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THE CONTROLLABILITY OF NEGATIVE LIFE  
EXPERIENCES MEDIATES UNREALISTIC OPTIMISM

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**ABSTRACT.** Two studies examined the impact of negative life experiences on relative risk judgements. In Study 1 ( $n = 80$ ) and Study 2 ( $n = 100$ ), victims were less optimistic about recurrences of problems already experienced than about other types of potential problems, supporting an availability mechanism for unrealistic optimism. In Study 2, controllable negative experiences increased recurrence optimism but uncontrollable negative experiences did not, illustrating the mediating role of perceived control on the relationship between negative life experiences and optimism.

THE CONTROLLABILITY OF NEGATIVE LIFE EXPERIENCES  
AFFECTS UNREALISTIC OPTIMISM

“It won’t happen to me.” Such is the essence of unrealistic optimism (Weinstein, 1980; Weinstein, 1987), also known as the illusion of unique invulnerability (Perloff and Fetzer, 1986; Perloff, 1987). This phenomenon is the tendency of individuals to believe that negative outcomes are less likely to occur to them than to others and the tendency to believe one is more likely than average to experience positive events. Studies of unrealistic optimism often include both types of events (Weinstein, 1980; Perloff and Fetzer, 1986; Weinstein, 1987; Heine and Lehman, 1995). This paper will only address negative events.

The optimistic bias is extremely robust, and not limited by demographics such as age, sex, education, or occupation (Weinstein, 1987). However, there does appear to be a cultural difference, with members of cultures valuing independence, like Canadians, showing more optimistic bias than member of cultures valuing interdependence, like Japanese (Heine and Lehman, 1995). The range of events for which unrealistic optimism occurs is broad in scope, including such domains as achievement, health, interpersonal relationships,

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crime, and automobile accidents (see Perloff, 1987, for a review of representative studies).

Although the optimistic bias is an individual phenomenon, an aggregate measure is necessary to demonstrate that it is operating. This is because, as Weinstein (1980) points out, optimism on an individual basis may not be “unrealistic.” Any one individual may judge themselves as less likely to experience a particular negative event because they have some factor that reduces risk for that event. However, it is unlikely that everyone in a large group would also possess that factor. Therefore, when optimism is expressed by a large number of people, and over a large number of possible outcomes, it suggests that a self-serving bias rather than an accurate appraisal is being made. After all, everyone cannot be better off than the average person.

#### *Explanations for Unrealistic Optimism*

A number of mechanisms have been suggested as determinants of unrealistic optimism. The explanations fall into two general categories: cognitive and motivational.

*Cognitive mechanisms.* Cognitive explanations of unrealistic optimism are based on the assumption that people make systematic information-processing errors when making relative risk assessments. These errors might stem from egocentrism (Weinstein, 1980; Perloff, 1987) or from the use of cognitive heuristics such as “representativeness” and “availability” (Weinstein, 1980).

(i) *Egocentrism.* When making comparative risk judgements, people may be aware of factors that reduce their own vulnerability but fail to recognise that others may have just as many factors in their own favour (Weinstein, 1980; Perloff, 1987). Therefore, making people aware of others’ reasons for feeling relatively invulnerable should decrease their optimistic bias. In support of this idea, Weinstein (1980, Study 2) found that providing such information to participants did decrease optimism. However, he also found that reduction in the bias was only temporary. Further, Regan, Snyder and Kassin (1995) demonstrated that a lack of discrimination information is insufficient to explain the phenomenon; even when the comparison

other is someone about whom a great deal of information is known, such as a close friend, individuals are still optimistic.

(ii) *Representativeness.* The salience of a prototype is strongly correlated with optimism (Weinstein, 1980, Study 1). This finding is suggestive of an operating representatives heuristic (Tversky and Kahneman, 1974). Representativeness is a cognitive short-cut whereby a person judges the probability that an instance fits into a category by examining the degree to which it resembles a prototype of that category, rather than relying on base rates (Tversky and Kahneman, 1974). In making relative risk judgements, the less one judges oneself to be similar to the prototype one holds of the “typical victim,” the more optimistic one should be. The degree to which such optimism is unrealistic depends on the extent to which the “representative victim” is an inappropriate standard.

(iii) *Availability.* The availability heuristic postulates that the easier it is to retrieve instances of an event from memory, the greater is that event’s perceived frequency (Tversky and Kahneman, 1974). If available instances of an event are few, people may judge the event as less likely to occur than is objectively the case. Supportive of an availability explanation is the finding that personal experience with a negative event, which should increase event availability, decreases unrealistic optimism (Higgins and Watson, 1995).

*Motivational mechanisms.* Motivational explanations of optimism are based on the notion that acknowledging the possibility that negative events will occur is anxiety provoking (Janoff-Bulman and Lang-Gunn, 1988). To reduce this anxiety, people use self-deceptive coping strategies such as denial or distortion of the threat’s existence (Weinstein, 1977, cited in Perloff, 1987). Anxiety reduction accounts for the findings that individuals are equally optimistic no matter who is the comparison standard, be it a stranger or a friend (Regan et al., 1995) and that individuals will choose a highly vulnerable comparison target if given the opportunity, a phenomenon called “downward comparison” (Perloff and Fetzer, 1986).

Regan et al. (1995) explored the question of whether optimism reflects person-positivity (the tendency to judge an individual as less vulnerable than an aggregate group) or self-enhancement (to

judge only the self as invulnerable). They found that, not only do individuals believe they are less at risk regardless of whether the comparison other is an individual or an aggregate (Regan et al., 1995), but also that people will extend the optimistic bias to significant others when asked to rate “friend” versus “average other” risk (Regan et al., 1995). These researchers concluded that unrealistic optimism is not an artifact of person-positivity but self-enhancement, and that people extend the optimism privilege to close others because close others are incorporated into an individual’s own self-concept. Therefore, judging them as also at relatively less risk enhances the personal sense of safety. Further support for this idea comes from Perloff and Fetzer (1986, Study 2) who found that the closer one is emotionally to the target being judged, the more one sees the target as invulnerable. Hoorens and Buunk (1993) also report evidence against a person-positivity explanation, finding that unrealistic optimism occurs whether the comparison other is the “average other” or an arbitrary other.

Victim blaming by non-victims is also consistent with an anxiety-reduction explanation of unrealistic optimism. To the extent that individuals do not share the characteristics of the victim, blaming the victim allows for the maintenance of a belief that the negative event in question will not personally occur (Janoff-Bulman and Lang-Gunn, 1988). In addition, the most adaptive coping strategies following victimization appear to be those which maintain unrealistic optimism, allowing victims to maximize feelings of personal control and minimize their sense of vulnerability (Janoff-Bulman, 1989). For example, in victims of rape (Janoff-Bulman and Lang-Gunn, 1988) and breast cancer (Taylor, Lichtman, & Wood, 1984), behavioural self-blame is generally adaptive while characterological self-blame generally is not. This is because behavioural attributions are usually seen as controllable while characterological attributions are not (Janoff-Bulman, 1989). Controllable causes can be changed, meaning the victim can continue to believe they will be able to avoid recurrences.

These examples suggest another possible motivational explanation for unrealistic optimism: need for personal control (Perloff, 1987). People may overestimate their ability to control and prevent negative outcomes, meaning they feel less vulnerable than the average person.

This tendency has been termed the “illusion of control” (Langer, 1975).

*A synthesis of cognitive and motivational mechanisms.* The two categories of mechanisms may not be mutually exclusive but interdependent (Weinstein, 1980; Perloff and Fetzer, 1986; Perloff, 1987). People may be motivated to reduce anxiety and the systematic cognitive errors they make allow them to do it. The finding that interventions only temporarily decrease optimism (Weinstein, 1980, Study 2) suggests that motivational mechanisms are active: although people are capable to making more realistic judgements, when given the opportunity they will make downward comparisons, actively fashioning a prototype which is more at risk than the self (Perloff and Fetzer, 1986).

Unrealistic optimism is not a singular entity with a given size across all situations for the individuals who hold it. It exists in differing degrees across different events and is also subject to alteration. One source of variation in optimism is the nature of the particular event itself. The following three characteristics of events influence the amount of spread between perceived risk for self and perceived risk for other.

#### *Event Characteristics*

Three principle event characteristics are determinants of the amount of optimistic bias elicited by a negative event (Weinstein, 1987). These are experience (or lack thereof) with an event or outcome, perceived preventability of an event, and perceived frequency of an event.

*Experience with an outcome.* Past experience with a negative event appears to decrease optimism (Perloff, 1983; Weinstein, 1987, 1989). While non-victims tend to assume the world is safe and meaningful, victimization challenges these assumptions and the world becomes perceived as more dangerous (Janoff-Bulman, 1989).

Conversely, never having experienced a negative event seems to promote optimism (Weinstein, 1987). This may occur because people believe their past is predictive of their future (Weinstein,

1987). If an outcome has not yet arisen in a person's experience, they may feel "exempt" from it ever occurring.

*Preventability.* It has already been noted that, if a victim perceives a cause of a negative event to be controllable, they are better able to cope with victimization (Janoff-Bulman, 1989). Therefore, it should not be surprising that perceived preventability of an event is associated with increased optimism (Weinstein, 1980; 1987). The more a person believes that their actions will reduce the likelihood of the negative event occurring, the more optimistic they tend to be. That is, a negative event for which the cause is perceived as personally controllable is also perceived as preventable, decreasing feelings of vulnerability.

It is important to note here that preventability must be future-oriented (Anderson and Arnoult, 1985). In the case of coping with victimization, a cause may have been uncontrollable at the time of victimization. However, if the victim believes they can regulate the cause (or eliminate it altogether) in future similar situations, then optimism for that event will be maintained. Second, preventability refers to personal control as opposed to control by someone else. For the remainder of this paper, "controllability" will include the concept of "preventability" (Weiner, 1986), defined as the extent to which a person believes they can personally ensure a cause will not be present in the future.

A high-risk prototype is more likely to exist in an individual's mind when an event is judged as controllable (Weinstein, 1980, Study 1). Therefore, perceived controllability may increase optimism by facilitating downward comparisons. Alternatively, perceived controllability may increase optimism by inducing positive expectancy change (Anderson and Arnoult, 1985; Anderson and Riger, 1991). When a failure is attributed to an uncontrollable cause, the expectation of future success tends to be low (Weiner, 1992). In contrast, if a negative outcome is perceived as controllable in the sense that the cause is unstable (need not be present in the future), a downward expectancy shift will not occur (Weiner, 1992). Future success remains subjectivity highly likely.

*Perceived frequency of an event.* Weinstein (1980, Study 1) demonstrated that perceived probability of an event for the population in

general is positively related to unrealistic optimism for the self. In other words, the more infrequent an event is perceived to be, the more optimistic individuals tend to feel about it (Weinstein, 1980, Study 1). Because perceived frequency is highly correlated with experience (Weinstein, 1987), this relationship suggests that experience, in that it increases availability of instances in memory, leads to increased perceived probability (Tversky and Kahneman, 1974), which in turn decreases optimism. Conversely, lack of experience may lead a person to believe an event is rare, and therefore promotes optimism. In addition, not only does real-world experience with an event increase the perceived likelihood of its occurrence, simply imagining an event has the same effect (Anderson, 1983).

Do individuals feel more vulnerable about recurrences of negative events/outcomes than about unexperienced negative events? If so, does the finding hold if the negative life experiences are perceived as preventable in future? In other words, does perceived controllability interact with experience to mediate optimism? We attempted to answer these questions in the following two studies.

### *Study 1*

In Study 1, we examined the hypothetical negative events/outcomes that are generally available to individuals, likelihood judgements (self, other) about the imagined events/outcomes, and negative life experiences. We had two aims in Study 1. First, we wanted to improve upon the typical method for assessing bias in self-other judgements of risk, which is to give respondents a list of misfortunes and have them estimate their own and some target other's likelihood of experiencing each event. We reasoned that simply asking people (under controlled conditions) to think of the kinds of bad events/outcomes that could happen to them in the future may be an effective method of assessing unrealistic optimism, particularly since salience/availability processes are thought to be central to the bias. Thus, in its simplest form, the biased perception, "it won't happen to me", might affect the bad events/outcomes people are willing to entertain as negative future possibilities. With such a method, a simple examination of the number or perceived severity of "self-generated" misfortunes would allow us to determine whether those with a history of negative life experiences think of more or worse

possible negative events/outcomes than do those without such a history – since, by definition, optimists think “bad things won’t happen to me” and vulnerable people think bad things are relatively likely to happen.

Second, we adapted the hypothesis generated by Perloff (1983), and Weinstein (1989) that personal experience with a negative event/outcome increases one’s perceived vulnerability to future recurrences; that is, that victims would show a smaller optimistic bias (feel more vulnerable about) about those negative events with which they had already had experience.

This yielded two hypotheses: (1) Victims will think of more and/or more severe misfortunes than will non-victims; and (2) Victims will be less optimistic about recurrences than about unrelated negative events.

## METHOD

### *Respondents*

Eighty undergraduate university students (47 women and 3 men, mean age = 22.44 years) from introductory and second year classes volunteered to participate in the study. As there were no effects due to gender in the present study, it will not be discussed further as a variable.

### *Procedure*

In testing sessions of 8 to 10 people per session, respondents had five minutes to generate a list of as many severe negative events as they could imagine that might possibly happen to themselves at some time the future. After listing the negative events/outcomes, respondents estimated the likelihood of each of the listed negative events for themselves and for “the average person of your gender and age at the University” on 7-point scales. The scales were anchored by *not at all likely* (1) to *almost certain to occur* (7). Thus, higher scores represented higher perceived likelihoods. Half of the subjects estimated likelihoods first for themselves then for “average other”, and half estimated first for “average other” and then for themselves.

After the testing session, subjects completed a background information questionnaire which assessed their personal experience with

serious negative events. Respondents were asked if they had ever experienced (1) a serious accident, (2) a serious crime, (3) a serious illness, (4) other serious negative event, and/or (5) whether any member of their immediate family died or had been seriously victimized within the past 5 years. Based on past research (Janoff-Bulman, 1982), we expected that 30%–60% of the student subject sample would have had one or more such experiences.

## RESULTS

### *Respondents' Negative Life Experiences*

Complete data were available for 25 individuals who reported they had previously experienced more than one serious negative life event (multiple-event victims), for 25 individuals who reported they had previously experienced one serious negative life event (single-event victims), and for 28 individuals who reported they had not previously experienced any serious negative life events (non-victims). Two respondents did not finish the questionnaire and their data were excluded from the analyses.

### *Misfortunes Cited*

Respondents generated more than 1000 hypothetical negative events/outcomes, which were then sorted into categories by the researchers. Three trained raters used a consensus rule for the sorting which stipulated that all raters had to agree about the category to which any particular misfortune belonged.

### *Hypothesis 1: Victims Will Think of More and/or More Severe Misfortunes than Will Non-victims*

*Number of misfortunes.* For each respondent we calculated the total number of misfortunes imagined and compared the mean totals of multiple-event victims, single-event victims and non-victims in a one-way (victim status: multiple-event victim, single-event victim, non-victim) analysis of variance (ANOVA). Multiple-event victims (7.60), single-event victims (6.64), and non-victims (6.22) thought of similar numbers of negative possibilities for the future,  $F(2, 74) = 1.86, p = 0.16$ . The trend in the expected direction suggested post-hoc comparisons which revealed that multiple-event victims thought

of more negative events than did the non-victims,  $t(74) = 1.89$ ,  $p = 0.04$ ; but single-event victims did not,  $t(74) < 1$ .

*Severity of misfortunes.* Did victims think of worse negative events/outcomes when imagining future possibilities? A mean perceived severity rating for each of the hypothetical misfortunes was generated in a separate study (using a different subject sample), described elsewhere.<sup>1</sup> The ratings were used in the present study to calculate a mean perceived severity score for each respondent. The mean severity scores were compared in a one-way (victim status: multiple-event victim, single-event victim, non-victim) ANOVA. In this group comparison, multiple-event victims ( $M = 5.31$ ), single-event victims ( $M = 5.31$ ), and non-victims ( $M = 5.33$ ) apparently thought of similarly severe negative possibilities for the future,  $F < 1$ .

However, in addition to severity overall, we also examined the severity of the hypothetical misfortunes that were related and unrelated to victims' negative life experiences. To do this, we first compared the negative life experiences categories with those of the hypothetical misfortunes and found that twenty-two categories of imagined misfortune corresponded to victims' actual experiences. For each respondent in the two victim groups, we calculated a mean severity score for the related or "recurrent" misfortunes and a mean severity score for all other ("unrelated") misfortunes. Victims' (multiple-event and single-event groups combined) severity scores for "recurrences" and unrelated misfortunes were compared using a matched pair t-test. For victims, hypothetical events related to past experience ( $M = 5.79$ ) were more severe than those unrelated to past experience ( $M = 5.18$ ),  $t(38) = 3.81$ ,  $p < 0.001$ .

We also compared victims' mean severity scores for recurrences to non-victims' overall mean severity scores in a one-way (victim status: multiple-event victim, single-event victim, non-victim) ANOVA. The analysis revealed a main effect for victim status,  $F(2, 63) = 4.70$ ,  $p = 0.012$ . Post-hoc analysis indicated that recurrences for victims were more severe than non-victims' misfortunes ( $M = 5.32$ ),  $t$ 's (63) = 2.28 and 2.80,  $p$ 's = 0.02 and 0.006, for multiple-event ( $M = 5.73$ ) and single-event ( $M = 5.92$ ) victims, respectively. A one-way (victim status: multiple-event victim, single-event victim,

non-victim) ANOVA comparing victims' mean severity scores for unrelated misfortunes and non-victims' overall mean severity scores was not statistically significant,  $F(2, 74) = 1.18, p = 0.31$ .

*Hypothesis 2: Victims will be Less Optimistic about Recurrences than about Unrelated Negative Events*

For each respondent, we calculated mean "self" and "other" likelihood scores for the recurrent and unrelated misfortunes identified above. A one-within factor (target: self, other) ANOVA of the likelihood estimates revealed that, in general, respondents viewed their own futures ( $M = 3.27$ ) as significantly less risky than others' ( $M = 3.67$ ),  $F(1, 76) = 41.09, p < 0.001$ , replicating the basic "unrealistic optimism" effect. There were no effects due to target order,  $F$ 's  $< 1$ .

To test Hypothesis 2, we compared mean likelihood scores for "self" and "other" in a 2 (victim status: multiple-event, single-event)  $\times$  2 (misfortune type: recurrence, unrelated)  $\times$  2 (target: self, other) ANOVA with repeated measures on the last two factors. As there was no main effect for victim status and no interactions between victim status and misfortune type or target, victim status was dropped as a variable in the analysis to reclaim the extra degree of freedom. The 2 (misfortune type: recurrence, unrelated)  $\times$  2 (target: self, other) repeated measures ANOVA revealed main effects for misfortune type ( $F(1, 38) = 17.00, p = 0.0002$ ), target ( $F(1, 38) = 24.62, p = 0.0000$ ), and an interaction between misfortune type and target,  $F(1, 38) = 5.49, p = 0.024$ . Post-hoc analyses revealed that victims' self-other likelihood estimates were higher in general for recurrences than for unrelated misfortunes, and that the self-other difference was less for recurrences than for unrelated misfortunes, indicating less optimism (greater vulnerability) about related future misfortunes. This interaction is depicted in Figure 1, and shows that the diminishment of optimism related to negative life experiences may appear in the mean self-other difference scores and in the mean self-other likelihood estimates.

## DISCUSSION

Study 1 indicated that individuals viewed themselves viewed themselves as substantially less likely to be the victims of future negative

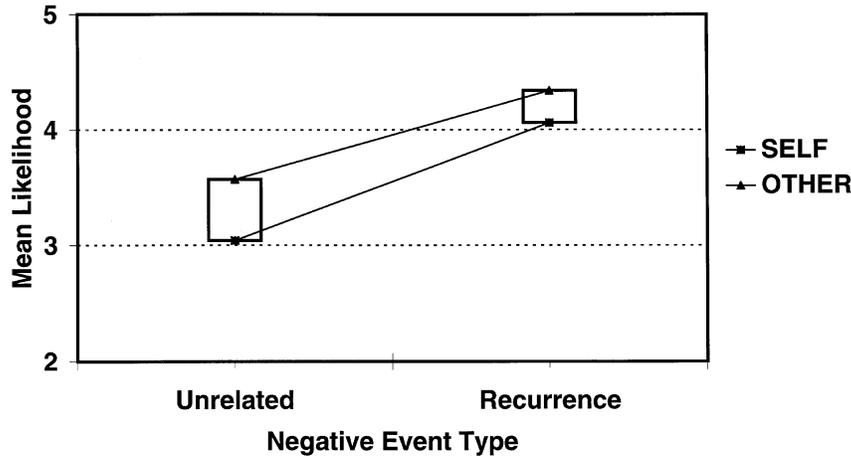


Figure 1. The effect of negative life experiences on optimism for recurrences and unrelated negative events in Study 1.

events than an average other person of their age and gender – a finding that is consistent with a large literature documenting an optimistic bias in perceptions of risk for future harm (e. g., Perloff and Fetzner, 1986; Regan et al., 1995; Weinstein, 1980, 1989).

However, in Study 1, victims were much less optimistic about recurrences than about other possible negative occurrences, indicating the “experience effect” suggested by Perloff (1983) and Weinstein (1989). The victims’ “recurrence pessimism” was apparent both in their overall estimates of vulnerability and in their relative (self-other difference) judgements of vulnerability. In addition, those who had experienced multiple negative life experiences imagined more, and more severe future negative possibilities for themselves than did non-victims. These findings are consistent with Janoff-Bulman’s (1989) research into the long-term impact of victimization on social cognition. People’s assumptions about the world change following experience with serious negative events, and one change is in perceptions of how dangerous the world is in general (Janoff-Bulman, 1989; Lehman et al., 1987). As the present study indicates, another change is in perceptions of how dangerous the world is for self relative to others.

To summarize, in Study 1, real-world experience with an event increased the perceived likelihood of its occurrence. In Study 2, we

attempted to induce this “recurrence pessimism” by having individuals imagine or mentally simulate the occurrence of several negative events (Anderson, 1983), while also manipulating the controllability (preventability) of the simulated negative experiences.

### *Study 2*

We had two aims in Study 2. First, “availability” was tested as a mechanisms of unrealistic optimism. Because victimization should increase availability of related events but should not affect availability of unrelated events, our first prediction was that victims would feel more vulnerable (display less unrealistic optimism) for recurrences than for unrelated events.

Second, we examined the impact of perceived preventability on unrealistic optimism. If experience with a negative event decreases optimism and perceived controllability of a negative event increases it, then it follows that victims of uncontrollable negative events would feel most vulnerable and least optimistic, but the perceived vulnerability and optimism of victims of controllable events would not appreciably change. In effect, perceived controllability should “cancel out” the effects of experience.

## METHOD

### *Respondents*

One hundred undergraduate university students (68 women and 32 men, mean age = 22.7 years) from introductory classes volunteered to participate in the study. The student respondents were semi-randomly divided into five groups: four experimental and one baseline, with efforts made to ensure heterogeneity in terms of gender for each group. As there were no effects due to gender in the study, it will not be mentioned further.

### *Materials*

*Negative Life Experiences Questionnaire.* In a Negative Life Experiences Questionnaire (NLEQ), respondents were presented with three negative events from either a health domain or an achievement domain and asked to vividly imagine that these events had happened to them. The health events were modified from research by

Perloff and Fetzer (1986), Weinstein (1980), and Higgins and Watson (1995). The achievement events were taken verbatim from the Attributional Style Questionnaire (Peterson et al., 1982). For each event, either a controllable or an uncontrollable cause was provided.

Group 1 imagined controllable health events, Group 2 uncontrollable health events, Group 3 controllable achievement events, and Group 4 uncontrollable achievement events. After imagining each hypothetical negative event, respondents were asked to (1) indicate their responsibility for the event, (2) rate the controllability of the cause, and (3) indicate their affective and behavioral reactions to the event.

*List of misfortunes.* The baseline group (Group 5) did not complete the NLEQ but read a list of misfortunes consisting of 9 negative events: 3 health, 3 achievement, and 3 unrelated. The health and achievement events were the same items as those in the NLEQ. The unrelated events were drawn from Perloff and Fetzer (1986) and Weinstein (1980). Unlike the experimental groups, the baseline group were not asked to imagine the events as having occurred to them. Additional time equivalent to that required to complete the NLEQ was spent completing two unrelated word tasks (finding hidden words in a matrix of letters).

*Risk Assessment Questionnaire.* The Risk Assessment Questionnaire (RAQ) provided respondents with a list of 9 negative events (3 health, 3 achievement, and 3 other unrelated) and asked them to estimate the likelihood that each event will occur sometime in the future to themselves and to “the average student of your age and gender at UNBC” on 7-point Likert-type scales. The scales were anchored with *not at all likely* (1) and *almost certain to occur* (7). Higher scores indicated higher perceived likelihoods (greater perceived vulnerability). The 3 health events and the 3 achievement events were the same events as those on the NLEQ.

### *Procedure*

Participants were tested in classroom groups ranging in size from 1 to 10, one condition at a time. For each section, written instructions were provided and orally repeated by the tester to ensure clarity.

The pages of the questionnaires were then presented one at a time, with completed pages being collected before the next page was given. Participants in the experimental groups each completed a form of the Negative Life Experiences Questionnaire, while baseline participants completed the two filler tasks and then read the list of negative events. This meant that all participants received three pages and were occupied for an equivalent amount of time.

Participants in all groups then completed a Risk Assessment Questionnaire, with the tester emphasizing that participants were to rate future risk and not to report past occurrences. To control for order effects, target was counterbalanced, with half of the participants in each group rating "self" risk first and half rating "other" risk first. Testing was untimed and the entire procedure took approximately 15 minutes.

#### *Design and Analysis*

The study used a mixed  $2 \times 2 \times 2$  design, with controllability (high or low) as a between-subjects factor and event type (recurrence or unrelated) and target (self or other) as within-subjects factors. Health and achievement victims' responses were examined separately.

#### *Dependent Variables*

(i) *Vulnerability.* Vulnerability was operationalized as perceived likelihood scores for self and for other on the RAQ. Higher scores indicated greater perceived vulnerability for an event. In each group, mean vulnerability scores were calculated for "self" and for "other," separately for recurrences and unrelated events.

(ii) *Optimism.* In the present design, optimism would be indicated by a significant effect for target (self vs. other), such that scores for other were significantly higher than those for self. Where optimism scores are reported, they were calculated by subtracting "self" vulnerability from other vulnerability. A positive score thus indicated optimism (self risk was less than other risk).

(iii) *Perceived control score.* For each participant, a perceived control score was calculated for each imagined event by averaging responses on the three personal control questions on the NLEQ.

TABLE I  
Perceived causal controllability of Negative Life Experiences Questionnaire (NLEQ) events in high and low controllability conditions

Event	Controllability group				Mean difference	<i>t</i> -test result*
	High		Low			
	Mean	SD	Mean	SD		
Health #1	6.10	0.73	1.78	1.06	4.32	15.01
Health #2	6.18	0.81	2.17	1.45	4.20	10.86
Health #3	6.32	0.75	2.22	1.50	4.10	10.93
Achievement #1	6.33	0.96	2.68	1.25	3.65	10.40
Achievement #2	6.63	0.47	1.93	0.84	4.70	21.94
Achievement #3	6.42	0.61	4.52	1.40	1.90	5.55

\* For all tests,  $df = 38$ , and all differences are significant at the  $p < 0.001$  level.

This score was used to determine the validity of the controllability manipulation.

## RESULTS

### *Controllability Manipulation*

To ensure that participants were actually perceiving controllable causes as more controllable, a perceived control score was calculated for each of the events (3 health and 3 achievement) in the two controllability conditions. For each event, means for the low controllability and high controllability groups were compared using an independent-samples *t*-test. For all events, the mean perceived controllability was higher in the controllable condition than in the uncontrollable condition and all mean differences were statistically significant (see Table I). We concluded that the controllability manipulation was successful.

### *Target Effects*

Significant optimism was expressed for all nine RAQ events ( $F(1, 95) = 89.40$ ,  $p < 0.0001$ ). The mean vulnerability and optimism scores for each event are listed in Table II. There were no effects due to target order.

TABLE II  
 Mean perceived likelihoods for self and other and mean  
 optimism scores for each item on the Risk Assessment Questionnaire (RAQ)

Description of misfortune*	Self risk		Other risk		Optimism	<i>t</i> -test result
	Mean	SD	Mean	SD		
1. Getting sued (unr)	2.67	1.49	3.61	1.52	0.94	$t(99) = 5.99, p < 0.001$
2. Breaking leg (h)	3.07	1.27	4.05	1.70	0.98	$t(99) = 6.60, p < 0.001$
3. Heart attack (h)	3.24	1.45	3.97	1.77	0.70	$t(98) = 3.54, p < 0.002$
4. Unable to finish work (a)	4.78	1.87	5.57	1.34	0.79	$t(99) = 5.03, p > 0.001$
5. Car is stolen (unr)	3.68	1.59	4.31	1.56	0.63	$t(99) = 4.25, p > 0.001$
6. Skin cancer (h)	3.34	1.53	3.75	1.46	0.41	$t(99) = 2.32, p < 0.05$
7. Negative reaction to talk (a)	4.25	1.65	4.75	1.54	0.42	$t(99) = 2.72, p < 0.01$
8. Unsuccessful job search (a)	4.57	1.84	5.75	1.28	1.18	$t(99) = 6.93, p < 0.001$
9. Divorce (unr)	2.66	1.55	4.53	1.53	1.87	$t(99) = 9.53, p < 0.001$

\* Health events are indicated by (h), achievement events by (a), and unrelated events by (unr).

A perusal of Table II reveals that the three achievement events were considered highly likely for both self and other targets, ranked as the three most likely out of all nine events. The greatest optimism was for divorce (Mean other-self difference = 1.87,  $t(99) = 9.53$ ,  $p < 0.001$ ), which was ranked as the least likely event for self but fourth most likely for other. People felt least optimistic about skin cancer (Mean other-self difference = 0.41,  $t(99) = 2.32$ ,  $p < 0.05$ ). The three health events together gave a mean optimism score of 0.67, the achievement events a mean of 0.77, and the unrelated events a mean of 1.12. There was no statistical difference between health and achievement optimism ( $t(98) = 0.68$ ,  $p = 0.005$ ) but there was a difference between health and unrelated optimism ( $t(98) = -4.17$ ,  $p < 0.001$ ) and between achievement and unrelated optimism ( $t(99) = -2.77$ ,  $p < 0.01$ ). The discrepancy in size between the means for domain-specific events and the unrelated-events mean gives the first indication of a group membership influence.

#### *Victimization Effects*

Mean self and other vulnerability scores for the health and achievement groups were entered separately into a 2 (misfortune-type: related, unrelated)  $\times$  2 (target: self, other) repeated measures ANOVA. As shown in Figure 2, in the domain of health problems, victims were significantly less optimistic about recurrences ( $M = 0.73$ ) than they were about unrelated ( $M = 1.28$ ) negative events,  $F(1, 39) = 10.58$ ,  $p = 0.002$ . In the achievement problems domain, while mean optimism for achievement recurrences ( $M = 0.76$ ) and unrelated negative events ( $M = 0.91$ ) was in the expected direction (see Figure 3), the difference was not statistically significant,  $t < 1$ . However, the achievement victims viewed unrelated negative events ( $M = 3.35$ ) as significantly less likely than recurrences ( $M = 5.05$ ),  $F(1, 39) = 90.44$ ,  $p < 0.0001$ . This finding is consistent with Study 1, in which it was shown that recurrence pessimism may be evident in the likelihood judgements as well as the self-other likelihood difference scores.

#### *Causal Controllability*

In the health problems domain, there was no significant difference in optimism between the victim groups (controllable, uncontrollable) for unrelated events ( $t(38) = 0.21$ ,  $p = 0.84$ ), or for recurrences ( $t(38)$

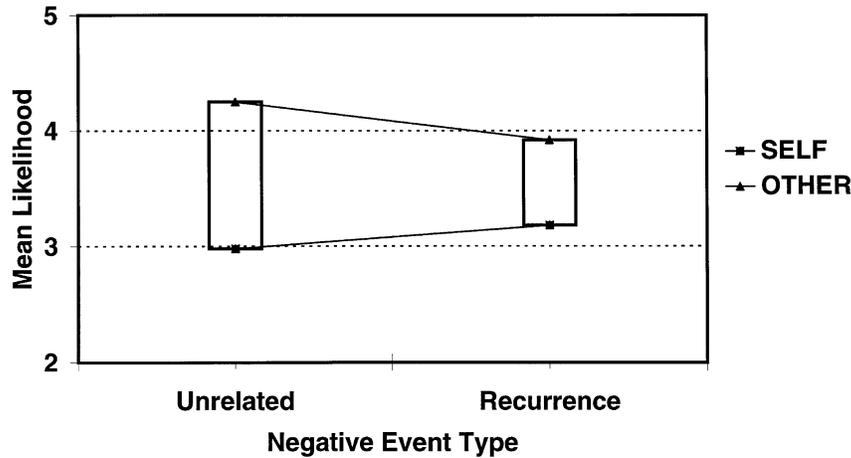


Figure 2. The effect of simulated negative health experiences on optimism for recurrences and unrelated negative events in Study 2.

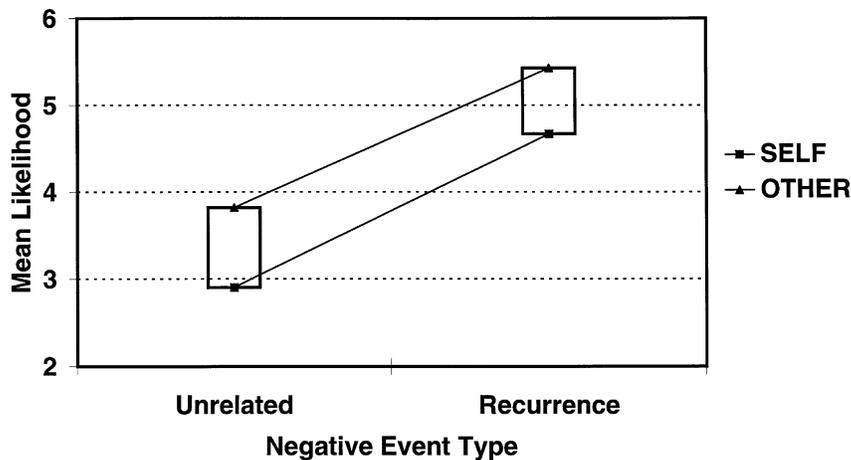


Figure 3. The effect of simulated negative achievement experiences on optimism for recurrences and unrelated negative events in Study 2.

= 1.33,  $p = 0.40$ ). There was also no difference in optimism for unrelated and recurrent events in victims who experienced controllable health problems ( $t(19) = 1.74$ ,  $p = 0.10$ ). However, as shown in Figure 4, victims who experienced uncontrollable health problems showed significantly less optimism for recurrences ( $M = 0.47$ ) than for unrelated events ( $M = 1.23$ ), ( $t(19) = 2.79$ ,  $p < 0.02$ ).

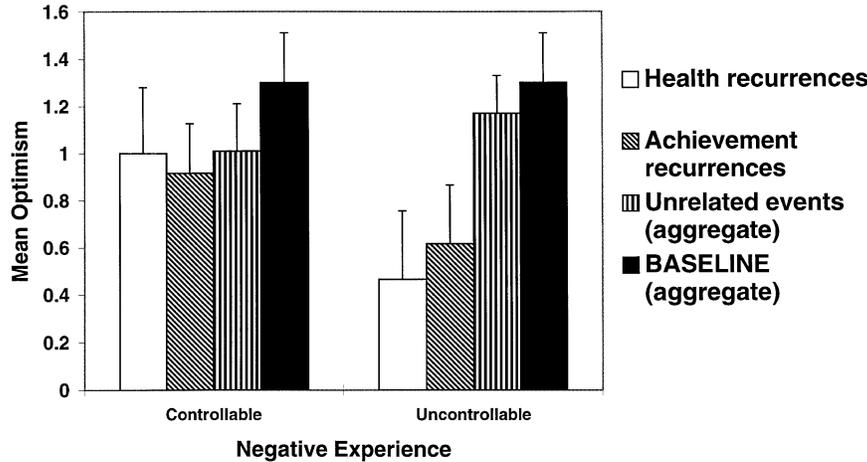


Figure 4. The impact of simulated victimization and causal controllability on optimism for recurrences and unrelated negative events. Bars represent mean optimism scores (+SE), separated by victimization domain for recurrences and aggregated over health and achievement groups for unrelated events. Baseline optimism (baseline group's mean optimism for the negative events) is presented for comparison.

Analysis of optimism for achievement problems indicated that there was no significant difference in optimism between the victim groups (controllable, uncontrollable) for unrelated events ( $t(38) = 1.21, p = 0.23$ ), or for recurrences ( $t(38) = 0.90, p = 0.37$ ). Victims who experienced controllable achievement problems showed no significant difference in optimism for unrelated events ( $M = 0.72$ ) compared to recurrences ( $M = 0.92$ ), ( $t(29) = -0.59, p = 0.56$ ). In contrast, victims who experienced uncontrollable achievement problems (see Figure 4) showed a trend to less optimism for recurrences ( $M = 0.62$ ) than for unrelated events ( $M = 1.12$ ), but the difference was not significant ( $t(19) = 1.91, p = 0.07$ ).

## DISCUSSION

In Studies 1 and 2, experience with negative events decreased optimism about recurrences but had no carry-over effect to events unrelated to the domain of victimization. This is consistent with an availability mechanism in that experience would not be expected to influence the availability of unrelated events. It also weakens

anxiety-reduction arguments because, as Burger and Palmer (1992) point out, experience should increase the need for anxiety reduction and therefore cause increases in optimism.

However, recurrence pessimism only occurred when the causes of the experienced events were uncontrollable. In contrast, when the causes were controllable, optimism about experienced events remained high. In other words, while the effect of negative experience appears to be a function of availability, that effect is mediated by the degree to which the victim feels they can control the causes of those events/experiences. Health victims' optimism for recurrences was maintained at the unrelated-event level when they experienced controllable negative events. However, uncontrollability of those same events decreased optimism. Achievement victims did not show as strong a pattern but the trend for low controllability victims is supportive of the hypothesis.

The finding that optimism reduction is domain-specific is consistent with research on the effects of real-life (as opposed to simulated) victimization. For example, Burger and Palmer (1992) found that low levels of optimism about earthquakes following a California quake was not found for events, such as suffering a heart attack, developing a drinking problem, or being mugged. According to these researchers, the quake made vulnerability information more salient and accessible by focusing people's attention on earthquake-relevant material. However, changes in optimism did not generalise to other domains. The maintenance of an optimistic bias for unrelated problems is also found in individuals experiencing minor health problems, where only health related optimism is compromised (Kulik and Mahler, 1987).

The effects of the causal controllability manipulation are also consistent with past research. Unrealistic optimism for health risks has been shown to be positively related to generalised expectations (internal locus) of control (Hoorens and Buunk, 1993). A possible explanation has been that individuals with an internal locus of control undertake more health-protective behaviours (Hoorens and Buunk, 1993). However, this study shows that perceived causal controllability can exert an effect independently of attributional style and actual frequency of preventative behaviours.

The present findings demonstrate the importance of examining both the mean self-other likelihood judgements and the self-other difference scores. In Study 2, optimism scores did not yield significant results in the achievement domain. However, results using overall vulnerability scores did. The implication is that, if we had chosen to analyse only optimism scores, we would have incorrectly concluded that experience had no effect in the achievement domain. The dual analyses, however, indicate that there was indeed an effect, manifested in the form of elevated vulnerability scores for “self” as well as for “other.”

In addition, the present findings demonstrate the potential utility of event simulation as a technique for influencing self-protective behaviour by altering risk perceptions. As Anderson (1983) reports, imagination of an event increases the perceived likelihood of its occurrence. The event seems more true following simulation because the exercise helps to establish norms and makes expectations of event occurrence explicit (Taylor and Schneider, 1989). In addition, thinking about a threat causes emotional arousal (Easterling and Leventhal, 1989; Taylor and Schneider, 1989), which may be a key in stimulating preventive behaviour (Easterling and Leventhal, 1989).

However, what kind of simulation would be most effective in inducing self-protective behaviour? Specifically, what causal type should be introduced? When controllability is part of the imagined negative experience, optimism is maintained, presumably because the individual is soothed by the knowledge that they can prevent a recurrence. On the other hand, in light of the finding that higher optimism is related to decreases in preventative behaviour, for example, less contraceptive use (Burger and Burns, 1988), what effect would imagination of a controllable event have on behaviour? Would preventative behaviour increase in response to changes in the person’s “assumptive world” (Janoff-Bulman, 1989), or decrease because optimism remains high? Clearly this is an important question for study.

On the other end of the controllability spectrum, what effect does experience with uncontrollable negative events have on protective behaviour? We have demonstrated that it reduces optimism. However, if events are seen as not subject to efforts to change them, might the victim adopt a “why bother” attitude? Again, preventa-

tive behaviour could decrease. Therefore, while event simulation is potentially a powerful tool in encouraging self-protective behaviour, the qualitative requirements and constructive consequences of effective simulation need to be explored.

Finally, maintenance of the experiential effect needs to be addressed. Although unrealistic optimism decreases following negative experience, it quickly reinstates itself (Burger and Palmer, 1992) and any increases in self-protective behaviour following victimization tend to be short-lived (Weinstein, 1989). Perhaps simulations can be used as “booster shots” to keep availability high and remind people that they can and should be maintaining self-protective behaviours. The error in assuming that, because an event has not happened (or, in the case of a victim, an event has not happened recently) it is not going to happen in the future (Weinstein, 1987) needs to be challenged on a continual basis. Otherwise, unrealistic optimism may continue to be a factor discouraging precautionary behaviour, which in turn elevates real risk of misfortune.

#### AUTHOR NOTE

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#### NOTE

<sup>1</sup> Higgins, N. C. Self-other consistency in perceived severity of negative life experiences. Unpublished manuscript, University of Northern British Columbia.

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