Ratings.** For an assessment of hindsight bias, participants were asked to answer several questions. Using a Likert-Scale ranging from 1 (not at all) to 9 (extremely), participants were asked questions regarding the likelihood that his/her friend

dies, the difficulty in predicting the outcome, whether the outcome was clearly predictable, certainty about the outcome, how good was the prediction of outcome, how surprised he/she would be if his/her friend lived, and how disappointed he/she that his/her friend dies (see Appendices K, L, & M).

**Kubany's Hindsight Bias/Responsibility.** Kubany et al., (2005) notion of hindsight bias/responsibility ("I blame myself for what happened"), which is a subscale of the Trauma-Related Guilt Inventory (TRGI) instrument, was used to assess the importance of prevention information (see Appendices N & O). The TRGI has shown internal consistency of the scales and subscales ranging from .60 to .94 with test-retest reliability ranging from .73 to .86. Specifically, the Hindsight-Bias/Responsibility factor was shown to correlate with other measures of guilt and with measures of posttraumatic stress disorder, depression, and other indexes of adjustment (Kubany et al., 1996).

## Chapter 3

### RESULTS

Although the original sample for the current study contained 166 participants, the final analysis was conducted on a sample of 163 participants (see Table 1). Based on the scoring protocol for empathy developed by Batson et al. (1997), the scores for the individual questions were summed to yield a total score. Both the Batson and Howell measures were used, but the Batson measure demonstrated greater reliability and was the only empathy measure that yielded significant results. Based on this measure, an outlier analysis was conducted and three participants were deleted from further statistical consideration.

The **final** distribution of participants is found below in Table 1:

*Table 1. Distribution of Participants*

---

	<u>Male</u>	<u>Female</u>	<u>Hindsight/Emp</u>	<u>Hindsight/NoEmp</u>	<u>Foresight</u>
N	89	74	54	55	54
%	55	45	33	34	33

---

#### **Empathy Induction**

To test the hypothesis that induced empathy would lead to an increase in the hindsight bias effect, a 2 (order) x 2 (males, females) x 3 (hindsight with empathy, hindsight without empathy, foresight without empathy) MANOVA was used to examine the effectiveness of the empathy manipulation. The empathy manipulation consisted of two measures, the Batson et al. (1997) and the Howell (2006) empathy method of assessment. Except for a significant effect due to order,  $F(2, 150) = 25.17, p < .001$ , no

other significant effect related to the empathy manipulation was noted. Examination of the univariates showed the effect was only found with the Batson measure,  $F(1, 151) = 43.12, p < .001$ . The participants who completed the hindsight bias ratings before completing the Traumatic-Related Guilt Inventory (TRGI) showed significantly higher levels of empathy than participants who completed the TRGI prior to the hindsight bias ratings. The overall mean varied,  $M = 5.15$  (Howell measure) to  $5.52$  (Batson measure) on a 7-point scale. Hence, no evidence was supportive of the effectiveness of the empathy manipulation.

### **Evidence of Hindsight Bias**

With regard to evidence supportive of hindsight bias, a 2 (order) x 2 (gender) x 3 (sight) MANOVA was conducted using measures relevant to hindsight bias: probability, certainty, goodness, difficulty, disappointment, and surprise of the outcome. This analysis yielded a significant effect only for the sight conditions,  $F(12, 288) = 5.39, p < .001$ . Further examination of the univariate analyses revealed two measures of significance. The probability ratings were significant among the sight conditions,  $F(2, 148) = 4.86, p < .009$ , and for disappointment  $F(2, 148) = 13.16, p < .001$ . Further examination of this difference via Tukey's showed that within the probability ratings, the foresight group differed significantly from the hindsight with empathy condition (Foresight,  $M = 6.90, SD = 1.39$ ; hindsight with empathy,  $M = 5.91, SD = 1.71$ ),  $p < .007$ , but not from hindsight without empathy ( $M = 6.31, SD = 1.73$ ),  $p > .05$ . The two hindsight conditions did not differ significantly from one another,  $p > .05$ . Although the foresight condition differed significantly from the hindsight with empathy condition, no evidence was found



supportive of hindsight bias by comparing the two non-empathy groups of foresight and hindsight.

Similar to the probability measure, for disappointment there was no significant difference ( $p > .05$ ) between the foresight condition and the hindsight without empathy condition, and there was a significant difference between the foresight ( $M = 7.29$ ,  $SD = 1.72$ ) and hindsight with empathy ( $M = 8.63$ ,  $SD = 0.94$ ) conditions,  $p < .001$ . However, unlike the probability measure, a significant difference was seen between the two hindsight conditions (Hindsight without empathy,  $M = 7.62$ ,  $SD = 1.46$ ). Participants in the foresight group showed the same degree of disappointment as participants in the hindsight without empathy group, and participants in the hindsight with empathy group showed significantly less disappointment.

### **Exploratory Research**

In an exploratory fashion, the possible impact of prevention information on hindsight bias based on Kubany et al. (1996) previous research was examined. After their initial judgments, hindsight participants received prevention information to allow for an assessment of change in their ratings as a result of the prevention information compared to the non-prevention information for the foresight condition. A 2 (assessments) x 2 (gender) x 3 (sight) repeated measures MANOVA was conducted for each of the following measures. The Trauma-Related Guilt Inventory (TRGI), created by Kubany (1996), contains four subscales: Hindsight Bias/Responsibility, Distress, Wrongdoing, and Justification. Regardless of the information provided, participants showed a significant change in their ratings from time 1 to time 2 for each measure. Participants reported that Hindsight Bias/Responsibility decreased significantly,  $F(1, 150) = 513.45$ ,

$p < .001$ , along with Justification,  $F(1, 151) = 11.11, p < .001$ , and Distress,  $F(1, 151) = 308.67, p < .001$ . In contrast to these measures, their sense of Wrongdoing *increased*,  $F(1, 151) = 117.65, p < .001$  (see Table 2 for means and standard deviations).

Overall, simply giving participants additional information (regardless of relevance) encourages a change in their responses. Thus, participants felt less responsible, distressed, justified, but felt an increased sense of wrongdoing. Also, for each of these measures, there was a significant or marginally significant interaction of the sight conditions by assessment,  $p$ 's  $< .10$ . However, examination of the pattern of the interactions for the various measures was not meaningful.

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*Table 2. Means and Standard Deviations for the TRGI*

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	<i>Time 1</i>		<i>Time 2</i>	
	<u>Mean</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>
Hindsight Bias/Responsibility	6.01	0.95	3.96	0.70
Justification	2.36	0.80	2.55	0.82
Distress	2.37	0.77	3.17	0.64
Wrongdoing	4.33	0.62	3.78	0.66

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## Chapter 4

### DISCUSSION

For the primary hypothesis of hindsight bias varying with empathy, the empathy manipulation did not increase participants' empathetic responses, as demonstrated by their empathy ratings. Although the probability and disappointment measures yielded significant effects, no evidence of the hindsight bias effect was noted when comparing the foresight and hindsight without empathy conditions. For disappointment, a significant difference was seen between the hindsight without empathy and hindsight with empathy conditions. No significant difference was seen between these conditions for the probability measure though the results were in the same direction. Furthermore, the mixed findings of a significant difference for disappointment but not probability, and an ineffective empathy manipulation, when comparing the two hindsight conditions (with or without empathy), do not provide an adequate examination of the role of empathy, as hypothesized to be a factor relevant to the fluency attribution hypothesis (Bernstein & Marley, 2007).

Regarding the secondary hypothesis, the study examined the role of prevention information for Hindsight Bias/Responsibility (Kubany et al., 1996). Kubany argued that prevention information increased participants' levels of Hindsight Bias/Responsibility. However, the current study showed that giving participants any type of information, regardless of its relevancy to the scenario, encouraged a decrease in their responses for the measures of Hindsight Bias/Responsibility, and also for Justification and Distress, but an increase for Wrongdoing.

Unexpectedly, the empathy manipulation was not effective. Three possible reasons for this ineffectiveness may be the story's content, the empathy induction method, and when empathy was assessed. Because all participants, regardless of condition, reported high levels of empathy, the severity of the car accident scenario triggered a great deal of empathy, and because the empathy level was so great this resulted in a ceiling effect. A second reason is the empathy induction did not allow for an assessment of differences between the empathy and no empathy conditions. Batson et al., (1997) for their empathy manipulation asked participants to either remain objective or imagine themselves in the situation. Using this manipulation, Batson et al. found significant differences between the two groups. In Tykocinski et al., (2002), participants were asked to imagine themselves or a friend in the situation. They also found significant differences between groups, but the story (loss of a stipend) was much less devastating. Thus, in some scenarios an appropriate empathy induction could be simply a distinction between imagining oneself or a friend. However, in a more tragic scenario (i.e. a car accident), asking participants to either imagine themselves in the situation or remain objective may be necessary in order to distinguish between empathy and no empathy conditions. A third possible reason is that participants were asked to complete the empathy ratings immediately after reading the story, which resulted in all participants reacting empathically after initially reading the scenario. In future studies, having participants complete the empathy ratings later, or even twice, may give a more accurate assessment of their empathy levels and differences.

As noted earlier, no significant effect was seen for hindsight bias when comparing the foresight no empathy to the hindsight no empathy conditions. The hindsight with

empathy condition reported the outcome was less likely to occur and were less disappointed than the foresight without empathy condition. However, this outcome was confounded due to the hindsight group receiving the empathy manipulation and the outcome of the story, while the foresight condition received neither. In spite of the confounded outcomes, they are consistent with the previous research by Tykocinski et al (2002), who found participants in hindsight conditions reported the outcome of the story was significantly less likely than did participants in the foresight condition. Similar to the current findings, they also found that participants in the empathy condition were significantly less disappointed than participants in the no empathy condition. These findings support her notion of retroactive pessimism, in which the participants attempt to distance themselves from their own role in the outcome by insisting they 1) did not know what was going to happen and 2) are less disappointed in the outcome.

Finally, in an exploratory fashion, the study looked at the possible impact of prevention information on Hindsight Bias/Responsibility. Kubany argued that giving participants prevention information increased their levels of Hindsight Bias/Responsibility. However, regardless of the type of information received, participants not only reported a decrease for Hindsight Bias/Responsibility, but also for Justification and Distress. This could be because participants felt obligated to change their ratings from time 1 to time 2. Thus, these results do not support Kubany's assertion that prevention information increases levels of Hindsight Bias/Responsibility. A more appropriate assessment of whether Hindsight Bias/Responsibility changes with prevention information is to use a research design that has hindsight groups with neutral and no information, as well as prevention information.

Understanding the role of empathy and how it affects individuals' perceptions of outcomes is important for two reasons. First, if empathy does indeed lead to a stronger affective response in people, this could increase the severity of symptoms in various disorders (i.e. depression or post-traumatic stress disorder). Second, if empathy does trigger retroactive pessimism in individuals, in a situation similar to the scenario about the car accident, people may try to distance themselves from what happened in order to feel less responsible. Another example is a college student who fails an exam. If she tells herself she is not disappointed about the failing grade, she will feel less responsible. For people in both examples, they may be less disappointed in an attempt to distance themselves from the situation.

From a clinical perspective, the therapist may be influenced by retroactive pessimism and distance themselves from clients. Being a therapist requires a delicate balance between showing empathy and maintaining a professional demeanor. It is possible that therapists could be influenced by retroactive pessimism and remain unaware of its effects. The concept of retroactive pessimism is similar to that of vicarious traumatization in that they both often function outside of the therapist's awareness. Vicarious traumatization means the therapist has become too involved and has taken on a client's symptoms, whereas retroactive pessimism would mean the therapist is attempting to distance him/herself from the client. This could have a negative impact on the therapeutic relationship, and thus retroactive pessimism requires further investigation to fully understand its possible effects on therapists.

Finally, Kubany's et al (2005) assertion that Hindsight Bias/Responsibility varies with prevention information, which was not substantiated by the findings, remains an

issue. Specifically, if people believe they could have done something different to change a tragic outcome, they could begin to feel extreme levels of guilt. This could lead to a variety of clinical issues and disorders, as well as an increase in the severity of the disorder.

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## APPENDICES

### Appendix A: Informed Consent

This study deals with empathy and the reactions people have to distressing events. It includes reading over a traumatic scenario and answering questions about your response to the event. In this study, you will be asked to read over a scenario about a serious car accident and make some ratings about your responses. This should take about 35 to 45 minutes.

Your ratings and questionnaire will be confidential and unavailable to other students in the class or the study. Participation in this study is totally voluntary, and you may withdraw from the study at any time without penalty. If you do, please sit quietly in your seat until the end of testing so that you won't disturb the other students. Feel free to ask if you have any questions or contact me at [MGowen@missouristate.edu](mailto:MGowen@missouristate.edu) or my faculty supervisor Dr. David Lutz at [DavidLutz@missouristate.edu](mailto:DavidLutz@missouristate.edu). Thank you in advance for your cooperation and participation.

Sincerely,

Malindi Gowen  
Clinical Psychology Masters Student

I have read and understand the information presented above, and any questions I had were answered satisfactorily by Malindi Gowen.

I hereby agree to participate in the study described above.

Name (**PLEASE PRINT**): \_\_\_\_\_

Gender: \_\_\_\_\_

Class \_\_\_\_\_ Time/Day: \_\_\_\_\_ Professor:

\_\_\_\_\_

Signature: \_\_\_\_\_

Date \_\_\_\_\_

**Appendix B: Demographic Information Form**

Briefly describe your thoughts and feelings as you participated in this study:

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Demographic Information

Experimenter: \_\_\_\_\_

Your Age: \_\_\_\_\_ Today's Date: \_\_\_\_\_

Your Gender: ( ) Male Class: \_\_\_\_\_

( ) Female Days/Time PSY 121 meets: \_\_\_\_\_

Your Race/Ethnicity: ( ) Asian/Pacific Islander

( ) Hispanic/Latino

( ) Native American

( ) White/European American

( ) Other: \_\_\_\_\_

When you are finished, raise your hand so that your booklet can be collected, then you may leave quietly or sit quietly until the rest of the students are finished to receive more information about the study.

### **Appendix C: Scenario for Condition A, Hindsight with Empathy**

Imagine that you are driving in your car between Springfield and Branson. Suddenly, you come across an automobile accident, and there are several cars already parked around the accident scene. You rush to assist, and learn that a pickup truck had crossed over the median and hit a car. You are shocked to see that the driver is one of your closest friends. Your friend is narrowly wedged inside the car because the steering wheel is compressed against his/her chest, and you can see your friend has life-threatening injuries and is bleeding profusely. Your friend sees you and calls out your name. You do not know what to do, so you try to help the people who are trying to get your friend out of the car. Unfortunately, they cannot even get the door open because it is smashed shut. Then people try to pry open the door with a tire iron, but unfortunately it's too late, and your friend dies.

### **Appendix D: Scenario for Condition B, Hindsight without Empathy**

Imagine that a friend tells you this story. This friend was driving her car between Springfield and Branson. Suddenly, she came across an automobile accident, and there were several cars already parked around the accident scene. Your friend rushed to assist, and learn that a pickup truck had crossed over the median and hit a car. The friend was shocked to see that the driver was one of her closest friends. She was narrowly wedged inside the car because the steering wheel was compressed against her chest, and the friend could see her life-threatening injuries and profuse bleeding. The person inside the car saw your friend and called out her name. The friend did not know what to do, so she tried to help the people who were trying to get the friend out of the car. Unfortunately, they cannot even get the door open because it is smashed shut. Then people tried to pry open the door with a tire iron, but unfortunately it was too late, and the friend died.

### **Appendix E: Scenario for Condition C, Foresight without Empathy**

Imagine that a friend tells you this story. This friend was driving her car between Springfield and Branson. Suddenly, she came across an automobile accident, and there were several cars already parked around the accident scene. Your friend rushed to assist, and learn that a pickup truck had crossed over the median and hit a car. The friend was shocked to see that the driver was one of her closest friends. She was narrowly wedged inside the car because the steering wheel was compressed against her chest, and the friend could see her life-threatening injuries and profuse bleeding. The person inside the car saw your friend and called out her name. The friend did not know what to do, so she tried to help the people who were trying to get the friend out of the car. Unfortunately, they cannot even get the door open because it is smashed shut. Then people tried to pry open the door with a tire iron.

## **Appendix F: Condition A, Hindsight with Empathy, Additional Information**

Afterwards, it is hard for you to stop thinking about the accident. You wonder if you could have done something to save your friend. All of a sudden, it occurs to you that in the back of your car, you have a chain that you use to attach a trailer to your boat. If you had tied that chain around the crumpled door frame and attached to your car, it would have been possible to yank the door off, and get your friend out of the car. You might have been able to help your friend—if only you had done that.



### **Appendix G: Condition B, Hindsight without Empathy, Additional Information**

Afterwards, it was hard for your friend to stop thinking about the accident. She wondered if she could have done something to save her friend. All of a sudden, it occurred to her that in the back of her car, she had a chain that she uses to attach a trailer to her boat. If she had tied that chain around the crumpled door frame and attached to her car, it would have been possible to yank the door off, and get her friend out of the car. She might have been able to help her friend—if only she had done that.

## **Appendix H: Condition C, Foresight without Empathy, Neutral Information**

In December 1903, on a sandspit at Kitty Hawk, North Carolina, Orville and Wilbur Wright were putting the finishing touches on a “whopper flying machine” they had built at their bicycle shop in Dayton, Ohio, and shipped to Kitty Hawk for tests. Confident of success, Orville went a telegram to his father in Dayton urging secrecy. Then quite suddenly on December 17 the deed was done. The two brothers piloted their flimsy, jerry-built machine on a series of wobbly flights, the longest one lasting 59 seconds and covering 852 feet.

## Appendix I: Condition A, Hindsight with Empathy, Empathy Ratings

The following questions refer to your feelings.

1. How **sympathetic** do you feel toward your friend?

1 2 3 4 5 6 7

Not at all Extremely

2. How **compassionate** do you feel toward your friend?

1 2 3 4 5 6 7

Not at all Extremely

3. How **softhearted** do you feel toward your friend?

1 2 3 4 5 6 7

Not at all Extremely

4. How **kind** do you feel toward your friend?

1 2 3 4 5 6 7

Not at all Extremely

5. How **caring** do you feel toward your friend?

1 2 3 4 5 6 7

Not at all Extremely

6. I was able to put myself in the story.

1 2 3 4 5 6 7

Not at all Extremely

7. I was able to consider the thoughts I would have if this really happened to me.

1 2 3 4 5 6 7

Not at all Extremely

8. The scenario created a realistic description of the accident.

1 2 3 4 5 6 7

Not at all Extremely

9. I was able to picture myself at the scene, actually experiencing this event.

1 2 3 4 5 6 7

Not at all Extremely

10. I was able to connect with the emotions I would have if this really happened to me.

1 2 3 4 5 6 7

Not at all Extremely

## Appendix J: Condition B & C, Hindsight and Foresight without Empathy, Empathy Ratings

The following questions refer to your friend's feelings.

1. How **sympathetic** do you feel toward your friend?

1 2 3 4 5 6 7

Not at all Extremely

2. How **compassionate** do you feel toward your friend?

1 2 3 4 5 6 7

Not at all Extremely

3. How **softhearted** do you feel toward your friend?

1 2 3 4 5 6 7

Not at all Extremely

4. How **kind** do you feel toward your friend?

1 2 3 4 5 6 7

Not at all Extremely

5. How **caring** do you feel toward your friend?

1 2 3 4 5 6 7

Not at all Extremely

6. I was able to put myself in the place of my friend in the story.

1 2 3 4 5 6 7

Not at all Extremely

7. I was able to consider the thoughts I would have if this really happened to me.

1 2 3 4 5 6 7

Not at all Extremely

8. The story created a realistic description of the accident.

1 2 3 4 5 6 7

Not at all Extremely

9. I was able to picture myself at the scene, actually experiencing this event.

1 2 3 4 5 6 7

Not at all Extremely

10. I was able to connect with the emotions I would have if this really happened to me.

1 2 3 4 5 6 7

Not at all Extremely

## Appendix K: Condition A, Hindsight with Empathy, Probabilistic Ratings

11. Assume you did not know that your friend died, what is the probability that you would have predicted that your friend died from the accident?

1 2 3 4 5 6 7 8 9

Not at all Extremely

12. I am certain about the outcome.

1 2 3 4 5 6 7 8 9

Not at all Extremely

13. I made a good prediction about the outcome.

123456789

Not at allExtremely

14. It was difficult to predict the outcome.

123456789

Not at allExtremely

15. How disappointed would you be that your friend died from the accident?

123456789

Not at allExtremely

16. How surprising would it be if your friend survived?

123456789

Not at allExtremely

## Appendix L: Condition B, Hindsight without Empathy, Probabilistic Ratings

11. Assume you did not know that your friend's friend died, what is the probability that your friend's friend died from the accident?

123456789

Not at allExtremely

12. I am certain about the outcome.

123456789

Not at allExtremely

13. I made a good prediction about the outcome.

123456789

Not at allExtremely

14. It was difficult to predict the outcome.

123456789

Not at allExtremely

15. How disappointed would you be that your friend's friend died from the accident?

123456789

Not at allExtremely

16. How surprising would it be if your friend's friend survived?

123456789

Not at allExtremely

**Appendix M: Condition C, Foresight without Empathy, Probabilistic Ratings**

11. What is the probability that your friend's friend died from the accident?

123456789

Not at allExtremely

12. I am certain about the outcome.

123456789

Not at allExtremely

13. I made a good prediction about the outcome.

123456789

Not at allExtremely

14. It was difficult to predict the outcome.

123456789

Not at allExtremely

15. How disappointed would you be that your friend's friend died from the accident?

123456789

Not at allExtremely

16. How surprising would it be if your friend's friend survived?

123456789

Not at allExtremely

**Appendix N: Condition A, Hindsight with Empathy, Trauma-Related Guilt Inventory, Revised**

Please take a few moments to think about what happened in the story you just read. All the items below refer to the events related to the car accident and your predicted outcome. **Circle the answer that best describes how you feel about each statement.**

17. I could have prevented what happened.

Extremely true    Very true    Somewhat true    Slightly true    Not at all true

18. I am still distressed about the accident.

Extremely true    Very true    Somewhat true    Slightly true    Not at all true

19. I had some feelings that I should not have had.

Extremely true    Very true    Somewhat true    Slightly true    Not at all true

20. What I did was completely justified.

Extremely true    Very true    Somewhat true    Slightly true    Not at all true

21. I was responsible for causing what happened.

Extremely true    Very true    Somewhat true    Slightly true    Not at all true

22. What happened causes me emotional pain.

Extremely true    Very true    Somewhat true    Slightly true    Not at all true

23. I did something that went against my values.

Extremely true    Very true    Somewhat true    Slightly true    Not at all true

24. What I did made sense.

Extremely true    Very true    Somewhat true    Slightly true    Not at all true

25. I knew better than to do what I did.

Extremely true    Very true    Somewhat true    Slightly true    Not at all true

26. I feel sorrow or grief about the accident.

Extremely true    Very true    Somewhat true    Slightly true    Not at all true



27. What I did was inconsistent with my beliefs.

Extremely true   Very true   Somewhat true   Slightly true   Not at all true

28. If I knew now only what I knew when the event occurred – I would do exactly the same thing.

Extremely true   Very true   Somewhat true   Slightly true   Not at all true

29. I experience intense guilt that relates to what happened.

Extremely true   Very true   Somewhat true   Slightly true   Not at all true

30. I should have known better.

Extremely true   Very true   Somewhat true   Slightly true   Not at all true

31. I experience severe emotional distress when I think about the accident.

Extremely true   Very true   Somewhat true   Slightly true   Not at all true

32. I had some thoughts or beliefs that I should not have had.

Extremely true   Very true   Somewhat true   Slightly true   Not at all true

33. I had good reasons for doing what I did.

Extremely true   Very true   Somewhat true   Slightly true   Not at all true

34. How often do you think you would experience guilt about what happened.

Never   Seldom   Occasionally   Often   Always

35. I blame myself for what happened.

Extremely true   Very true   Somewhat true   Slightly true   Not at all true

36. What happened causes me a lot of pain and suffering.

Extremely true   Very true   Somewhat true   Slightly true   Not at all true

37. I should have had certain feelings that I did not have.

- Extremely true   Very true   Somewhat true   Slightly true   Not at all true
38. How intense or severe would your feelings of guilt be about what happened.
- None   Slight   Moderate   Considerable   Extreme
39. I blame myself for something I did, thought, or felt.
- Extremely true   Very true   Somewhat true   Slightly true   Not at all true
40. When I am reminded of the accident, I have strong physical reactions such as sweating, tense muscles, dry mouth, etc.
- Extremely true   Very true   Somewhat true   Slightly true   Not at all true
41. Overall, how guilty do you feel about what happened?
- Extremely true   Very true   Somewhat true   Slightly true   Not at all true
42. I hold myself responsible for what happened.
- Extremely true   Very true   Somewhat true   Slightly true   Not at all true
43. What I did was not justified in any way.
- Extremely true   Very true   Somewhat true   Slightly true   Not at all true
44. I violated personal standards of right and wrong.
- Extremely true   Very true   Somewhat true   Slightly true   Not at all true
45. I did something that I should not have done.
- Extremely true   Very true   Somewhat true   Slightly true   Not at all true
46. I should have done something that I did not do.
- Extremely true   Very true   Somewhat true   Slightly true   Not at all true
47. What I did was unforgivable.
- Extremely true   Very true   Somewhat true   Slightly true   Not at all true
48. I didn't do anything wrong.

Extremely true    Very true    Somewhat true    Slightly true    Not at all true

**Appendix O: Condition B & C, Hindsight and Foresight without Empathy, Trauma-Related Guilt Inventory, Revised**

Please take a few moments to think about what happened in the story you just read. All the items below refer to the events related to the car accident and your predicted outcome. **Circle the answer that best describes how you feel about each statement.**

17. Your friend could have prevented what happened.

Extremely true   Very true   Somewhat true   Slightly true   Not at all true

18. Your friend is still distressed about the accident.

Extremely true   Very true   Somewhat true   Slightly true   Not at all true

19. Your friend has some feelings that she should not have had.

Extremely true   Very true   Somewhat true   Slightly true   Not at all true

20. What your friend did was completely justified.

Extremely true   Very true   Somewhat true   Slightly true   Not at all true

21. Your friend was responsible for causing what happened.

Extremely true   Very true   Somewhat true   Slightly true   Not at all true

22. What happened causes your friend emotional pain.

Extremely true   Very true   Somewhat true   Slightly true   Not at all true

23. Your friend did something that went against her values.

Extremely true   Very true   Somewhat true   Slightly true   Not at all true

24. What your friend did made sense.

Extremely true   Very true   Somewhat true   Slightly true   Not at all true

25. Your friend knew better than to do what she did.

Extremely true   Very true   Somewhat true   Slightly true   Not at all true

26. Your friend feels sorrow or grief about the accident.

Extremely true   Very true   Somewhat true   Slightly true   Not at all true

27. What your friend did was inconsistent with her beliefs.
- Extremely true   Very true   Somewhat true   Slightly true   Not at all true
28. If your friend knew now only what she knew when the event occurred – she would do exactly the same thing.
- Extremely true   Very true   Somewhat true   Slightly true   Not at all true
29. Your friend experiences intense guilt that relates to what happened.
- Extremely true   Very true   Somewhat true   Slightly true   Not at all true
30. Your friend should have known better.
- Extremely true   Very true   Somewhat true   Slightly true   Not at all true
31. Your friend experiences severe emotional distress when she thinks about the accident.
- Extremely true   Very true   Somewhat true   Slightly true   Not at all true
32. Your friend had some thoughts or beliefs that she should not have had.
- Extremely true   Very true   Somewhat true   Slightly true   Not at all true
33. Your friend had good reasons for doing what she did.
- Extremely true   Very true   Somewhat true   Slightly true   Not at all true
34. How often do you think your friend would experience guilt about what happened.
- Never   Seldom   Occasionally   Often   Always
35. Your friend blames herself for what happened.
- Extremely true   Very true   Somewhat true   Slightly true   Not at all true
36. What happened causes your friend a lot of pain and suffering.
- Extremely true   Very true   Somewhat true   Slightly true   Not at all true
37. Your friend should have had certain feelings that she did not have.
- Extremely true   Very true   Somewhat true   Slightly true   Not at all true

38. How intense or severe would your friend's feelings of guilt be about what happened.

None   Slight   Moderate   Considerable   Extreme

39. Your friend blames herself for something she did, thought, or felt.

Extremely true   Very true   Somewhat true   Slightly true   Not at all true

40. When your friend is reminded of the accident, she has strong physical reactions such as sweating, tense muscles, dry mouth, etc.

Extremely true   Very true   Somewhat true   Slightly true   Not at all true

41. Overall, how guilty does your friend feel about what happened?

Extremely true   Very true   Somewhat true   Slightly true   Not at all true

42. Your friend holds herself responsible for what happened.

Extremely true   Very true   Somewhat true   Slightly true   Not at all true

43. What your friend did was not justified in any way.

Extremely true   Very true   Somewhat true   Slightly true   Not at all true

44. Your friend violated personal standards of right and wrong.

Extremely true   Very true   Somewhat true   Slightly true   Not at all true

45. Your friend did something that she should not have done.

Extremely true   Very true   Somewhat true   Slightly true   Not at all true

46. Your friend should have done something that she did not do.

Extremely true   Very true   Somewhat true   Slightly true   Not at all true

47. What your friend did was unforgivable.

Extremely true   Very true   Somewhat true   Slightly true   Not at all true

48. Your friend didn't do anything wrong.

Extremely true    Very true    Somewhat true    Slightly true    Not at all true