DUAL PROCESS THEORY AND VICTIM BLAMING BEHAVIOUR: AN EXPLORATION OF COGNITIVE MECHANISMS UNDERLYING BLAME EVALUATIONS TOWARD INNOCENT VICTIMS

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Abstract

This thesis explores the cognitive mechanisms underlying victim-blaming behaviour. Some past researchers posit that victim-blaming behaviour requires deliberative thought (van den Bos & Maas, 2009), whereas others suggest that it occurs automatically (Harvey, Callan, & Matthews, 2014). The initial aim of this experiment was to explore whether deliberative thought modulates victim-blaming decisions toward innocent victims of illness or injury. The secondary aim of this experiment was to explore whether a cognitive conflict between one's belief in a Just World (Lerner, 1977) and presented stimuli might modulate victim-blaming decisions. However, after extensive pilot testing, we were unable to produce the expected Just World findings that high-suffering victims should elicit more blame than low-suffering victims. As one of our key theoretical tenets was not supported by our results, this thesis was revised to proceed as an exploratory cognitive investigation of blame to passages that appear to generate high and low levels of victim blame responses while under full working memory resource capacity.

Under this narrowed theoretical lens, our research questions were revised to explore the involvement of deliberative thought in producing victim-blaming decisions, and the possible role of an unknown cognitive conflict in modulating victim blaming behaviour within the passages presented. To explore these possibilities, we collected participants' blame and metacognitive experience of Feeling of Rightness (FOR; Thompson & Newman, 2017) from 200 English-speaking respondents to each a high-suffering and low-suffering victim. Blame responses were collected under high and low levels of time pressure to selectively restrict or grant access to available working memory resources necessary for deliberative thought. Our findings revealed that blame responses can be lowered in both high and low victim-suffering conditions when time pressure is alleviated. Thus, our findings support the possibility that deliberative thought modulates victim-blaming decisions. We also found that a lower FOR and longer rethinking times preceded a change in Time 2 responding. Thus, our findings imply the involvement of a possible cognitive conflict in modulating victim blame responses. Implications to Just World Theory are discussed.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

AOT17: Actively Open-Minded Thinking 17

BJW: Belief in a Just World

CRT: Cognitive Reflection Test

DPT: Dual Process Theory

FOR: Feeling of Rightness

GBJWS: Global Belief in Just World Scale

MJWB: Multidimensional Just World Belief

WM: Working Memory

Belief in a Just World and Victim Blaming Behaviour

Waves of violence swept through Hong Kong as citizens fought desperately for their freedom ("Hundreds arrested during Hong Kong protest clashes," 2020). Wildfires forced Australians from their homes, leaving entire communities in isolation ("Australia on fire," 2020). A 54-year-old male presenting with a dry cough and a fever became the first critical COVID-19 patient in Liaocheng City (Tian et. al., 2020). Examples of innocent suffering are pervasive in the news, the media, and in daily life. Despite their prevalence, decades of research suggest a near-ubiquitous need to believe that the world is a just place in which people get what they deserve (e.g., Dalbert, 2001; Lerner, 1977). This belief, known as Belief in a Just World (BJW), may nevertheless become threatened through exposure to innocent suffering (i.e., the greater the suffering, the greater the threat to one's BJW; Lerner, 1977). Perhaps to defend oneself against the onslaught of threats, past literature suggests that individuals may hold innocent victims accountable for their suffering and may do so to maintain this belief (see Furnham, 2003; Hafter & Bègue, 2005). Theoretically, this process of blaming innocent victims allows individuals to interpret a victim's fate as deserving, and therefore not a threat to their BJW.

While the strategy of blaming innocent victims to preserve one's BJW ostensibly reflects a societal harm, other BJW preservation strategies may reflect a societal benefit. For instance, in their seminal work, Lerner and Simons (1966) demonstrated that while respondents will sometimes derogate innocent victims, they may instead "help" when empowered to do so (i.e., help by voting to transfer an innocent victim from a physical punishment to a monetary reward intervention). Presumably, observers are always motivated to maintain their BJW, but their strategy to do so may depend on their ability to control an innocent victim's outcome. As summarized by Hafer and Rubel (2015), when observers can control an outcome, they may *actually* restore justice through the act of helping, but when they cannot control an outcome, they may instead *psychologically* restore justice through the act of derogation. Both efforts to help and derogate are interpreted as BJW preservation strategies as they both maintain an individual's sense of justice when faced with threats to their BJW. Encouragingly, this interpretation suggests that first efforts may be made to restore justice through prosocial means, and that potentially harmful strategies such as blame and derogation may be used only when prosocial strategies are

not available. Thus, when contextually permissible, efforts to maintain one's BJW may be societally advantageous.

In addition to these possible societal benefits, maintaining a BJW may be individually adaptive. For example, past literature has associated an increased BJW with improved psychological wellbeing (Dzuka, Dalbert, 2000), lower levels of depression (Ritter, Benson, and Snyder, 1990), and improved life satisfaction (Lipkus, Dalbert, and Siegler, 1996). Many Just World theorists even suggest that BJW preservation strategies can provide functional benefits to individual believers. For instance, maintaining a BJW may facilitate the healthy adaptation to negative life events (Dalbert 1999, 2001), decrease one's fear of death (Hirschberger, 2006), reduce one's sense of personal discrimination (Hafer & Choma, 2009; Lipkus & Siegler, 1993; Major et al., 2002), and instill a general sense of meaning, predictability, and control in the world (Dalbert 2001; Lerner 1980). Above all, however, maintaining a BJW is considered a fundamental requirement for children learning to delay their gratification; that is, one who maintains a sense of justice does not need to fear undeserving outcomes to their long-term investments (Lerner, 1977). In fact, this function is theorized as a key tenet underlying Just World theory and has been supported by research with both children (Long & Lerner, 1974) and adults (eg., Hafer, 2000; Sutton & Winnard, 2007; Callan, Shead & Olson, 2009; Callan, Harvey, Dawtry & Sutton, 2013). Taken together, successful efforts to maintain one's BJW may have direct individual benefits that serve an individual's wellbeing.

In addition to understanding the societal and individual impacts of engaging in BJW preservation strategies, much is understood about how and why individual BJW preservations strategies are selected and applied (see Hafer & Rubel, 2015). For example, a myriad of possible BJW preservation strategies have been identified (see Hafer & Be`gue, 2005), and individual difference and contextual factors influencing strategy selection have been explored (see Hafer & Gosse, 2010; Ellard, Harvey & Callan, 2015). Ultimately, however, while all strategies may offer individual benefits, the societal impacts may vary. Yet, in considering the frequency and diversity of real-world BJW threats, it seems inevitable that more deleterious strategies will be applied in at least some circumstances. Considering this reality, an improved understanding of the underlying mechanisms driving non-prosocial strategies may support the development or

encouragement of future preservation strategies that can maximize individual benefits while minimizing societal harms.

Literature Review

Competing Cognitive Mechanisms

While past literature exploring Just World theory and responses to Just World threats is broad and growing, relatively little is known about the cognitive processes underlying observer responses to victimization. In fact, to the best of our knowledge, only two empirical evaluations seeking to modulate thinking styles or cognitive processes to explain BJW preservation strategies have been conducted (van den Bos & Maas, 2009; Harvey, Callan, & Matthews, 2014). Both investigations have primarily sought to explore the role of effortful, deliberative thought in activating BJW preservation strategies. That is to say, the key theoretical issue that both studies seek to address is whether victim-blaming responses (amongst other BJW preservation strategies) occur automatically or whether they involve deliberative thought. While methodology and outcomes of both studies are detailed below (for van den Bos & Maas, 2009, see "Evidence for Deliberative Thought"; for Harvey et al., 2014, see "Evidence for Automaticity"), we note that these investigations have produced conflicting and divergent outcomes, leaving this theoretical issue inconclusively addressed.

To explore this elusive issue, both investigations (Van den Bos & Maas, 2009; Harvey, Callan, & Matthews, 2014) have aimed to synthesize the long-standing cognitive psychological paradigm of Dual Process Theory (DPT; Evans & Stanovich, 2013) with existing Just World literature. The dual process framework posits that two neuro-cognitive mechanisms determine how information is processed and reflected in subsequent decision-making – commonly known as Type 1 and Type 2 thinking. Thompson and Newman (2017) succinctly summarize these mechanisms as follows: "Type 1 processes are autonomous, and therefore usually faster; Type 2 processes require working memory resources, and are therefore usually slower." Accordingly, Type 1 thinking may be associated with heuristic judgements or automatic processing, while in contrast, Type 2 thinking may reflect effortful, deliberative thought (e.g., Kahneman, 2011). Ultimately, methods that can differentiate between Type 1 and Type 2 thinking may support an improved understanding of the cognitive mechanisms underlying victim-blaming responses.

Dual Process Theory has been successfully applied to differentiate between Type 1 and Type 2 thinking across a number of cognitive paradigms (eg., Moral Cognition: Bago & De Neys, 2019; Fake News: Pennycook & Rand, 2021). While methods to facilitate these comparisons are varied and diverse, most leverage the selective disruption or engagement of available working memory (WM) resources. For example, designs manipulating time pressure have been shown to effectively disrupt analytical processes associated with Type 2 thinking while completing complex cognitive reasoning tasks (Evans & Curtis-Holmes, 2005). In this way, the selective application of time pressure may be used to facilitate comparisons under Type 1 thinking when time pressure is present, and under Type 2 thinking when it is not. If, under this method, respondents can be shown to produce different responses under high time pressure relative to low time-pressure conditions, it can be concluded that Type 2 processes are required to produce reasoning judgements; after all, the responses provided would be shown contingent on the presence or absence of Type 2 resource availability.

In advancement of this theoretical framework, Thompson, Turner and Pennycook (2011) have developed a novel two-response paradigm which may offer insight into not only which thinking processes are endorsed, but also why they are selected. Under this paradigm, participants are instructed to provide their faster initial (Type 1) judgements followed by their slower deliberative (Type 2) responses to the same reasoning problem. Critically, respondents are instructed to indicate their metacognitive experience, known as Feeling of Rightness (FOR), immediately following their initial responses. This experience of FOR is thought to accompany initial Type 1 processes and to signal whether additional analyses are required to solve the reasoning problem. Ultimately, lower levels of FOR are expected to predict higher WM engagement as participants subsequently engage in analytical reflection. Consequently, two measures of analytical engagement are generally associated with FOR such that a lower level of FOR predict (1) an increased likelihood of changing one's Time 2 response, and (2) longer rethinking times. Ultimately, the application of methods which explore one's metacognitive experience of FOR within a Just World paradigm may add insight into the role and nature of Type 1 and Type 2 processes in producing blame responses toward innocent victims.

Application of DPT to Just World Theory

When applied to Just World theory, DPT provides the unique opportunity to differentiate between possible automatic and deliberative responding when generating blame responses toward innocent victims. Particularly, Just World theorists predict that under ordinary circumstances participants will generate higher blame responses when innocent victims are perceived to experience a greater degree of suffering so long as they are not compensated or helped in any way; after all, the greater the suffering observed, the greater the threat to one's BJW (Hafter & Bègue, 2005). This response may occur under ordinary conditions, but by modulating the availability of WM resources, it becomes possible to measure whether these ordinary conditions rely more strongly on Type 1 or Type 2 processes. Specifically, research demonstrating a disruption in victim-blaming responses as available WM resources diminish would suggest the necessary involvement of Type 2 (i.e., deliberative) processes in producing victim-blaming responses. Congruently, if victim blaming continues even when WM becomes burdened, the findings would suggest that Type 1 (i.e., automatic) processes are more strongly involved in victim-blaming decisions. Ultimately, evidence demonstrating different blame patterns under high and low levels of WM resource availability can shed light on the cognitive underpinnings of victim-blaming responses.

Evidence for Deliberative Thought

Diverse theoretical models exploring DPT all suggest a link between the activation of Type 2 processes and the presence or absence of a perceived cognitive conflict (i.e., conflicting or inconsistent information in presented stimuli; simply referred to as "conflict"; see Evans, 2007). For example, a default-interventionist model of DPT suggests that respondents may default to Type 1 thinking, but selectively engage Type 2 resources once a conflict becomes detected (see Evans & Stanovich, 2013; De Neys, 2017). This theoretical perspective may be supported by FOR literature suggesting that one's feeling of confidence, or "rightness," is lower when a conflict is present than when it is not (Thompson et al., 2011). Importantly, however, one's ability to detect a conflict may be determined not only by the logical validity of a proposition, but by the relationship between the logical validity and the perceived believability of the proposition's conclusion (Evans, Barston, & Pollard, 1983; Klauer, Much, & Naumer, 2000). In this way, conflict may be in the eye of the beholder: conflict exists when inconsistencies arise

within one's expectations or belief system. Ultimately, this detection (or perception) of conflict plays a central role in DPT in determining the extent to which deliberative resources become activated. Thus, the possible conflict between the portrayal of innocent suffering and one's BJW in Just World passages may be a trigger for analytical thinking.

Along these lines, past researcher by van Den Bos & Maas (2009) has demonstrated the possible involvement of Type 2 resources in producing victim-blaming responses in a Just World paradigm. Specifically, van Den Bos and Maas (2009) posited that conditions which threaten one's BJW (eg., through high victim suffering) create a logical conflict amongst three inherently propositional statements: "(a) 'The world is a just place,' (b) 'A negative event happened to Person X', and (c) Person X did not deserve that.'" That is, van den Bos and Maas argue that all three statements may not exist in tandem while abiding to principles of rationality. Once detected, however, participants, are motivated to resolve this logical inconsistency (Gawronski & Stack, 2006), but may do so only through the removal (or insertion) of at least one logical proposition. Thus, the act of victim-blaming may reflect an effort to resolve a perceived conflict; after all, a reinterpretation of the third proposition to 'person X *did* deserve that' can create a consistent belief set. Aligned with previous literature (De Neys & Glumicic, 2008), van den Baas and Maas argue that this detection and subsequent correction of logical conflict requires WM resources, and therefore, deliberative thought to operate.

In possible support of this view, van den Bos and Maas (2009) conducted an experimental investigation evaluating the role of deliberative thought in producing victim-blaming responses. This investigation aimed to differentially engage "experiential" (i.e., intuitive) and "rationalistic" (i.e., deliberative) thought processes through an ostensibly unrelated thinking-style intervention. Past literature on this topic suggests that experiential and rationalistic mindsets may correspond to intuitive (Type 1) and deliberative (Type 2) thinking respectively (Maas & van den Bos, 2009; Smith & de Coster, 2000). Once these thinking styles were induced, participants then produced blame evaluations in response to victimization scenarios. Across two experiments, participants who endorsed a high BJW and who faced a greater degree of suffering were shown to produce larger victim-blaming responses under rationalistic (Type 2), but not experiential (Type 1) processing (van den Bos and Maas, 2009). Ultimately, however, respondents were never instructed to apply their induced thinking styles to their victim-blaming

evaluations, and it remains unclear that Type 2 resources were not inadvertently activated during experiential mindset condition. In spite of this, victim blaming was higher under rationalistic than experiential thinking for strong Just World believers and for those observing a high degree of suffering. These findings imply the possible involvement of Type 2 processing in producing victim-blaming responses.

Evidence for Automaticity

Some theorists argue that BJW preservation strategies may occur automatically without the need for deliberative thought (eg., Lerner, 1998; Lerner & Clayton, 2011; Lerner & Goldberg, 1999). For example, in an empirical evaluation, Callan, Ferguson, & Bindemann (2013) presented participants with a series of stimuli describing either morally good or poor behaviour followed by positive or negative events. During this task, participants viewed visual imagery illustrating two possible outcomes (one positive; one negative) while hearing an auditory scenario description; both outcomes were thematically unrelated to the behavioural context. In this study, participants demonstrated anticipatory eye movements in favour of congruent events (i.e., good context – good outcome; poor context – poor outcome) *before* the outcome was revealed. Consistent with psycholinguistic literature suggesting that listeners may use real-world knowledge to signal expected outcomes through anticipatory eye-movements (Kamide, Altmann, & Haywood, 2003), Callan et al (2013) interpret this finding as participants' expectations for congruent moral outcomes. Harvey et al (2014, p. 177), however, assert this finding as evidence for automaticity: "this finding highlights how a concern for justice establishes an automatic preference." Given, however, that no efforts were made by Callen et al (2013) to inhibit available WM resources during the contextual behavioural description of the original task, and that no evidence is provided by Harvey et al (2014) to support the argument that eye-movements inherently signify automaticity, we cannot be assured that Type 2 resources were not engaged before the eye-movements were produced. Thus, while the temporal sequencing of this task does not preclude participants from having produced automatic expectations toward deserving outcomes, the present evidence does not support this interpretation.

Nonetheless, in support of this possibility, Harvey et al (2014) conducted a seven-part experimental evaluation exploring the possible role of automaticity in producing a breadth of victim responses. This experimental series aimed to modulate the availability of WM resources

through an array of interventions (time pressure, memory load, task instructions; scale correlations) while measuring many possible responses to victimization. Of critical importance, we note that under victim suffering manipulations, Harvey et al (2014) failed to demonstrate the classic victim-blaming responses (see Lerner & Miller, 1978) to their Just World passages, and instead observed a possible reverse effect such that low-threat passages (low-suffering victims) received *more* blame relative to high-threat passages (high-suffering victims): "Across studies 4–6, we found that participants blamed the victims less…when the victim suffered a great deal versus only minimally" (Harvey et al., 2014, p. 194; see Table 1). While this peculiar finding and its implication to Just World Theory remain unexplained by Harvey et al (2014), they proceed to note that no changes in blame behaviour were detected across high and low levels of WM resource availability (and only minimal changes were detected amongst other response categories). Given that participant responses were largely unchanged under high and low time pressure conditions, and when participants were instructed to engage in "experiential" or "rationalistic" thinking styles (akin to methodology employed by van den Bos & Maas, 2009), these finding are taken to suggest that victim-blaming responses can occur automatically without the need for deliberative engagement.

Table 1

Blame Allocations: Harvey et al., 2014, p. 192

Experimental Manipulation	Low Threat (Low Suffering)	High Threat (High Suffering)	p-value
Study 4: Time Pressure	M = 2.79 SD = 1.36	M = 2.48 SD = 1.27	N.S.
Study 5: Mindset Instructions	M = 2.87 SD = 1.35	M = 2.28 SD = 0.93	< .001
Study 6: Scale Correlations	M = 3.20 SD = 1.45	M = 2.60 SD = 1.42	<.01

Results depicted are under low load/rational mindset conditions only; N.S. = Not significant.

Present Study

The present study seeks to disentangle these conflicting findings by exploring the role and possible involvement of Type 2 processes in generating victim-blaming responses. To test the possibility that victim-blaming responses involve Type 2 resources, participants will be asked to produce Just World judgements under both high and low time-pressure conditions. Consistent

with work by Harvey et al (2014), this use of time pressure is intended to disrupt access to available WM resources while blame judgements are being made. However, and unique to the present study, time pressure will be used while participants both read *and* respond to the presented stimuli. Doing so is intended to reduce access to the cognitive resources necessary for deeper analytical thought during all task stages in which blame judgments could be made.

The primary goal of this experiment is to explore whether Type 2 resources are used to produce victim-blaming responses. This will be accomplished by manipulating two variables: time pressure (high vs. low), and victim suffering (high vs. low). Under this design, participants will view Just World passages one at a time and provide both their immediate (high time pressure) and their reflective (low time pressure) feedback under a two-response paradigm. If Type 2 resources are used to produce Just World judgements during this task, as suggested by work by van den Bos and Maas (2009), then we would expect a change in blame responses under high and low time-pressure conditions. If, however, Type 2 resources are not used to produce victim-blaming responses, as suggested by work by Harvey et al (2014), then blame judgements should not vary as a function of time pressure. It is noted, however, that these outcomes may be limited to only those who strongly endorse Just World beliefs; after all, to threaten one's BJW, one needs to maintain a BJW. Thus, to ensure intervention success, the strength of participants' BJW will be measured with the prediction that only those who strongly endorse Just World beliefs will demonstrate target blame effects. Altogether, through the intended manipulation of WM resource availability, the pattern of victim-blaming responses under high and low threat conditions may provide exploratory insight into the possible involvement of Type 2 resources in producing victim-blaming responses.

The secondary goal of this experiment is to explore the possible role of cognitive conflict in modulating blame responses under high and low victim-suffering conditions. This will be accomplished by collecting FOR judgements as part of our two-response paradigm after initial responses, but before reflective feedback is provided. Consistent with past literature predicting a lower FOR when a cognitive conflict is present (Thompson, Turner & Pennycook, 2011), and the theoretical supposition that exposure to a high degree of innocent suffering may create a cognitive conflict between one's BJW and the presented evidence that the world may not be just (van den bos & Maas, 2009), we predict a lower FOR under high suffering relative to low

suffering conditions for respondents exhibiting a high BJW. In contrast, we predict no change in FOR for those exhibiting a low BJW as a high BJW may be required for a conflict to occur. Further, as a marker of analytical engagement (Thompson, Turner & Pennycook, 2011), we also predict that a lower level of FOR will be associated with longer rethinking times in both high and low victim-suffering conditions. Thus, in addition to exploring the role of Type 2 processing in producing victim-blaming judgements, this experiment seeks to explore the role and possible involvement of cognitive conflict in producing victim-blaming responses.

Pilot Studies

Summary of Pilot Studies

To ensure the successful suppression of available WM resources during the presentation of victimization scenarios, the present study aimed to construct novel Just World passages presented in abbreviated bullet-point format. Doing so is intended to maximize passage comprehension while limiting opportunities for inadvertent WM engagement under future high time-pressure conditions. In total, five pilot experiments were administered to 221 participants with the goal of eliciting the classic victim-blaming responses under high threat (high victim suffering) relative to low threat (low victim suffering) conditions while under full WM resource capacity (low time-pressure conditions). Consistent with past literature (Van den Bos & Maas, 2009; Harvey, et al., 2014), respondents across each pilot iteration first indicated the strength of their BJW prior to viewing Just World passages. However, due to administrative error, Pilots 1-4 assessed this strength using the Multidimensional Just World Belief scale (MJWB; Furnham & Procter, 1989), opposed to the Global Belief in Just World Scale (GBJWS; Lipkus, 1991) as administered by Harvey et al., 2014. Relative to the MJWB, the GBJWS is briefer (seven items opposed to thirty), unidimensional, and demonstrates improved psychometric properties (Lipkus, 1991; Furnham & Procter, 1992). Thus, Pilot 5 addressed this error by appropriately applying the GBJWS (Lipkus, 1991). All blame responses were collected through an established 5-item measure developed by Van den Bos and Maas (2009) and used by Harvey et al (2014; see Appendix D).

Across all pilot studies, our stimuli rarely generated greater blame responses under high relative to low victim-suffering conditions. Instead, we typically observed a reverse effect such that greater blame was most associated with low relative to high victim-suffering conditions.

That is to say, our respondents most commonly blamed high-suffering victims *less* than low-suffering victims. This unexpected pattern was detected across 27 of 38 passages containing both male and female victims, presented under first and third person framing, and persisting under increased threat disparity and expanded sample size allocation in spite of repeated efforts to elicit the intended target effect. A manipulation check confirmed that high suffering passages indeed elicited greater perceptions of suffering in every presentation, meaning that a reversed perception of suffering may not account for a reversed allocation of blame. Further, an exploration of those with high and low Just World beliefs revealed that our observed reverse effects remain present even amongst strong Just World believers. Finally, we evaluated whether the target effect could be elicited using original stimuli implemented by Harvey et al (2014). Indeed, a reverse-effect persisted in three of the four presentations, indicating that a reverse allocation of blame may be present even in established stimuli sets. The interested reader may see a detailed account of all passages tested in Appendix E, and a summary of all pilot findings in Appendix F.

Preliminary Considerations

Our pilot findings diverge from classic patterns of victim blaming reported (Lerner & Simons, 1966) and theorized (Lerner, 1977; Lerner & Miller, 1978; Dalbert, 2001) by past researchers. However, as previously noted, this reverse allocation of blame was similarly detected by Harvey and colleagues (2014) in their seven-part experimental investigation. While this peculiar finding remained unexplained by Harvey et al (2014), we note that a limited availability of verbatim Just World passages from those who do elicit the intended target effect (e.g., van den Bos & Maas, 2009) may diminish our ability to isolate passage attributes which uniquely contribute to victim-blaming responses under high relative to low threat conditions. Ultimately, given our repeated inability to replicate classic Just World findings, we conclude that our pilot results may not be interpretable through a Just World lens. Considering this significant limitation, the goal of this thesis will be revised to explore the possible influence of rational thought in producing blame allocations for questions that elicit high and low levels of blame under ordinary (low time-pressure) response conditions. Thus, this thesis will proceed as an exploratory cognitive investigation of victim-blaming behaviour.

While the theoretical scope of the present study has now narrowed, the overarching goals remain largely unchanged: (1) to explore whether Type 2 resources are used to produce victim-

blaming responses in presented stimuli, and (2) to explore the possible role of cognitive conflict in modulating blame responses under high and low victim-suffering conditions. Both goals will be accomplished by manipulating the same two variables of time pressure (high vs. low) and victim suffering (high vs. low) under a two-response paradigm. However, given the now limited theoretical framework, this investigation remains strictly exploratory and does not allow for a-piori predictions about how victim-blaming behaviour will occur under high and low victim-suffering conditions. Similarly, no a-priori predictions can be made about the role of cognitive conflict in producing victim-blaming responses under high and low victim-suffering conditions. However, as grounded in metacognitive literature (Thompson, Turner & Pennycook, 2011), the prediction remains that if a change in Time 2 blame responses does occur, a lower FOR will precede that change and additionally result in longer subsequent processing times, as a lower FOR may signal a need for deeper analytical reflection. Lastly, to support possible theoretical interpretations of our exploratory findings, we will include one Just World measure (GBJWS; Lipkus, 1991), and two cognitive measures (Actively Open-Minded Thinking 17: AOT17; Svedholm-Häkkinen & Lindeman, 2017; Cognitive Reflection Test: CRT; Frederick, 2005) with the expectation that the Just World measure will not explain victim-blaming behaviour, while the cognitive measures may. Ultimately, while the theoretical applications of this thesis to Just World literature will remain limited, exploratory insight into the cognitive mechanisms underlying victim-blaming behaviour may be produced.

Method

Participants

Per sample size calculations provided by G*Power (Faul, Frdfelder, Lang, & Buchner, 2007), approximately 82 participants will be required to detect a significant difference in blame allocations between high and low threat conditions based on the smallest detected effect size observed in Pilot 5 (Illness: $d = 0.63$) at $\alpha = .05$; $1 - \beta = .8$. However, to adhere with conventions from past literature (van den bos & Maas, 2009; Harvey et al., 2014), 200 American respondents who read and speak English as their native language were recruited from the Prolific (www.prolific.co) platform [April 4, 2022]. Prolific respondents received financial compensation equivalent to £1.25 for their participation in this study.

Of the 200 respondents recruited, sixty-one participants were excluded from analysis on the basis of failing to answer all blame questions prior to the timer elapsing under high-time pressure conditions (n = 50), and/or self-reporting a failure to comply with study instructions (by indicating less than 'moderate' compliance on a 5-pt scale) to respond either intuitively (n = 16) or deliberatively (n = 8) for one or both passages shown. Exclusions status did not differ as a function of gender: X^2 (3, N = 200) = 2.38, p = .50; or educational achievement: X^2 (5, N = 200) = 1.18, p = .95; however, it did vary by age such that those excluded (M = 43.08; SD = 14.87) tended to be older than those remaining (M = 35.31; SD = 13.81), t(198) = 3.58, p < 0.01. All told, after final exclusions were made, 139 participants remained for analysis. Demographic data for participants, organized by study eligibility, are displayed in Table 2.

Table 2

Means (and Standard Deviations) of demographic data for the participants

Characteristics	Total		Eligible		Excluded		p-value
	Count	%	Count	%	Count	%	
	200	100	139	100	61	100	
Age, mean (SD)	37.68 (14.46)		35.31 (13.81)		43.08 (14.87)		< 0.01
Gender	67	33.5	46	33.1	21	34.4	
Man	129	64.5	91	65.5	38	62.3	
Woman	3	1.5	1	0.7	2	3.3	0.50
Other	1	0.5	1	0.7	0	0.0	
Prefer not to say							
Education							
Some/Completed high school	24	12.0	16	11.5	8	13.1	
Some post-secondary	43	21.5	30	21.6	13	21.3	
Completed college/technical training	22	11.0	16	11.5	6	9.8	0.95
Completed Bachelor's degree	75	37.5	51	36.7	24	39.3	
Completed Master's/PhD degree	34	17.0	24	17.3	10	16.4	
Prefer not to say	2	1.0	2	1.4	0	0.0	

Materials

Stimuli. Novel stimuli were developed and tested across five pilot studies. Selected stimuli consisted of two passages presented in bullet-point format. Passage themes related to (a) injury, and (b) illness, and were derived from passage material presented by Harvey et al., 2014. Each stimuli set contained a high-suffering and a low-suffering version of each thematic incident (e.g., a soccer incident that resulted in either minor or severe injury). To ensure consistent

processing times across high and low victim-suffering conditions, passage versions of each stimuli set were character-matched to contain approximately equal character counts (+/- 5%). The selected passages were developed (see Appendix E) and tested (see Appendix F) across five pilot studies, and have been shown to demonstrate reverse effects of expected blame allocations: Pilot 5 Injury, Low Suffering (M = 14.84, SD = 6.06), High Suffering (M = 10.03, SD = 4.90), $t(58) = 3.40$, $p < .001$; Pilot 5 Illness, Low Suffering (M = 16.07, SD = 5.06), High Suffering (M = 10.65, SD = 5.05) $t(55.18) = 2.64$, $p < .05$.

Blame Scale. Adapted from methodology devised by van den Bos & Maas (2009), and applied by Harvey, et al., (2014), the blame scale consists of a five-item measure evaluating the perceived blameworthiness of the victim portrayed. All items in the adapted measure are administered on a unipolar 1 (*do not agree at all*) to 5 (*completely agree*) scale. These response options are revised from the original bipolar 1 (*strongly disagree*) to 7 (*strongly agree*) scale to facilitate theoretical interpretations. The original scale has demonstrated sufficient internal reliability ($\alpha = .85$; van den Bos & Maas, 2009).

Global Belief in Just World Scale. The Global Belief in Just World Scale (GBJWS; Lipkus, 1991) is a 7-item measure evaluating the overall strength of one's BJW; all items are administered on a 1 (*strongly disagree)* to 6 (*strongly agree*) scale. This measure has shown promising psychometric properties (Lipkus, 1991; Hellman, Muilenburg-Trevino, & Worley, 2008), has exhibited concurrent validity with other BJW measures (Lipkus, 1991; Reich, & Wang, 2015) and has demonstrated measurement invariance across gender and culture (Reich, & Wang, 2015).

Actively Open-Minded Thinking-17. The Actively Open-Minded Thinking 17 (AOT17; Svedholm-Häkkinen & Lindeman, 2018) is a short-form measure derived from the long-form Actively Open-Minded Thinking scale (AOT; Stanovich, & West; 2000). The AOT17 is a seventeen-item measure evaluating reflective thinking in the domains of dogmatism, fact resistance, liberalism, and belief personification; all items are administered on a 1 (*strongly disagree*) to 6 (*strongly agree*) scale. The AOT17 demonstrates concurrent construct validity with the long-form AOT, other thinking dispositions, and social competence; and divergent construct validity with possessing supernatural beliefs (Svedholm-Häkkinen & Lindeman, 2018).

Cognitive Reflection Test. The Cognitive Reflection Test (CRT; Frederick, 2005) is a three-item measure designed to evaluate the extent to which one engages in analytical thought. Each item is designed to correspond to an incorrect intuitive response, and a correct unintuitive response. All responses are provided using a numerical free-entry input field, and are coded as either correct (unintuitive), or incorrect (intuitive or unknown); final scores range from zero to three indicating the total items correctly answered. Since its conception, the CRT has been widely used, and has been shown to demonstrate convergent construct validity with numeracy test performance, general ability tests, and ability to avoid bias in reasoning tasks (eg., Campitelli & Labollita, 2010, Cokely & Kelley, 2009; Liberali, Reyna, Furlan, Stein, & Pardo, 2011; Oechssler, Roider, & Schmitz, 2009; Toplak, West, & Stanovich, 2011).

Apparatus

Participants completed the task on the desktop device of their choosing; mobile and tablet participation was not permitted. The experimental survey was programmed and administered using Voxco online survey platform (2022).

Procedure

Participants were recruited to complete an online survey on reasoning and beliefs. During this task, participants were asked to view a total of two passages presented sequentially in a randomized order. Each passage was randomly assigned to portray either a high-suffering, or a low-suffering victim such that participants viewed one passage from each victim-suffering condition. For each passage, participants were instructed to answer a series of questions over two consecutive response phases: (1) high time-pressure, and (2) low time-pressure.

Under high time-pressure responding, participants were instructed to provide their initial blame responses using the first answers that came to mind. To ensure sufficiently hurried responses, passage duration was additionally restricted to only 41s (Illness) or 48s (Injury) before the trial automatically advanced; trial durations were calculated to eliminate the slowest twentieth percentile of respondents according to Pilot 5 results. Lastly, to remind participants of the time pressure to complete their submission, a countdown timer was displayed in a fixed position above the selected passage and the displayed blame scale on each relevant screen. After blame responses were successfully submitted (or after the trial automatically advanced), participants were released from time pressure and asked to indicate their FOR for their responses

provided: “How do you feel about the answer that you just gave?” (1 = *Not right at all* to 5 = *Completely right*). Finally, as a manipulation check, participants were asked to indicate the extent to which they complied with the task instructions: “To what extent did you respond to Passage X using your initial, gut responses?” (1 = *Not at all* to 5 = *Completely*).

Finally, participants re-read the same passage with no time-pressure. During this phase, participants were instructed to re-read the same passage and then provide their careful, thought-out answers using the same blame scale as initially presented. Participants were instructed to take as much time as needed, and for instructional clarity “Timer: Unlimited” appeared in the same fixed position as the count-down timer previously displayed. After all responses were submitted, participants self-reported once more about their instructional compliance with this response phase: “To what extent did you respond to Passage X using careful, thought-out answers?” (1 = *Not at all* to 7 = *Completely*).

Manipulation Checks

After completing both response phases for each passage shown, participants were re-presented with each passage one at a time. As a series of manipulation checks, participants were then asked to rate the extent of victim suffering: “In your opinion, how much do you believe James/Liam suffered from this incident?” (1 = *Did not suffer at all* to 5 = *Suffered extremely*), perceived unfairness: “I feel what happened to James/Liam is:” (1 = *Not unfair at all* to 5 = *Completely unfair*), and perceived victim innocence: “In your opinion, how much was james/Liam an innocent victim of unfortunate circumstances?” (1 = *Not at all* to 5 = *Completely*) for each passage. While these responses were collected, we acknowledge that their theoretical application will be limited, as they typically augment a Just World interpretation.

Psychological Measures

After submitting all passage responses and manipulation checks, participants were asked to complete a series of standardized scales. First, participants completed the GBJWS (Lipkus, 1991) to indicate the magnitude of their Just World beliefs. Next, participants completed the AOT17 (Svedholm-Häkkinen & Lindeman, 2018) to measure their disposition for reflective thinking, and finally the CRT (Frederick, 2005) to measure their cognitive reflective ability. All scales were administered with the goal of exploring their possible roles in accounting for victim-blaming behaviour and FOR responses.

Results

Manipulation Checks

Time Pressure Manipulation. In this experiment, participants submitted blame responses under both high and low time-pressure conditions. We analyzed the response time data to determine whether participants responded more rapidly when time pressure was applied. Indeed, participants responded more quickly when placed under high time pressure (Injury: M = 19.87s, SD = 5.24s; Illness: M = 19.47s, SD = 5.65s) than low time pressure conditions (Injury: M = 24.71s, SD = 17.39s; Illness: M = 24.19s, SD = 18.57s) for both passages displayed: Injury, $t(138) = 3.62$, $p < .001$; Illness, $t(138) = 3.21$, $p < .001$.

Perceived Suffering Manipulation. Passages presented were intended to portray high and low levels of victim-suffering. We analyzed perceptions of victim suffering to ensure that high victim-suffering passages successfully elicited greater perceptions of suffering relative to low victim-suffering passages. Indeed high victim-suffering passages (M = 4.84, SD = .52) elicited significantly greater perceptions of suffering relative to low victim-suffering passages (M = 2.26, SD = .67), $t(138) = 34.99$, $p < .001$.

Perceived Unfairness. While typically grounded in Just World literature, we explored the possibility that a victim's fate would be perceived as more unfair under high victim-suffering relative to low victim-suffering conditions. This possibility was supported as high-suffering victims (M = 4.28, SD = 1.03) elicited significantly greater feelings of unfairness relative to low-suffering victims (M = 2.12, SD = 1.09), $t(138) = 19.08$, $p < .001$.

Perceived Innocence. All passages were intended to portray innocent victims. We analyzed perceptions of victim innocence to determine whether victims were successfully perceived as "completely innocent" under both high and low victim-suffering conditions. To do so, we conducted two one-sample t-tests to verify that reported means did not significantly differ from "completely innocent" on the 5-point scale provided. This possibility was not supported for either high suffering (M = 4.37, SD = .90), $t(138) = -8.28$, $p < .001$, or low suffering conditions (M = 3.23, SD = 1.13), $t(138) = -18.23$, $p < .001$. To further explore this outcome, we then analyzed perceptions of victim innocence to determine whether victim innocence differed as a function of victim-suffering conditions. Indeed, high-suffering victims (M = 4.37, SD = .90),

were perceived as significantly more innocent than low suffering victims (M = 3.23, SD = 1.13), $t(138) = 10.34$, $p < .001$.

Blame Judgements

The primary aim for this experiment was to assess whether Type 2 resources are used to produce victim-blaming responses for scenarios portraying high and low levels of victim suffering. In exploration of this possibility, a two-way repeated measures ANOVA revealed that there was not a significant interaction between the effects of time pressure and victim suffering on blame scores provided ($F(1, 137) = .14$, $p = .71$, $\eta_p^2 = .00$). However, significant main effects for both blame ($F(1, 137) = 10.37$, $p < .01$, $\eta_p^2 = .07$) and time pressure ($F(1, 137) = 14.67$, $p < .001$, $\eta_p^2 = .10$) were detected. Specifically, the descriptive statistics revealed that participants blamed victims less under high relative to low victim suffering conditions; these findings were consistent with the reverse blame effects detected across our five pilot iterations. Further, our descriptive statistics revealed that a decrease in blame allocations occurred once time pressure was alleviated. Mean blame scores, organized by time pressure and victim suffering conditions, are displayed in Figure 1.

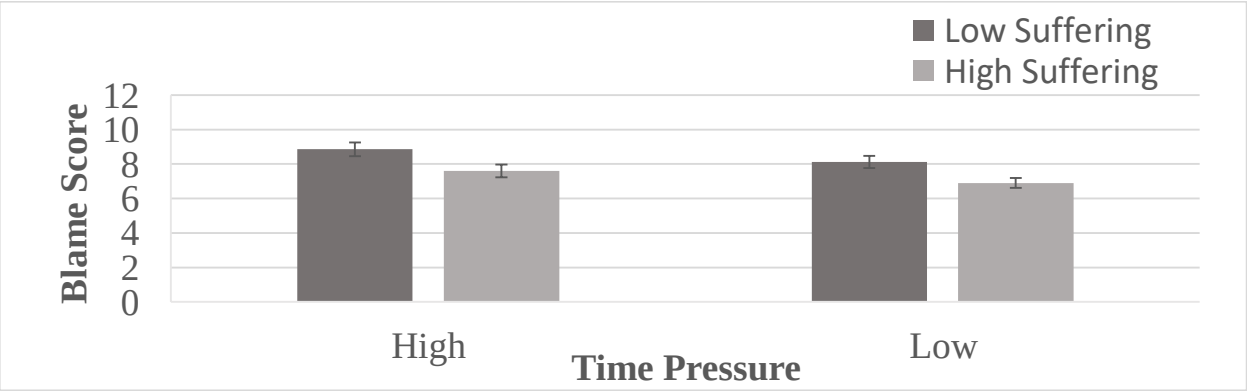

Figure 1. Mean Blame Allocations by Time Pressure and Victim Suffering. *Note.* Error bars represent standard error of the mean.

To explore whether these main effects may be predicted by the individual difference attributes measured, we aimed to replicate the above analysis with each GBWS, AOT17 and the CRT modeled as covariates. However, to ensure the appropriateness of these inclusions, we first examined the relationship between each attribute and our four levels of blame (Time Pressure:

high vs. low; Victim Suffering: high vs. low). Indeed, both the GBJWS and the AOT17 significantly correlated with blame and were therefore modelled as covariates in separate two-way repeated measures ANCOVAs. The CRT, however, did not significantly correlate with blame and was therefore excluded from this analysis; all linear correlations examined are displayed in Table 3. With the both the GBJWS and the AOT17 modelled, all main affects were eliminated and no new interactions were produced. Thus, it appears that both the GBJWS and the AOT17 can act as successful covariates in predicting respondent blame scores. The inferential statistics, organized by covariate modeled, are displayed in Table 4.

Table 3

Correlations Between Individual Difference Attributes and Blame

Individual Difference Attribute	Blame (TP: low; VS: low)	Blame (TP: low; VS: high)	Blame (TP: high; VS: low)	Blame (TP: high; VS: high)
GBJWS (Lipkus, 1991)	.29**	.28**	.26**	.21*
AOT17 (Svedholm-Häkkinen & Lindeman, 2018)	-.22*	-.29**	-.18**	-.22**
CRT (Frederick, 2005)	-.07	-.02	.00	-.01

*$p < .05$; **$p < .01$; ***$p < .001$; *TP = Time pressure*; *VS = Victim Suffering*

Table 4

Main Effects and Interactions of Victim Suffering and Time-Pressure on Blame

Covariate Modeled	Suffering F (η_p^2)	Time-Pressure F (η_p^2)	Suffering × Time Pressure F (η_p^2)
None	10.37 (.07)**	14.67 (.10)***	0.14 (.00)
GBJWS (Lipkus, 1991)	0.45 (.00)	2.27 (.02)	0.00 (.00)
AOT17 (Svedholm-Häkkinen & Lindeman, 2018)	0.01 (.00)	0.98 (.01)	0.20 (.00)

*$p < .05$; **$p < .01$; ***$p < .001$

Feeling of Rightness

The secondary aim for this experiment was to explore the possible role of cognitive conflict in modulating blame responses under high and low victim-suffering conditions. To test this possible involvement, we compared FOR responses to each passage depending on whether or not people changed their blame response between Time 1 and Time 2. These independent samples T-Tests revelated that a lower FOR preceded a change in Time 2 blame responses for both low suffering (Change: M = 3.32; SD = .91; No Change: M = 4.25; SD = .82; $t(137) = -6.31$, $p < .001$) and high suffering (Change: M = 3.52; SD = 1.07; No Change: M = 4.39; SD = .72; $t(98.43) = -5.48$, $p < .001$) conditions. Subsequent analyses additionally confirmed that lower levels of FOR were significantly associated with longer deliberative processing times in low victim-suffering passages ($r(137) = -.29$, $p < .001$), and trended toward longer processing times in high suffering passages ($r(137) = -.16$, $p = .06$). Mean FOR scores, organized by change status of Time 2 blame responses, are displayed in Figure 2.

Next, we aimed to explore whether any additional factors may have influenced participants' perceptions of cognitive conflict in the passages presented. To do so, we conducted a series of correlational analyses to determine whether FOR was meaningfully associated with perceptions of passage unfairness, victim suffering, victim innocence, or any of our individual difference attributes measures. Interestingly, perceptions of unfairness significantly correlated with FOR for high-suffering ($r(137) = .30$, $p < .001$), but not low-suffering victims ($r(137) = 0.03$, $p = .73$). However, perceived innocence positively correlated with both high suffering ($r(137) = .40$, $p < .001$) and low suffering victims ($r(137) = .32$, $p < .001$). Additionally, higher CRT scores predicted a lower FOR in both high-suffering ($r(137) = -.20$, $p < .05$) and low-suffering victims ($r(137) = -.21$, $p < .05$). These results, organized by high and low victim suffering conditions, are displayed in Table 5.

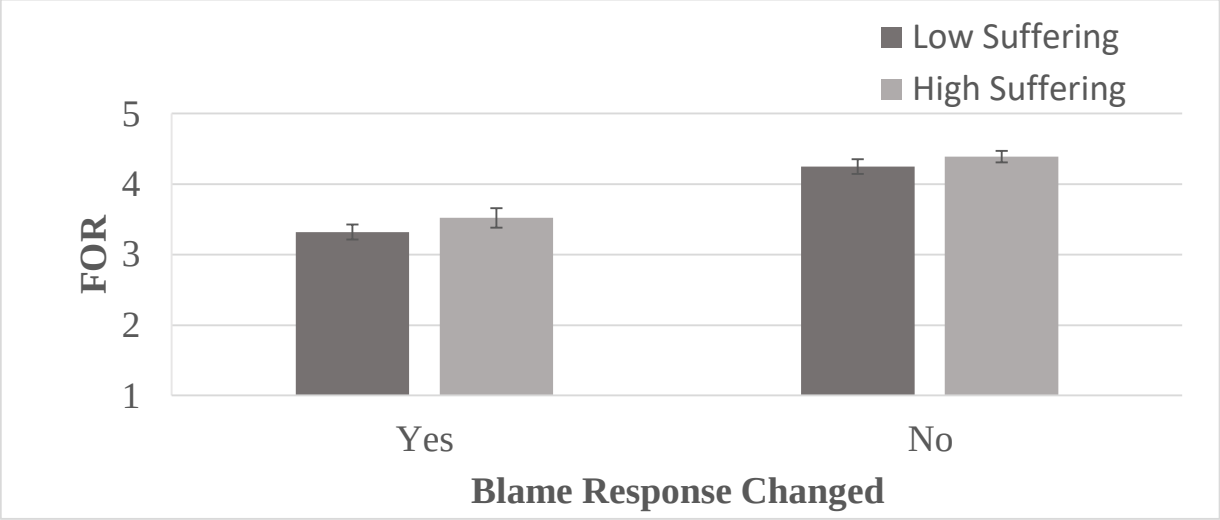

Figure 2. Mean FOR Responses by Change in Time 2 Blame Responses. *Note.* Error bars represent standard error of the mean.

Finally, we aimed to explore whether any of these correlated factors could have caused people to change their Time 2 blame responses. To do so, we first conducted a one-way ANOVA to compare the effect of whether one changed their Time 2 blame answer on FOR. We found a significant effect of answer change on FOR under both low ($F(1, 137) = 39.80$, $p < .001$, $\eta_p^2 = .23$), and high ($F(1, 137) = 33.23$, $p < .001$, $\eta_p^2 = .20$) victim-suffering conditions. As expected, a lower FOR was observed for respondents who changed their Time 2 blame responses (Low Suffering: $M = 3.32$, $SD = 0.91$; High Suffering $M = 3.52$, $SD = 1.07$) relative to those who did not (Low Suffering: $M = 4.25$, $SD = 0.82$; High Suffering $M = 4.39$, $SD = .72$). To determine whether these lower levels of FOR may be accounted for by unfairness, innocence, or the CRT, we then replicated the same analysis with each of these variables included as covariates. In doing so, we found that no effects were eliminated by the covariates modelled, and thus no factors measured could account for the observed variance in FOR responses. The results, organized by covariate modeled, are displayed in Table 6.

Table 5

Correlations of Passage Perceptions and Individual Difference Attributes with FOR

Covariate Modeled	Low Suffering *r*	High Suffering *r*
Unfairness	.03	.30***
Suffering	.16	-.01
Innocence	.41***	.32***
GBJWS (Lipkus, 1991)	.02	.04
AOT17 (Svedholm-Häkkinen & Lindeman, 2018)	.04	.00
CRT (Frederick, 2005)	-.21*	-.20*

*$p < .05$; **$p < .01$; ***$p < .001$

Table 6

Effects of Blame Revision Status on FOR

Covariate Modeled	Low Suffering F (η_p^2)	High Suffering F (η_p^2)
None	39.80 (.23)***	33.23 (.20)***
Unfairness	- -	27.69 (.17)***
Innocence	34.31 (.14)***	19.54 (.13)***
CRT (Frederick, 2005)	42.01 (.24)***	32.09 (.19)***

*$p < .05$; **$p < .01$; ***$p < .001$

Discussion

Consistent with our pilot findings, we observed that blame judgments were higher under low victim-suffering than high victim-suffering conditions. This finding disrupted the intended goals of this thesis which were to examine the underlying cognitive mechanisms and the role of cognitive conflict in producing victim-blaming responses within a classic Just World framework. As our findings do not support a Just World interpretation, we have accordingly revised the goals of this thesis to proceed as an exploratory cognitive investigation of victim-blaming behaviour in passages that appear to generate high and low levels of blame while under full working memory resource capacity. Thus, while the directionality of our blame results precludes us from making

theoretical linkages of our findings back to Just World theory, our findings can facilitate an improved understanding of victim blaming behaviour within the passages presented.

Within this context, we found that people allocated less blame under free time than time limited conditions. This finding strongly suggests that blame allocation is a Type 1 process, and that further deliberation moderates it. Consistent with this interpretation, we also found that those who were disposed toward analytical thinking showed lower blame judgments than those who were less inclined, and that accounting for analytical thinking eliminated the effects of time pressure and victim suffering on blame judgements. Together, these corroborating findings suggest a functional role of reflective, analytical thought in lowering blame judgments toward innocent victims.

To further understand this role, we additionally explored the effects of BJW on blame responses. We found that those who more strongly believe in a Just World are more likely to blame victims in the passages presented regardless of how much the victims suffered. We also found that accounting for this belief eliminated the effects of time pressure and victim suffering on blame judgements. These findings suggest an important relationship between Just World beliefs and victim blaming responses; however, the exact nature of this relationship is unknown and beyond the scope of this thesis. Thus, while the role of Just World theory in the present paradigm remains unclear, our findings suggest that a complete severance from Just World theory may not be appropriate.

As the secondary aim of this thesis, we explored the hypothetical involvement of cognitive conflict in predicting whether people revise their blame answers. We found that FOR was lower and rethinking times were longer for people who changed their Time 2 responses. Consistent with past cognitive (Thompson, Turner & Pennycook, 2011) and moral problem-solving literature (Vega, Mata, Ferreira, & Vaz, 2021), these findings suggest that cognitive conflict might influence blame change decisions. Specifically, according to Thompson and colleagues (2011) metacognitive framework, the lower FORs for those who changed answers could signal the detection of a cognitive conflict, and longer rethinking times could indicate analytical thought. Thus, while we did not collect direct measures of cognitive conflict, our results imply its involvement for those who changed answers. Moreover, these findings support

and extend Thompson and colleagues' (2011) metacognitive framework into a novel victim-blaming context.

Finally, we aimed to explore why this possible cognitive conflict may be occurring. If our findings were grounded in Just World theory, we would expect people with a high BJW to experience a conflict between their just world beliefs and the passage content suggesting that an innocent victim suffered greatly (i.e., our high victim-suffering condition). However, as our findings are not grounded in Just World theory, we instead explored whether any attributes measured might account for or otherwise explain this hypothetical conflict. To do so, we conducted a series of correlational analyses to determine whether any factors measured may be associated with a low FOR, which may suggest a role in lowering participant confidence. We found that a low FOR was associated with peoples' cognitive reflective ability, and that a high FOR was associated with both perceived unfairness and victim innocence. However, none of these factors accounted for blame revision decisions, suggesting that another unmeasured attribute may have caused people to change their Time 2 blame answers. Ultimately, no factors measured could explain this possible cognitive conflict, and future research is needed to understand how and why it might occur.

Limitations and Future Direction

Our failure to replicate the classic Just World effect represents a possible limitation of the present study as we are unable to make meaningful theoretical linkages of our findings back to the Just World literature. This limitation, however, is not unique to our investigation – as previously discussed, the same pattern was also found in Harvey and colleagues' (2014) experimental series. Moreover, as much of Just World literature is correlational in nature (Hafer and Bègue, 2005), few studies compare blame responses to low suffering and high suffering scenarios, meaning that the presence of classic blame effects is seldom verified. Consequently, while this failure may limit the interpretation of our results, it might also represent a broader challenge for the Just World literature in general. To counter this possibility, we strongly advise future Just World researchers to ensure that classic Just World effects are reliably demonstrated by their findings.

In addition to demonstrating the intended target effects where appropriate, future research might benefit from an improved understanding of how and why reverse blame allocations

sometimes occur. While we intended to portray all victims as fully innocent, we instead found that victims are seen as more innocent when they suffer a lot than only a little. This finding suggests that an unintentional manipulation of victim innocence may have led people to perceive high-suffering victims as less responsible for their circumstances. If true, one possibility to explain our unexpected blame results could be that low-suffering victims were blamed more for their fate because they were seen as more responsible. Future research could negate this concern through rigorous stimuli development which equally portrays victim innocence across high and low levels of victim suffering.

An interesting future research direction may be to explore whether other factors thought to limit WM resource availability may increase blame allocations toward innocent victims; this investigation could provide additional insight into possible neurocognitive mechanisms underlying victim-blaming behaviour. For example, age (Anderson et al., 2000), emotional distraction (Ziaei, Peira & Persson, 2014), anxiety (Moran, 2016), schizophrenia (Lesh, Niendam, Minzenberg & Carter, 2011), and autism (Wang et al., 2018) have all been associated with reduced WM capacity. If, however, the recruitment of WM resources is required to mitigate blame allocations toward innocent victims as suggested by our findings, one might expect these factors, which appear to limit WM resource availability, to increase victim-blaming behavior. Thus, an extension of our findings into other contexts which also diminish access to WM resources may facilitate an improved understanding of the neurocognitive mechanisms underlying victim blaming decisions.

Along similar lines, an exploration of factors which increase access to WM resources may too facilitate an improved understanding of the neurocognitive mechanisms underlying victim-blaming behaviour. For instance, as our data suggests that free response times can lower blame judgements, other strategies that encourage analytical reflection may also result in reduced blame judgements toward innocent victims. If true, such findings could have important real-world applications in reducing the societal harms that accompany victim-blaming behaviour such as the normalization of violence (Leshchuk, 2021) and decreased victim reporting (Puthillam, Parekh, & Kapoor, 2022). Efforts to pursue this approach, however, should be cautioned: while our findings imply that this blame reduction could be mediated by the resolution of a cognitive conflict, the specific resolution strategy (if one exists) remains unknown. Thus, to ensure that a

possible resolution of cognitive conflict does not inadvertently result in individual harms, efforts to reduce blame allocations may be well paired with an improved understanding of whether and how potential conflict is resolved.

Summary and Conclusions

In summary, the data support a deliberative account of victim blaming behaviour. Our results suggest that increased Type 2 activation can decrease victim blaming behaviour, and that this process might be supported by the detection and possible remediation of cognitive conflict. A further investigation of factors that contribute to and help reduce victim blaming behaviour in real-world contexts would be greatly beneficial for furthering a scientific understanding and for generating positive societal impacts.

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Appendix A

Just World Belief Measures

A: Multidimensional Just World Belief (MJWB) measure (Furnham & Procter, 1989)

Please indicate the extent to which you agree or disagree with each of the following statements:

Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1	2	3	4	5	6	7

Set A:

1. I think that I deserve the reputation I have among the people who know me.
2. When I get "lucky breaks" it is usually because I have earned them.
3. When I take examinations I rarely seem to get the grade I deserve.
4. As a child I was often punished for things that I had not done.
5. I am less likely to get hurt in traffic accidents if I drive with caution.
6. I have found that people who work the hardest at their job are not always the ones to get promoted.
7. If I watch what I eat, I will live longer.
8. If I suffer a misfortune, I have usually brought it on myself in some way.
9. Being nice to people will not necessarily bring me lots of friends.
10. If I get mugged or raped, I am just plain unfortunate.

Set B:

1. In a job selection interview, the best applicant hardly ever gets the job.
2. People who think of others before themselves seem to lose out in life.
3. Parents who form good relationships with their offspring bring up more successful children.
4. Friendly people have the best marriages.
5. People who make the effort to invite people into their homes deserve lots of friends.
6. People who offer help in times of crisis rarely find their help is reciprocated when they are the ones in need.

7. Lonely people are just no good at making friends.
8. People who divorce have only themselves to blame for the unhappiness they may suffer.
9. The group leader who prefers to solve group problems in a democratic fashion is less successful.
10. Outward-going, sociable people deserve a happy life.

Set C:

1. The political candidate who sticks up for his principles rarely gets elected.
2. It is rare for an innocent man to be wrongly sent to jail.
3. Although evil men may hold political power for a while, in the general course of history good wins out.
4. Crime does not pay.
5. It is often impossible for a person to receive a fair trial in this country.
6. In a free market economy, the only excuse for poverty can be laziness and lack of enterprise.
7. Political representatives are more interested in getting into power than representing their constituency.
8. The federal government has ensured that every citizen has an acceptable standard of living.
9. The forces of law and order discriminate against black people in this country.
10. Harsh as it may sound, mass unemployment has ensured that the people in work are the ones most deserving of employment.

B: Global Belief in Just World Scale (GBJWS; Lipkus, 1991)

To what extent do you agree or disagree with each of the following statements?

Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree
1	2	3	4	5	6

1. I feel that people get what they are entitled to have.
2. I feel that a person's efforts are noticed and rewarded.
3. I feel that people earn the rewards and punishments they get.
4. I feel that people who meet with misfortune have brought it on themselves.
5. I feel that people get what they deserve
6. I feel that rewards and punishments are fairly given.
7. I feel that the world is a fair place.

Appendix B

Disposition for Reflective Thinking Measure

Actively Openminded Thinking 17 (AOT17; Svedholm-Häkkinen & Lindeman, 2018)

To what extent do you agree or disagree with each of the following statements?

Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree
1	2	3	4	5	6

Factor 1: Dogmatism

1. I believe that loyalty to one's ideals and principles is more important than "open-mindedness". (R)
2. I believe that the "new morality" of permissiveness is no morality at all. (R)
3. Of all the different philosophies which exist in the world there is probably only one which is correct. (R)
4. I think there are many wrong ways, but only one right way, to almost anything. (R)
5. I believe letting students hear controversial speakers can only confuse and mislead them. (R)
6. I believe we should look to our religious authorities for decisions on moral issues. (R)

Factor 2: Fact resistance

1. One should disregard evidence that conflicts with your established beliefs. (R)
2. It is important to persevere in your beliefs even when evidence is brought to bear against them. (R)
3. Certain beliefs are just too important to abandon no matter how good a case can be made against them. (R)
4. Beliefs should always be revised in response to new information or evidence.
5. People should always take into consideration evidence that goes against their beliefs.

Factor 3: Liberalism

1. I consider myself broad-minded and tolerant of other people's lifestyles.
2. A person should always consider new possibilities.

3. I believe that the different ideas of right and wrong that people in other societies have may be valid for them.

Factor 4: Belief personification

1. There are a number of people I have come to hate because of the things they stand for. (R)
2. I tend to classify people as either for me or against me. (R)
3. My blood boils over whenever a person stubbornly refuses to admit he's wrong. (R)

Appendix C

Cognitive Reflective Thinking Measure

Cognitive Reflection Test (Frederick, 2005)

Please answer the following three questions:

Q1.

A bat and a ball cost $1.10 in total. The bat costs $1.00 more than the ball. How much does the ball cost? *Intuitive response*: 10 cents; *Correct response*: 5 cents

Q2.

If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets? *Intuitive response:* 100 minutes; *Correct response:* 5 minutes

Q3.

In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half of the lake? *Intuitive response:* 24 days; *Correct response:* 47 days

Appendix D

Blame Measure

Blame Responses to Victimization Scale (Van den Bos & Maas, 2009)

To what extent do you agree or disagree with each of the following statements?

Rating Scale: Pilot Testing

Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1	2	3	4	5	6	7

Rating Scale: Experiment (derived from Van den Bos & Maas, 2009)

Do not agree at all	Slightly agree	Moderately agree	Strongly agree	Completely agree
1	2	3	4	5

I believe that...

1. [Name] himself/herself is responsible for what has happened to him/her
2. [Name] himself/herself brought down on him/her what has happened
3. What has happened to [Name] is his/her own fault
4. [Name] is to blame for what has happened to him/her
5. [Name] deserved what has happened to him/her

Appendix E

Stimuli Sets

Pilot 1 (Initial Passages) – Passage 1 (Injury)

Low Threat	High Threat
James' Story	**James' Story**
A young man named James… • Had an accident while playing soccer • Mildly sprained his ankle • Scuffed his knee on impact • Recovered quickly • Could walk normally soon after • Continued to attend school	A young man named James… • Had an accident while playing soccer • Severely broke his leg • Injured his spine on impact • Went through many surgeries • Could no longer walk • Could no longer attend school

Pilot 1 (Initial Passages) – Passage 2 (Illness)

Low Threat	High Threat
Lucy's Story:	**Lucy's Story:**
A young woman named Lucy… Caught an infection at work • The symptoms were mild • She felt slightly tired • She slept more than usual • She did not miss any school • She had time left for friends	A young woman named Lucy… • Caught an infection at work • The symptoms were severe • She became dehydrated • She was hospitalized for weeks • She missed a lot of school • She had no time for friends

Pilot 1 (Initial Passages) – Passage 3 (Mugging)

Low Threat	High Threat
Jordan's Story:	**Jordan's Story:**
A young man named Jordan… • Was robbed at gunpoint while walking • His wallet and phone were taken • The thief was quickly apprehended • His belongings were promptly returned • He experienced this as a nuisance	A young man named Jordan… Was robbed at gunpoint while walking • His wallet and phone were stolen • The thief was never apprehended • His belongings were never returned • He experienced this as a trauma

Pilot 1 (Initial Passages) – Passage 4 (Stalking)

Low Threat	High Threat
Ashley's Story:	**Ashley's Story:**
A young woman named Ashley… Was being followed by an unknown man • He sent her dozens of letters/week • He got a job where she works • This has now completely stopped • They no longer work together • She has moved on	A young woman named Ashley… Was being followed by an unknown man • He sent her dozens of letters/week • He got a job where she works • This has escalated ever since • They still work together • She is deeply troubled

Pilot 2 (Increased Suffering) – Passage 1 (Injury)

Low Threat	High Threat
A young man (woman) named James (Jane)… Had an accident while playing soccer • Mildly sprained his (her) ankle • Scuffed his (her) knee on impact • Recovered quickly • Could walk normally soon after • Continued to attend school	A young man(woman) named James(Jane)… Had an accident while playing soccer • Severely broke his (her) leg • Injured his (her) spine on impact • Went through many surgeries • Could no longer walk • Could no longer attend school

Pilot 2 (Increased Suffering) – Passage 2 (Illness)

Low Threat	High Threat
A young man (woman) named Liam (Emma)… Caught an infection while working • Became slightly ill • Felt mildly sore for a short while • Stayed mostly healthy • Continued to attend school • Kept all his (her) friends	A young man (woman) named Liam (Emma)… Caught an infection while working • Became severely ill • Was in extreme pain for days • Nearly died alone • Became permanently hospitalized • Lost all his (her) friends

Pilot 2 (Increased Suffering) – Passage 3 (Mugging)

Low Threat	High Threat
A young man (woman) named Noah (Mia)… Was robbed while walking home • Was not hurt or injured • Was a little worried at the time • Had nothing of value taken • Continued to pay rent normally • Went on to live as he (she) had been	A young man (woman) named Noah (Mia)… Was robbed while walking home • Was violently hit and stabbed • Thought he (she) was going to die • Had all his (her) possessions taken • Could no longer afford rent • Became homeless and destitute

Pilot 2 (Increased Suffering) – Passage 4 (Pedestrian)

Low Threat	High Threat
A young man (woman) named Oliver (Olivia)… • Was hit by a car while using a crosswalk • Lightly bruised one leg on the car • Bumped his (her) shoulder on impact • Healed very quickly • There was no permanent damage • Continued to attend work	A young man (woman) named Oliver (Olivia)… • Was hit by a car while using a crosswalk • Crushed both legs under car • Split his (her) skull open on impact • Went through many surgeries • Sustained permanent brain damage • Could no longer work

Pilot 2 (Increased Suffering) – Passage 5 (Slipped)

Low Threat	High Threat
A young man (woman) named William (Sophie)… • Slipped on a wet floor in a grocery store • There were no "caution" signs up • Quickly recovered his (her) balance • Mildly strained a muscle • Did not feel sore for long • Recovered quickly soon ager • Continued to attend work	A young man (woman) named William (Sophie)… • Slipped on a wet floor in a grocery store • There were no "caution" signs up • Fractured her rib cage on impact • Had severe internal bleeding • Had both kidneys fail • Required constant medical care • Could no longer work

Pilot 2 (Increased Suffering) – Passage 6 (Dog)

Low Threat	High Threat
A young man (woman) named Lucas (Zoey)… • Was attacked by a dog while getting mail • The owner was nowhere to be found • Was gently nipped at • Had shirt sleeve slobbered on • Had no real injuries or wounds • Easily cleaned his (her) shirt sleeve • Continued to live normally soon after	A young man (woman) named Lucas (Zoey)… • Was attacked by a dog while getting mail • The owner was nowhere to be found • Was viciously bitten • Had both arms torn to shreds • Got major infection from wounds • Both arms required amputation • Could no longer eat or drink without help

Pilot 2 (Increased Suffering) – Passage 7 (Choking)

Low Threat	High Threat
A young man (woman) named Henry (Charlotte)… • Choked on food while eating dinner • Could not breathe well for a short while • Coughed mildly into a napkin • Regained composure before continuing • Enjoyed the rest of his (her) meal • Continued to talk normally • Felt fine and healthy after	A young man (woman) named Henry (Charlotte)… • Choked on food while eating dinner • Could not breathe at all for a long while • Turned blue in the face • Fell unconscious before help arrived • Sustained permanent brain damage • Could no longer form sentences • Became deeply depressed

Pilot 2 (Increased Suffering) – Passage 8 (Escalator)

Low Threat	High Threat
A young man (woman) named Alexander (Aria)… • Got his (her) shoelace stuck in an escalator • The safety mechanism was broken • Moved his (her) foot out just in time • Stumbled slightly forward from the effort • Was not in any pain • Had a twinge in his (her) leg • Could walk normally	A young man (woman) named Alexander (Aria)… • Got his (her) shoelace stuck in an escalator • The safety mechanism was broken • Could not move his (her) foot out in time • Had right leg crushed between stairs • Was in tremendous pain • Had to amputate his (her) leg • Could no longer walk

Pilot 3 (First-Person Framing) – Passage 1 (Injury)

Low Threat	High Threat
James (Jane): • I had an accident while playing soccer • I mildly sprained my ankle • I scuffed my knee on impact • I recovered quickly • I could walk normally soon after • I continued to attend school	**James (Jane):** • I had an accident while playing soccer • I severely broke my legs • I injured my spine on impact • I went through many surgeries • I could no longer walk • I could no longer attend school

Pilot 3 (First-Person Framing) – Passage 2 (Illness)

Low Threat	High Threat
Liam (Emma): • I caught an infection while working • I became slightly ill • I felt mildly sore for a short while • I stayed mostly healthy • I continued to attend school • I kept all my friends	**Liam (Emma):** • I caught an infection while working • I became severely ill • I was in extreme pain for days • I nearly died alone • I became permanently hospitalized • I lost all my friends

Pilot 3 (First-Person Framing) – Passage 3 (Mugging)

Low Threat	High Threat
Noah (Mia): • I was robbed while walking home • I was not hurt or injured • I was a little worried at the time • I had nothing of value taken • I continued to pay rent normally • I went on to live as I had been	**Noah (Mia):** • I was robbed while walking home • I was violently hit and stabbed • I thought I was going to die • I had all my possessions taken • I could no longer afford rent • I became homeless and destitute

Pilot 3 (First-Person Framing) – Passage 4 (Pedestrian)

Low Threat	High Threat
Oliver (Olivia): • I was hit by a car while using a crosswalk • I lightly bruised one leg on the car • I bumped my shoulder on impact • I healed very quickly • I had no permanent damage • I continued to attend work	**Oliver (Olivia):** • I was hit by a car while using a crosswalk • I crushed both legs under the car • I split my skull open on impact • I went through many surgeries • I sustained permanent brain damage • I could no longer work

Pilot 3 (First-Person Framing) – Passage 5 (Slipped)

Low Threat	High Threat
William (Sophie): I slipped on a wet floor in a grocery store • There were no "caution" signs up • I quickly recovered my balance • I mildly strained a muscle • I did not feel sore for long • I recovered quickly soon ager • I continued to attend work	**William (Sophie):** I slipped on a wet floor in a grocery store • There were no "caution" signs up • I fractured her rib cage on impact • I had severe internal bleeding • I had both kidneys fail • I required constant medical care • I could no longer work

Pilot 3 (First-Person Framing) – Passage 6 (Dog)

Low Threat	High Threat
Lucas (Zoey): • I was attacked by a dog while getting mail • The owner was nowhere to be found • I was gently nipped at • I had my shirt sleeve slobbered on • I had no real injuries or wounds • I easily cleaned my shirt sleeve • I continued to live normally soon after	**Lucas (Zoey):** • I was attacked by a dog while getting mail • The owner was nowhere to be found • I was viciously bitten • I had both my arms torn to shreds • I got a major infection from the wounds • I had both arms amputation [sic] • I could no longer eat or drink without help

Pilot 3 (First-Person Framing) – Passage 7 (Choking)

Low Threat	High Threat
Henry (Charlotte): • I choked on food while eating dinner • I could not breathe well for a short while • I coughed mildly into a napkin • I regained composure before continuing • I enjoyed the rest of my meal • I continued to talk normally • I felt fine and healthy after	**Henry (Charlotte):** • I choked on food while eating dinner • I could not breathe at all for a long while • I turned blue in the face • I fell unconscious before help arrived • I sustained permanent brain damage • I could no longer form sentences • I Became deeply depressed

Pilot 3 (First-Person Framing) – Passage 8 (Escalator)

Low Threat	High Threat
Alexander (Aria): • I got my shoelace stuck in an escalator • The safety mechanism was broken • I moved my foot out just in time • I stumbled slightly forward from the effort • I was not in any pain • I had a twinge in my leg • I could walk normally	**Alexander (Aria):** • I got my shoelace stuck in an escalator • The safety mechanism was broken • I could not move my foot out in time • I had right leg crushed between stairs • I was in tremendous pain • I had to amputate my leg • I could no longer walk

Pilot 3 (First-Person Framing) – Harvey et al (2014) Passage 1 (Injury)

Low Threat	High Threat
James: I had a relatively normal childhood. I played soccer from a young age and went to a suburban elementary school, where I had a number of close friends. At the age of fifteen, I was playing for an amateur soccer league, run by the American Soccer Association (ASA), when an accident on the field brought my own teammate's cleat down on the back of my calf. I suffered a mild sprain to my ankle that caused me to miss the next game, which happened to be the cup final. The sprained ankle also prevented me from walking to school, which was a mild inconvenience for a short period. However, I made a full, natural recovery soon after the incident and enjoyed the rest of my teenage years with my friends. I continued playing for the soccer team for 3 years until the age of eighteen, when I went off to university.	**James:** I had a relatively normal childhood. I played soccer from a young age and went to a suburban elementary school, where I had a number of close friends. At the age of fifteen, I was playing for an amateur soccer league, run by the American Soccer Association (ASA), when an accident on the field brought my own teammate's cleat down on the back of my calf. My leg was severely broken and the fall also caused damage to my spine. My soccer career was finished, and over the next several years, I underwent dozens of surgeries to correct the damage to my leg and spine, and was confined to a wheelchair for much of my teenage years. I was unable to attend high school with the rest of my peers and had few friends. At the age of eighteen, I finally received treatment that allowed me to walk again and I was able to leave my wheelchair behind when I went off to university.

Pilot 3 (First-Person Framing) – Harvey et al (2014) Passage 2 (Illness)

Low Threat	High Threat
Jenny: I have always wanted to be a nurse. When I was 17, I worked at a local care home for the elderly. I really enjoyed my time there, although it wasn't without its difficulties. About 4 months into the job I caught an infection from one of the new patients. At first I had a headache, and then I felt like I had a mild cold. I felt a bit under the weather for a day or so, but I still attended high school as usual. I recovered quickly and was back to full strength in no time at all. I carried on the next couple of years at high school as usual. I kept on top of my workload and had plenty of time to socialize. Now at age 20, I am in my first year of an adult nursing degree.	**Jenny:** I have always wanted to be a nurse. When I was 17, I worked at the local care home for the elderly. I really enjoyed my time there, although it wasn't without its difficulties. About 4 months into the job I caught a nasty viral infection from one of the new patients. At first I just thought I had a headache, but my symptoms grew worse and worse. I couldn't keep any food or liquids down and suffered from severe dehydration, which resulted in me being hospitalized. I was put on a drip and had to stay under observation for several weeks, while I built my strength back up. Unfortunately, I missed a lot of high school while I was recovering and struggled to catch up when I returned. The next couple years at high school were hard work; keeping on top of my workload left little time for socializing. Now at age 20, I have fully recovered and I am in my first year of an adult nursing degree.

Pilots 4 and 5; Experiment (First-Person Framing) – Passage 1 (Injury)

Low Threat	High Threat
James: • I had an accident while playing soccer • I mildly sprained my ankle • I scuffed my knee on impact • I recovered quickly • I could walk normally soon after • I continued to attend school	**James:** • I had an accident while playing soccer • I severely broke my legs • I injured my spine on impact • I went through many surgeries • I could no longer walk • I could no longer attend school

Pilots 4 and 5; Experiment (First-Person Framing) – Passage 2 (Illness)

Low Threat	High Threat
Liam: • I caught an infection while working • I became slightly ill • I felt mildly sore for a short while • I stayed mostly healthy • I continued to attend school • I kept all my friends	**Liam:** • I caught an infection while working • I became severely ill • I was in extreme pain for days • I nearly died alone • I became permanently hospitalized • I lost all my friends

Appendix F

Pilot Findings

Across four pilot iterations, we strived to achieve the target effect of demonstrating differential blame toward high-threat relative to low threat passages. Developed passages were always presented in a randomized order, and each passage was randomized to display as either a high or low threat condition. No efforts were made to ensure consistent sample sizes or frequencies of high and low threat versions of each passage. However, to help ensure consistent processing times, all passage versions were character-matched such that high and low threat conditions for the same passage contained approximately equal character counts (+/- 5%). Respondents for each pilot experiment were recruited from the Prolific platform, and self-identified as residents of the United States of America who speak English fluently.

Pilot 1

The goal of Pilot 1 was to elicit higher blame in response to Just World threats using our adapted stimuli. Pilot 1 contained four alternate (high threat vs. low threat) passages presented in third-person format. Passage content was derived from previous literature where possible (Personal Injury; Illness: Harvey, Callan & Matthews, 2012; Stalking: Sheridan, L., Gillett, R., Davies, G., Blaauw, E., & Patel, D. 2003); and from tangential themes (Mugging: Hafer & Bègue, 2005) where not. Passages represented both male and female victims, and in effort to increase emotional resonance, victim names were included within the passage body. Pilot 1 was administered to 22 Prolific respondents; however, due to reported passage comprehension, only 21 were analyzed (7 male; 14 female). The results of Pilot 1 are summarized below.

Table 7

Pilot 1 Blame Allocations

Passage	Low Suffering	High Suffering	P Value
Passage 1 (Injury; Male)	N = 14 M = 7.86 SD = 4.00	N = 7 M = 10.71 SD = 8.38	.21 *Target effect*
Passage 2 (Illness; Female)	N = 12 M = 11.00 SD = 6.81	N = 9 M = 5.89 SD = 1.69	.03 *Reverse effect*

Passage 3 (Mugging; Male)	N = 9 M = 6.67 SD = 2.55	N = 12 M = 5.41 SD = 1.44	.11 *Reverse effect*
Passage 4 (Stalking; Female)	N = 14 M = 7.29 SD = 3.73	N = 14 M = 6.00 SD – 2.66	.37 *Reverse effect*

Table 8

Pilot 1 Perceived Victim Suffering

Passage	Low Suffering	High Suffering	P Value
Passage 1 (Injury; Male)	N = 14 M = 2.57 SD = 1.16	N = 7 M = 7.00 SD = 0.00	< .001 *Target effect*
Passage 2 (Illness; Female)	N = 12 M = 1.91 SD = .79	N = 9 M = 5.78 SD = .44	< .001 *Target effect*
Passage 3 (Mugging; Male)	N = 9 M = 3.11 SD = 1.36	N = 12 M = 5.92 SD = .90	< .001 *Target effect*
Passage 4 (Stalking; Female)	N = 14 M = 4.43 SD = .98	N = 14 M = 5.79 SD = .24	.005 *Target effect*

Pilot 2

The goal of Pilot 2 was to was twofold: to strengthen the target blame effect observed in the Pilot 1 injury passage through improved passage design, and to verify the presence of the target effect using a standard, unmodified Just World passage. To improve passage design, Pilot 2 aimed to increase the perceived suffering differential between high and low threat conditions. To do so, all high threat passages were designed to convey an extreme and prolonged degree of suffering as aligned with recommendations from Hafer & Bègue (2005). Additionally, new or modified passages aimed to reduce inadvertent blame evaluations in low-threat conditions by signaling reduced culpability where possible (eg., by indicating that a safety mechanism was

broken, or that a crosswalk was used). Further, to avoid potential interactions of victim gender between passages, and to test the relative efficacy of victim gender in eliciting blame responses, a between-subject intervention of victim gender was used. Thus, Pilot 2 represents a 2 within (Threat: high vs. low) by 2 between (Victim Gender: male vs. female) design.

Lastly, to test whether Just World threat can be detected irrespective of stimuli used, Pilot 2 administered two unmodified Just World passages as presented by Harvey et al. (2014). These passages were presented in a randomized order and were displayed both after and before our novel Just World passages; however, this presentation covaried with the victim gender intervention (before: female; after: male), and does not represent an independent manipulation. In total, Pilot 2 was administered to 40 Prolific respondents (13 Male; 24 Female; 1 Non-binary; 2 No response). The blame allocations and perceived suffering for both developed and original Just World passages are summarized below.

Table 9

Pilot 2 Blame Allocations

Passage	Low Suffering (Male)	High Suffering (Male)	P Value	Low Suffering (Female)	High Suffering (Female)	P Value
Passage 1 (Injury)	N = 9 M = 14.89 SD = 7.37	N = 11 M = 9.64 SD = 7.54	.13 *R.E.*	N = 11 M = 8.91 SD = 4.87	N = 9 M = 8.56 SD = 4.85	.87 *R.E.*
Passage 2 (Illness)	N = 11 M = 10.18 SD = 5.78	N = 9 M = 6.00 SD = 1.58	.05 *R.E.*	N = 10 M = 7.20 SD = 3.22	N =10 M = 7.50 SD = 5.27	.88 *T.E.*
Passage 3 (Mugging)	N = 11 M = 5.45 SD = 1.50	N = 9 M = 6.11 SD = 1.77	.38 *T.E.*	N = 13 M = 8.08 SD = 5.33	N = 7 M = 5.71 SD = 1.89	.28 *R.E.*
Passage 4 (Pedestrian)	N = 8 M = 8.88 SD = 4.19	N = 12 M = 6.67 SD =3.09	.19 *R.E.*	N = 9 M = 10.11 SD = 6.89	N = 11 M = 7.18 SD = 4.31	.26 *R.E*
Passage 5 (Slipped)	N = 9 M = 8.11 SD = 3.18	N = 11 M = 7.18 SD = 3.09	.52 *R.E.*	N = 10 M = 8.10 SD = 4.01	N = 10 M = 6.60 SD = 2.67	.34 *R.E.*

Passage 6 (Dog)	N = 11 M = 7.18 SD = 3.25	N = 9 M = 5.56 SD = 1.67	.17 *R.E.*	N = 7 M = 6.86 SD = 2.74	N = 13 M = 6.69 SD = 1.12	*.94* *R.E.*
Passage 7 (Choking)	N = 12 M = 14.5 SD = 10.44	N = 8 M = 9.75 SD = 5.82	.26 *R.E.*	N = 11 M = 11.64 SD = 6.15	N = 9 M = 8.33 SD = 5.89	.23 *R.E.*
Passage 8 (Escalator)	N = 9 M = 8.67 SD = 4.09	N = 11 M = 9.36 SD = 4.36	*.72* *T.E.*	N = 9 M = 8.44 SD = 5.34	N = 11 M = 10.37 SD = 6.96	*.50* *T.E.*

Reverse Effect (R.E.); Target Effect (T.E.)

Table 10

Pilot 2 Perceived Victim Suffering

Passage	Low Suffering (Male)	High Suffering (Male)	P Value	Low Suffering (Female)	High Suffering (Female)	P Value
Passage 1 (Injury)	N = 9 M = 2.67 SD = 1.22	N = 11 M = 6.45 SD = .82	< .001 *T.E*	N = 11 M = 2.36 SD = .36	N = 9 M = 6.78 SD = .15	< .001 *T.E.*
Passage 2 (Illness)	N = 11 M = 2.73 SD = 1.19	N = 9 M = 6.44 SD = .73	< .001 *T.E.*	N = 10 M = 1.80 SD = .79	N = 10 M = 6.30 SD = 1.06	*< .001* *T.E.*
Passage 3 (Mugging)	N = 11 M = 3.64 SD = 1.69	N = 9 M = 6.67 SD = .50	< .001 *T.E.*	N = 13 M = 2.77 SD = 1.24	N = 7 M = 6.43 SD = .79	< .001 *T.E.*
Passage 4 (Pedestrian)	N = 8 M = 4.00 SD = .93	N = 12 M = 6.91 SD = .29	< .001 *T.E.*	N = 9 M = 3.22 SD = 1.30	N = 11 M = 7.00 SD = 0.00	< .001 *T.E.*
Passage 5 (Slipped)	N = 9 M = 2.78 SD = .97	N = 11 M = 6.81 SD = .40	*< .001* *T.E.*	N = 10 M = 2.10 SD = .31	N = 10 M = 6.80 SD = .63	*< .001* *T.E.*
Passage 6 (Dog)	N = 11 M = 2.36 SD = .81	N = 9 M = 6.89 SD = .33	< .001 *T.E.*	N = 7 M = 1.42 SD = 1.13	N = 13 M = 6.61 SD = 1.12	< .001 *T.E.*

Passage 7 (Choking)	N = 12 M = 2.75 SD = 1.14	N = 8 M = 6.50 SD = .75	< *.001* *T.E.*	N = 11 M = 1.64 SD = .67	N = 9 M = 6.44 SD = 1.01	< *.001* *T.E.*
Passage 8 (Escalator)	N = 9 M = 2.78 SD = 1.64	N = 11 M = 6.90 SD = .30	< *.001* *T.E.*	N = 9 M = 1.56 SD = .73	N = 11 M = 6.64 SD = .92	< *.001* *T.E.*

Reverse Effect (R.E.); Target Effect (T.E.)

Table 11

Pilot 2 Blame Allocations: *Harvey et al (2014) Passages*

Passage	Low Suffering (Last)	High Suffering (Last)	P Value	Low Suffering (First)	High Suffering (First)	P Value
Passage 1 (Injury)	N = 13 M = 10.46 SD = 6.55	N = 7 M = 7.00 SD = 3.60	.21 *R.E.*	N = 13 M = 7.54 SD = 3.10	N = 7 M = 5.13 SD = .38	.02 *R.E.*
Passage 2 (Illness)	N = 7 M = 10.14 SD = 7.08	N = 13 M = 8.85 SD = 5.18	.64 *R.E.*	N = 7 M = 7.86 SD = 5.49	N = 13 M = 8.15 SD = 4.14	.89 *T.E.*

Reverse Effect (R.E.); Target Effect (T.E.)

Table 12

Pilot 2 Perceived Victim Suffering: Harvey et al (2014) Passages

Passage	Low Suffering (Last)	High Suffering (Last)	P Value	Low Suffering (First)	High Suffering (First)	P Value
Passage 1 (Injury)	N = 13 M = 2.92 SD = .95	N = 7 M = 6.14 SD = .69	< .001 *T.E.*	N = 13 M = 4.08 SD = 1.55	N = 7 M = 6.29 SD = .1.50	.007 *T.E.*
Passage 2 (Illness)	N = 7 M = 2.00 SD = 1.15	N = 13 M = 4.69 SD = 1.03	< .001 *T.E.*	N = 7 M = 2.29 SD = 1.70	N = 13 M = 5.92 SD = 1.04	< .001 *T.E.*

Reverse Effect (R.E.); Target Effect (T.E.)

Pilot 3

The goal of Pilot 3 was to determine whether the target effect of blame could be better achieved if passages were framed in first-person rather than third-person format. Doing so may be speculated to generate a higher degree of engagement and perhaps to decrease the perceived hypotheticality of presented passages. Pilot 3 was identical in structure to Pilot 2 except for the passage framing and the removal of the original Harvey et al (2014) passages. Thus, Pilot 3 represents a 2 within (Threat: high vs. low) by 2 between (Victim Gender: male vs. female) design framed in a first-person format. Pilot 3 was administered to 40 Prolific respondents (15 Male; 24 Female; 1 Non-binary). The blame allocations and perceived suffering of Pilot 3 are summarized below.

Table 13

Pilot 3 Blame Allocations

Passage	Low Suffering (Male)	High Suffering (Male)	P Value	Low Suffering (Female)	High Suffering (Female)	P Value
Passage 1 (Injury)	N = 10 M = 13.50 SD = 9.61	N = 10 14.70 SD = 5.10	.73 *T.E.*	N = 10 M = 12.50 SD = 8.47	N = 10 M = 14.00 SD = 7.13	.67 *T.E.*
Passage 2 (Illness)	N = 9 M = 6.56 SD = 2.60	N = 11 M = 10.37 SD = 5.18	.06 *T.E.*	N = 7 M = 10.29 SD = 7.85	N = 13 M = 6.15 SD = 2.23	.09 *R.E.*
Passage 3 (Mugging)	N = 8 M = 6.37 SD = 2.32	N = 12 M = 6.22 SD = 3.11	*.98* *R.E.*	N = 14 M = 5.93 SD = 1.90	N = 6 M = 5.00 SD = .00	.09 *T.E.*
Passage 4 (Pedestrian)	N = 16 M = 6.93 SD = 4.07	N = 6 M = 9.00 SD = 3.41	.29 *T.E.*	N = 13 M = 6.85 SD = 3.08	N = 7 M = 5.86 SD = .70	.45 *R.E.*
Passage 5 (Slipped)	N = 10 M = 9.60 SD = 6.81	N = 10 M = 8.20 SD = 4.98	.60 *R.E.*	N = 10 M = 7.70 SD = 4.89	N = 10 M = 7.80 SD = 4.89	.97 *T.E.*
Passage 6 (Dog)	N = 10 M = 8.70 SD = 4.14	N = 10 M = 5.10 SD = .34	.02 *R.E.*	N = 8 M = 5.88 SD = 1.64	N = 12 M = 5.75 SD = 1.76	*.88* *T.E.*

Passage 7 (Choking)	N = 8 M = 16.00 SD = 8.40	N = 12 M = 13.75 SD = 7.27	.53 *R.E.*	N = 10 M = 15.90 SD = 9.07	N = 10 M = 8.40 SD = 7.82	*.06* *R.E.*
Passage 8 (Escalator)	N = 11 M = 13.18 SD = 7.74	N = 9 M = 6.22 SD = 2.17	*.02* *R.E.*	N = 8 M = 8.63 SD = 5.18	N = 12 M = 10.17 SD = 8.03	*.64* *T.E.*

Reverse Effect (R.E.); Target Effect (T.E.)

Table 14

Pilot 3 Perceived Victim Suffering

Passage	Low Suffering (Male)	High Suffering (Male)	P Value	Low Suffering (Female)	High Suffering (Female)	P Value
Passage 1 (Injury)	N = 10 M = 2.80 SD = 6.20	N = 10 M = 6.20 SD = 1.14	< .001 *T.E.*	N = 10 M = 2.90 SD = 1.10	N = 10 M = 6.40 SD = .97	< .001 *T.E.*
Passage 2 (Illness)	N = 9 M = 2.11 SD = .93	N = 11 M = 6.27 SD = .79	< .001 *T.E.*	N = 7 M = 2.43 SD = 1.13	N = 13 M = 6.77 SD = .44	< .001 *T.E.*
Passage 3 (Mugging)	N = 8 M = 3.50 SD = 1.20	N = 12 M = 6.50 SD = 1.17	< .001 *T.E.*	N = 14 M = 2.43 SD = .39	N = 6 M = 7.00 SD = 0.00	< .001 *T.E.*
Passage 4 (Pedestrian)	N = 14 M = 2.89 SD = 1.34	N = 6 M = 7.00 SD = 0.00	< .001 *T.E.*	N = 13 M = 2.38 SD = .96	N = 7 M = 6.71 SD = .49	< .001 *T.E.*
Passage 5 (Slipped)	N = 10 M = 2.60 SD = 1.26	N = 10 M = 6.50 SD = .85	< .001 *T.E.*	N = 10 M = 2.00 SD = .82	N = 10 M = 6.70 SD = .48	< .001 *T.E.*
Passage 6 (Dog)	N = 10 M = 2.10 SD = 1.59	N = 10 M = 7.00 SD = 0.00	< .001 *T.E*	N = 8 M = 2.13 SD = 1.13	N = 12 M = 6.83 SD = .39	< .001 *T.E.*
Passage 7 (Choking)	N = 8 M = 3.00 SD = 1.85	N = 12 M = 6.75 SD = .45	< .001 *T.E.*	N = 10 M = 1.90 SD = 1.10	N = 10 M = 6.50 SD = .97	< .001 *T.E.*

Passage 8 (Escalator)	N = 11 M = 2.09 SD = 1.20	N = 9 M = 6.44 SD = .73	< *.001* *T.E*	N = 8 M = 1.88 SD = 1.13	N = 12 M = 6.92 SD = .29	< .001 *T.E.*

Reverse Effect (R.E.); Target Effect (T.E.)

Pilot 4

The goal of Pilot 4 was to determine whether the inconsistently detected target effects of blame demonstrated in Pilot 3 were attributed to chance given the small sample size. To avoid possible interaction effects of gender, Pilot 4 presented male names only. Additionally, to address the possibility that our original passages may inadvertently tap unrelated constructs and influence blame evaluations in subsequent passages, Pilot 4 presented the injury and illness passages only. Pilot 4 is identical in structure to Pilot 3 except that only two passages and only male victims were presented. Thus, Pilot 4 represents a 2 within (Threat: high vs. low) design framed in a first-person format. Pilot 4 was administered to 60 Prolific respondents (22 Male; 31 Female; 4 Non-binary; 3 Non-response). The blame allocations and perceived suffering of Pilot 4 are summarized below.

Table 15

Pilot 4 Blame Allocations

Passage	Low Suffering	High Suffering	P Value
Passage 1 (Injury)	N = 40 M = 15.75 SD = 7.12	N = 20 M = 10.30 SD = 10.30	.005 *Reverse effect*
Passage 2 (Illness)	N = 20 M = 12.10 SD = 6.11	N = 40 M = 8.55 SD = 5.20	*.02* *Reverse effect*

Table 16

Pilot 4 Perceived Victim Suffering

Passage	Low Suffering	High Suffering	P Value
Passage 1 (Injury)	N = 40 M = 2.78 SD = 6.25	N = 20 M = 6.10 SD = 1.16	< .001 *Target effect*
Passage 2 (Illness)	N = 20 M = 2.95 SD = 1.19	N = 40 M = 6.47 SD = .96	< .001 *Target effect*

Pilot 5

The goal of Pilot 5 was to address an administrative error by appropriately applying the Global Belief in Just World scale (GBJW; Lipkus, 1991) to measure the strength of Just World beliefs. Doing so allows for an exploration of blame evaluations for those who perform high and low on the GBJW scale as defined by the sum of the scale's midpoint, to explore the possibility that those who strongly endorse Just World beliefs may demonstrate target blame effects, unlike those who only weakly endorse Just World beliefs. Pilot 5 was identical to pilot 4 with the exception of the GBJW scale. Thus, Pilot 5 represents a 2 within (Threat: high vs. low) design framed in a first-person format. Pilot 5 was administered to 60 Prolific respondents (21 Male; 35 Female; 3 Non-binary; 1 Non-response). The blame allocations and perceived suffering of Pilot 5 are summarized below.

Table 17

Pilot 5 Blame Allocations

Passage	Low Suffering	High Suffering	P Value
Passage 1 (Injury)	N = 25 M = 14.84 SD = 6.06	N = 35 M = 10.03 SD = 4.90	.001 *Reverse effect*
Passage 2 (Illness)	N = 35 M = 11.66 SD = 6.70	N = 25 M = 8.08 SD = 3.37	*.02* *Reverse effect*

Table 18

Pilot 5 Perceived Victim Suffering

Passage	Low Suffering	High Suffering	P Value
Passage 1 (Injury)	N = 25 M = 2.84 SD = 1.57	N = 35 M = 6.69 SD = 0.53	< .001 *Target effect*
Passage 2 (Illness)	N = 35 M = 2.74 SD = 1.38	N = 25 M = 6.52 SD = 0.65	< .001 *Target effect*

Table 19

Pilot 5 Strength of Just World Beliefs

GBJW Score	Frequency	Percent (%)
High (>21)	34	56.7
Low (<=21)	26	43.4

Aggregate scores ranged from 7 to 39 (Mean = 23.35; SD = 7.48).

Table 20

Pilot 5 Blame Allocations by High vs. Low GBJW Score

Passage	GBJW Score	Low Suffering	High Suffering	P Value
Passage 1 (Injury)	High	N = 14 M = 16.07 SD = 5.06	N = 20 M = 10.65 SD = 5.05	<0.01 *Reverse effect*
Passage 2 (Illness)	Low	N = 20 M = 13.27 SD = 7.07	N = 14 M = 9.20 SD = 4.74	0.09 *Reverse effect*
Passage 1 (Injury)	High	N = 15 M = 13.50 SD = 7.60	N = 11 M = 9.71 SD = 4.07	0.07 *Reverse effect*
Passage 2 (Illness)	Low	N = 11 M = 9.20 SD = 4.39	N = 15 M = 6.0 SD = 1.84	0.02 *Reverse effect*

Appendix G

Experimental Survey

PROLIFIC_ID

Before you start, please turn off your phone, e-mail and music so you can focus on this study.

Please enter your Prolific ID here:

[textbox]

CONSENTFORM

[Ethically approved consent form here]

INSTRUCTIONS

In the following section, you will be presented with two passages, shown one at a time. Each passage will describe an event that could have happened to a real person. After you read each passage, you will be asked to answer questions about your feelings toward the person in the passage. There are no right or wrong answers.

For each passage, you will be asked to submit your answers in two phases.

1. **Phase 1**: You will be asked to respond intuitively using the first answer that comes to mind.
2. **Phase 2:** You will be shown the same passage again. Then, you will be asked to respond deliberatively using careful, though-out answers.

Below is an example of the questions you will be asked for each passage shown:

Responses:

To what extent do you agree or disagree with each of the following statements?

I believe that...

	Do not agree at all 1	Slightly agree 2	Moderately agree 3	Strongly agree 4	Completely agree 5
Oliver himself is responsible for what has happened to him	○	○	○	○	○
Oliver himself brought down on him what has happened	○	○	○	○	○
What has happened to Oliver is his own fault	○	○	○	○	○
Oliver is to blame for what has happened to him	○	○	○	○	○
Oliver deserved what has happened to him	○	○	○	○	○

- I have read and understood these instructions

[Design note: Passage 1 and 2 are displayed in a randomized order. If high-threat is selected for Passage 1, low-threat is selected for Passage 2, and vice versa.]

T1_INSTRUCTIONS

On the following screen…

1. **Please read the passage** before you respond. Once you have read the passage, immediately answer the questions, and do not read the passage again.
2. **Please respond intuitively** sing the first answers that comes to mind. Use your gut response and do not second-guess yourself. Be sure to respond as quickly as possible – once you start, you will only have **X seconds** to respond. Once you have responded, immediately press "next" to continue.

- I am ready to make decisions

[An example of one passage presentation is displayed below.]

00:00:16

James:

- I had an accident while playing soccer
- I mildly sprained my ankle
- I scuffed my knee on impact

- o I recovered quickly
- o I could walk normally soon after
- o I continued to attend school

Responses:

To what extent do you agree with each of the following statements?

I believe that...

[Columns]

a) Do not agree at all – 1
b) Slightly agree – 2
c) Moderately agree – 3
d) Strongly agree – 4
e) Completely agree – 5

[Rows]

a) James himself is responsible for what has happened to him
b) James himself brought down on him what has happened
c) What has happened to James is his own fault
d) James is to blame for what has happened to him
e) James deserved what has happened to him

T1_FOR

You may now take as much time as you need to respond.

How do you feel about the answer you just gave?

- o Not right at all – 1
- o Somewhat right – 2
- o Moderately right – 3
- o Largely right – 4
- o Completely right – 5

T1_MANIPULATION_CHECK

To what extent did you respond to Passage X using your **initial, gut responses**?

- o Not at all - 1
- o Somewhat – 2
- o Moderately – 3
- o Largely – 4
- o Completely – 5

T2_INSTRUCTIONS

On the next screen, you will see the same passage you just responded to.

1. **Please read the passage again** before you respond. You may read the passage as many times as you like.
2. **Please respond deliberatively** using careful, thought-out answers. Be sure of your answers and take your time to respond. Be sure to think carefully – you will have as much time as you need to submit your answers. Once you are sure of your final answers, please press "next" to continue.

- I am ready to make decisions

[re-display passage here]

[re-display blame scale here]

To what extent did you respond to Passage X using **careful, thought-out answers**?

- o Not at all - 1
- o Somewhat – 2
- o Moderately – 3
- o Largely – 4
- o Completely – 5

End of Passage X

[repeat process including "following screen" instructions for second passage]

MANIPULATION_CHECK_INSTRUCTIONS

For the rest of this survey, you will have **as much time as you need** to submit your responses.

You will see the same passages you just read one last time and be asked a few more questions about them.

[Design note: Passage 1 and 2 are re-displayed in a randomized order irrespective of their previous display order.]

PASSAGE_X_REDISPLAY

[passage 1 or 2 text re-displayed here]

PASSAGE_X_SUFFERING

In your opinion, how much do you believe James/Liam suffered from this incident?

a) Did not suffer at all – 1
b) Slightly suffered – 2
c) Moderately suffered – 3
d) Suffered a lot – 4
e) Suffered extremely – 5

PASSAGE_X_UNFAIRNESS

I feel what happened to James/Liam is:

a) Not unfair at all – 1

b) Somewhat unfair – 2

c) Moderately unfair – 3

d) Largely unfair – 4

e) Completely unfair – 7

PASSAGE_X_INNOCENCE

In your opinion, how much was james/Liam an innocent victim of unfortunate circumstances?

a) Not at all – 1

b) Somewhat – 2

c) Moderately – 3

d) Largely – 4

e) Completely – 5

Next, you will be asked a few questions about the way you think and feel.

GBJWS_LIPKUS_1991

To what extent do you agree or disagree with each of the following statements?

[Columns]

a) Strongly disagree – 1

b) Disagree – 2

c) Slightly disagree – 3

d) Slightly agree – 4

e) Agree – 5

f) Strongly agree – 6

[Rows]

a) I feel that people get what they are entitled to have.

b) I feel that a person's efforts are noticed and rewarded.

c) I feel that people earn the rewards and punishments they get.

d) I feel that people who meet with misfortune have brought it on themselves.

e) I feel that people get what they deserve

f) I feel that rewards and punishments are fairly given.

g) I feel that the world is a fair place.

AOT17

To what extent do you agree or disagree with each of the following statements?

[Columns]

g) Strongly disagree – 1

h) Disagree – 2

i) Slightly disagree – 3

j) Slightly agree – 4

k) Agree – 5

l) Strongly agree – 6

[Rows]

a) To what extent do you agree or disagree with each of the following statements?

b) I believe that loyalty to one's ideals and principles is more important than “open-mindedness”

c) I believe that the “new morality” of permissiveness is no morality at all.

d) Of all the different philosophies which exist in the world there is probably only one which is correct.

e) I think there are many wrong ways, but only one right way, to almost anything.

f) I believe letting students hear controversial speakers can only confuse and mislead them.

g) I believe we should look to our religious authorities for decisions on moral issues.

h) One should disregard evidence that conflicts with your established beliefs.

i) It is important to persevere in your beliefs even when evidence is brought to bear against them.

j) Certain beliefs are just too important to abandon no matter how good a case can be made against them.

k) Beliefs should always be revised in response to new information or evidence.

l) People should always take into consideration evidence that goes against their beliefs

m) I consider myself broad-minded and tolerant of other people's lifestyles.

n) A person should always consider new possibilities.

o) I believe that the different ideas of right and wrong that people in other societies have may be valid for them.

p) There are a number of people I have come to hate because of the things they stand for.

q) I tend to classify people as either for me or against me.

r) My blood boils over whenever a person stubbornly refuses to admit he's wrong.

CRT_INTRO

Next, please answer the following three questions…

CRT_1

A bat and a ball cost $1.10 in total. The bat costs $1.00 more than the ball. How much does the ball cost?

[textbox]

CRT_2

If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets?

[textbox]

CRT_3

In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half of the lake?

[textbox]

Finally, please tell us a bit about yourself…

D1_AGE

How old are you (in years)?

[numeric textbox restricted from 0 to 120] years old

o Prefer not to say

D2_GENDER

Which gender do you prefer to identify with?

- o Man
- o Woman
- o Gender non-binary/third gender/other
- o Prefer not to say

D3_EDUCATION

- o Elementary or junior high school
- o Some high school
- o Completed high school
- o Some post-secondary (i.e. college or university)
- o Completed college or technical institute
- o Completed Bachelor's degree
- o Completed Master's degree
- o Completed PhD degree
- o Prefer not to say

OPEN_END

Please provide any comments or feedback about this survey here:

[textbox]

[Ethically required debriefing text here]