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# Perceptions of Risk and the Buffering Hypothesis: The Role of Just World Beliefs and Right-Wing Authoritarianism

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*Although perceptions of risk have been studied extensively by both social and cognitive psychologists, relatively little work has focused on individual differences in these perceptions. Across two studies, the authors examined the relationship of perceived risk to just world beliefs (BJW) and right-wing authoritarianism (RWA). Both studies showed that these two variables have interactive effects on perceived risk across a wide variety of different types of threats (e.g., getting hijacked, contracting AIDS). Among high authoritarians, participants felt much less at risk if they believed in a just world than if they did not. Among low authoritarians, however, BJW and perceived risk were unrelated. Results are conceptualized in terms of a buffering hypothesis, which suggests that the extent to which self-protective variables (such as BJW) mediate risk are most pronounced among persons who view the world in threatening terms (i.e., high authoritarians). Implication of these findings for previous models of risk and personality development are discussed.*

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**P**erception of risk represents a critical component of human cognition and behavior. On a daily basis, people often face the prospect of many different types of personal threats, ranging from relatively mild risks (e.g., losing one's wallet) to the most serious natural or technological disasters. The extent to which people see these events as likely or unlikely to occur has many important implications. For example, many everyday behaviors (e.g., decisions on how fast to drive one's car) depend on the implicit or explicit assessment of the probability that certain events (e.g., getting in a car accident) will happen. Given the ubiquitous role of risk perception in social thought and behavior, psychologists have, not surprisingly, devoted a great deal of effort to understand the

processes underlying these perceptions (e.g., Bauman & Siegel, 1987; Perloff & Fetzer, 1986; Plous, 1989; Taylor & Brown, 1988; van der Velde, van der Pligt, & Hooijkaas, 1992; Weinstein, 1980, 1984).

Much of the work in this area has been nomothetic, that is, has examined how most people, on the average, form perceptions of risk. (For some notable exceptions, see Dolcini, Cohn, Adler, & Millstein, 1989; Scheier & Carver, 1987.) For example, the nomothetic approach characterizes much of the work by researchers who have studied risk from the vantage point of prospect theory or other models of probability assessment (e.g., Johnson & Tversky, 1983; Kahneman, Slovic, & Tversky, 1982; Linville, Fischer, & Fischhoff, 1993; Slovic, 1987; Slovic, Fischhoff, & Lichtenstein, 1982). Although this approach has yielded many important insights, it does not address the possibility that there might be relatively stable, individual differences in perceptions of vulnerability. For example, most of us know (or have heard about) people who live in constant fear that something bad might happen to them or, alternatively, people who believe that they are relatively invulnerable to these risks. To the extent that these stable differences exist, it

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becomes important to understand (a) which psychological variables allow researchers to predict which people do, or do not, feel vulnerable and (b) the psychological processes that underlie these differences across individuals.

In this article, we examined two personality variables that, on a priori grounds, seemed likely to mediate perceptions of risk, namely, (a) just world beliefs (BJW) (Lerner, 1980) and (b) right-wing authoritarianism (RWA) (Altemeyer, 1988). Why did we focus on these particular personality constructs? As we discuss in the next section, consideration of the theoretical tenets of models of BJW and RWA suggested that both constructs could play vital roles in the perceptions of risk. Nevertheless, despite the plausible theoretical links between perceived risk and these constructs, we could find very little work that has examined these issues empirically. A major goal of our work, therefore, has been to address this gap and, in so doing, gain greater insight into the role of BJW and RWA in perceptions of risk.

#### THEORETICAL BACKGROUND

In this section, we briefly review research and theory on BJW and RWA. For each construct, we consider (a) its basic theoretical tenets, (b) the ways that individual differences in the construct have been measured, and (c) its possible relation to perceptions of risk. After considering these two constructs separately, we then discuss how these two variables might act in combination with each other to influence these perceptions.

#### *BJW*

##### *BASIC TENETS*

Lerner (1965) originally proposed the just world hypothesis as a way of explaining why people might blame victims by inferring that the victim must have done something to deserve his or her fate. A core assumption of this theory is that "individuals have a need to believe that they live in a world where people generally get what they deserve" (Lerner & Miller, 1978, p. 1030). Thus, when hearing about the misfortunes of others, people may be motivated to derogate the victim to restore their sense of justice. For our purposes, it is useful to think of BJW as a personal belief system, or cognitive style, that reflects an investment in the idea that good things happen to good people but bad things happen to bad people. To the extent that people generally think of themselves as good people, BJW can act as a kind of psychological buffer that protects the self from potential threats in one's environment. Indeed, the notion that BJW serves as a psychological buffer from perceived harm is perhaps the most important tenet of the original

theory of just world beliefs (cf. Lerner, 1965, 1980). This view is supported by several empirical investigations in the literature (e.g., Bulman & Wortman, 1977; Hafer & Olson, 1993; Tomaka & Blascovich, 1994), although none of these previous investigations focused specifically on perceptions of risk. (We shall discuss the relation of the present data to previous investigations of just world beliefs after the results from the present studies have been reported.)

##### *INDIVIDUAL DIFFERENCE MEASURES*

The first instrument designed to measure individual differences in BJW was developed by Rubin and Peplau (1975). Although this scale has been used with some success to predict the extent to which people blame victims for their own misfortunes (e.g., Rubin & Peplau, 1975; Zukerman, Gerbasi, Kravitz, & Wheeler, 1975), it has been criticized on both theoretical as well as psychometric grounds (for a review, see Furnham & Procter, 1989). To address these and other concerns, several researchers (e.g., Dalbert & Yamauchi, 1994; Lipkus, Dalbert, & Siegler, 1996) have recently proposed newer instruments that attempt to address many of the conceptual and psychometric shortcomings of the older Rubin and Peplau (1975) scale.

##### *RELATION BETWEEN BJW AND PERCEPTIONS OF RISK*

If it is true that BJW acts as a psychological buffer against threats in the environment, then a straightforward extension of the just world hypothesis is that persons who are high in BJW should perceive lower levels of risk than persons who are low in BJW. Somewhat surprisingly, however, we were unable to find any research that has directly examined this hypothesis. Thus, the link between BJW and perceived risk remains an open empirical question.

#### *RWA*

##### *BASIC TENETS*

The construct of authoritarianism was developed as part of a larger effort to understand why certain individuals might be more prejudiced than others. Although the construct of authoritarianism dates back at least to the mid-1930s (e.g., Edwards, 1941; Stagner, 1936), the most well-known exploration of this construct was reported by Adorno, Frenkel-Brunswick, Levinson, and Sanford (1950) in their classic book *The Authoritarian Personality*. According to Adorno et al. (1950), authoritarians are characterized by an overall rigidity of thought and moral development and tend to be highly punitive toward people whose behaviors deviate from conventional standards of behavior.

##### *INDIVIDUAL DIFFERENCE MEASURES*

Although criticisms of Adorno et al.'s (1950) original F (Fascist) scale emerged almost immediately after it appeared (e.g., Christie & Jahoda, 1954; Shils, 1954), Altemeyer's (1988) balanced 30-item RWA scale appears to have corrected many of the problems that plagued the original Adorno et al. (1950) scale and is regarded as "the best current measure of the essence of what the authors of *The Authoritarian Personality* were attempting to measure" (Christie, 1991, p. 552). A growing body of research attests to the usefulness of the RWA scale in predicting a variety of social attitudes and behaviors (e.g., Peterson, Doty, & Winter, 1993; Skitka & Tetlock, 1992). (For an extensive review of the psychometric properties and predictive validity of the RWA scale, see Altemeyer, 1988).

#### RELATION BETWEEN RWA AND PERCEIVED RISK

Historically, the main interest in authoritarianism has been in its proposed relation to people's reactions toward stigmatized groups. At first glance, therefore, there would appear to be little relation between authoritarianism and perceived risk. Nevertheless, there are theoretical and empirical reasons to believe that high authoritarians generally perceive the world as a more dangerous, risky place than low authoritarians. Much of the empirical work bearing on this issue has been reported by Altemeyer (1988), who reports several studies showing a positive relation between scores on the RWA scale and perceived risk. For example, in one large-scale study ( $N = 519$ ), individual differences in RWA were found to be significantly correlated ( $r = .44$ ) with a battery of items designed to tap participants' perceptions of their world as a dangerous, threatening place (e.g., "Every day, as our society becomes more lawless and bestial, a person's chances of being robbed, assaulted, and even murdered go up and up"). Altemeyer (1988) reports several other studies (most with  $Ns > 500$ ) showing very similar effects. In light of these findings, Altemeyer concluded that, overall, "High [authoritarians] perceive the world as a significantly more dangerous place than others do" (Altemeyer, 1988, p. 147).

Naturally, this begs the question of why authoritarians might view the world in such threatening terms in the first place. Although we are not aware of any developmental studies to address this point directly, Altemeyer (1988) has argued that authoritarianism may arise, in part, in response to parental warnings that the world is a dangerous place and that strict laws and codes are needed to keep these malevolent forces at bay. As Altemeyer notes, these fears appear to be quite general, such that authoritarians perceive greater risk not only from deviant groups (e.g., homosexuals) but from other sources of risk as well (e.g., automobile crashes). The

notion that authoritarians view the world in threatening/fearful terms is also described in the writings of Adorno et al. (1950), although these authors tended to frame these issues in more psychodynamic terms (e.g., the projection of unacceptable id impulses) than does Altemeyer (1988). Setting aside these differences in theoretical assumptions (which are not of central concern here), the general picture emerging from the writings of both Altemeyer and Adorno et al. is that people who are high in authoritarianism should, on average, view the world as a more threatening place than people who are low in authoritarianism.

One potential weakness of Altemeyer's (1988) work, however, is that several of the items in the RWA scale itself (e.g., "Once our government leaders and authorities condemn the dangerous items in our society, it will be the duty of every patriotic citizen to help stomp out the rot that is poisoning our country from within") do not seem appreciably different from many of the items used to measure perceived threat (e.g., "There are many dangerous people in our society who will attack someone out of pure meanness, for no reason at all"). Although this point does not invalidate the proposed link between RWA and perceived risk, it does suggest that a more viable test of this notion should rely on measures of perceived risk that are less obviously related to the RWA scale itself. For example, a more convincing test of the authoritarianism-risk hypothesis would be to measure individual differences in RWA and then (preferably in a different setting at a later time) to measure perceived risk by simply asking participants to indicate the probability that certain negative events will occur.

#### *The Buffering Hypothesis*

The theoretical considerations raised above led us to hypothesize that individual differences in BJW and RWA might have interactive, rather than independent, effects on perceived risk. In considering this possibility, it is worth noting that one construct (RWA) is theoretically linked to general perceptions of the world as a threatening place (external threat component) and the other variable (BJW) is linked to whether people consider themselves to be at risk of experiencing these negative events (buffering component). A moment's reflection suggests that BJW should play a greater role in mediating personal vulnerability precisely when these threats are chronically high, that is, for high authoritarians. On the other hand, if the world is viewed in relatively safe terms (a state of affairs that should be true for low authoritarians), it could be the case that the presence or absence of a personal buffer—and, hence, one's level of BJW—would not play such a critical role in this case.

In this article, we refer to this possibility as the buffering hypothesis. We have borrowed this term from the

social support literature, which, although obviously involving issues different from those raised here, provides a useful conceptual framework for our research. Briefly, social support researchers (e.g., Cohen & Wills, 1985) have suggested that the presence versus the absence of a healthy social support system should make a difference in people's well-being only under periods of high personal stress. Under these conditions, people's well-being should be much more favorable if they have good social support than if they do not. On the other hand, under low periods of stress, the presence versus the absence of such support should make little difference. As Stroebe and Stroebe (1995) have recently noted, this premise is captured nicely by the following inoculation metaphor:

As a difference in the health of individuals who are or are not inoculated should emerge only when they are exposed to the infectious agent, the projective function of social support is effective only when the person encounters a strong stressor. Under low stress conditions, no differences would be expected in the health and well being of groups enjoying differential levels of social support. (Stroebe & Stroebe, 1995, p. 224).

We see this inoculation metaphor as equally applicable to the risk perception area. In particular, a central prediction of this article is that the buffering effects of BJW should be most pronounced under high stress conditions, that is, among high authoritarians. That is, to the extent that being high in authoritarianism is typically associated with the view of the world in dangerous terms, perceived risk should be lower if one possesses a personal buffer (i.e., is high in BJW) than if one does not (i.e., is low in BJW). On the other hand, to the extent that one does not view the world in potentially threatening terms (theoretically true of low authoritarians), the presence or absence of a personal buffer should make less of a difference.

Empirically, the extent to which BJW and RWA have these interactive effects on perceived risk should be manifested in the pattern of correlations that emerge between BJW and perceived risk across individuals who are high versus low in authoritarianism. According to the buffering hypothesis, this relation should be much stronger among high authoritarians as compared to low authoritarians. This pattern should also be reflected by the emergence of  $RWA \times BJW$  interactions in regression analyses as opposed to main effects.

#### *Psychometric Properties of the Just World Scale*

In light of the considerable difficulties encountered with the Rubin and Peplau (1975) scale (cf. Furnham & Procter, 1989), we elected to use a recent version of the scale derived from recent work by Dalbert and her col-

leagues (e.g., Dalbert & Yamauchi, 1994; Lipkus et al., 1996). This version of the Dalbert scale is an 18-item measure that asks participants to express their agreement or disagreement with each statement (e.g., "Overall, events in my life are just") along a scale ranging from 6 (*strongly agree*) to 1 (*strongly disagree*). (The full set of 18 items is listed in the appendix.) For the combined sample of the 131 participants who participated in Studies 1 and 2, the internal reliability of the scale was excellent ( $\alpha = .89$ ), which is higher than the reliabilities that have typically been reported for the older Rubin and Peplau (1975) instrument (typically in the .50 to .70 range); these reliabilities were consistent across the two studies reported in this article. For the combined sample, the scale was correlated at .20 ( $p < .01$ ) with Altemeyer's (RWA) scale, which is consistent with previous research (using the Rubin and Peplau scale) showing a relation between BJW and conservatism. Study 2 (which measured both the Rubin and Peplau as well as the Dalbert scale) showed that the two versions of the scale were moderately correlated ( $r = .58$ ).

Unlike the Rubin and Peplau scale, this version of the Dalbert scale attempts to distinguish between just world beliefs as they apply to the self versus more general beliefs about justice. In fact, when the 18 items were submitted to principal components analyses (with varimax rotation) using the combined sample across the 2 studies, the first two factors (which accounted for 39% and 11% of the variance, respectively) clearly represented justice beliefs because they mostly applied to the self (first factor) as well as generalized beliefs about justice (second factor). However, because several of the items loaded on both factors, we felt that the pattern of factor loadings was not sufficiently clear-cut enough to justify the formation of two separate subcomponents of justice, especially in light of the high internal reliability of the full set of 18 items. Hence, for all of the analyses to be reported in this article, participants' scores on the BJW scale were based on an average of all 18 items.<sup>1</sup>

#### OVERVIEW OF METHODOLOGY

For both of the studies reported in this article, participants completed the experiment in two stages. In the first stage, individual differences in BJW and RWA were assessed as part of a mass-testing questionnaire distributed to students on the 1st day of class. Approximately 2 months later, students were brought back into the laboratory and, as part of an ostensibly unrelated Perception of Risk study, were provided with a list of 34 different risks ranging from relatively minor, common events (e.g., catching cold) to extremely life-threatening events (dying in a car crash, contracting cancer). As we note in more detail below, participants were asked not only to provide estimates of risk for the self but also for a "similar

generalized other," namely, a person of the same age and gender as the participant who was chosen at random from the U.S. population. On one hand, research and theory from the person perception literature suggests that in the absence of diagnostic information about others, perceivers often assume that other people have the same attributes and experience similar outcomes as the self (e.g., Lambert & Wedell, 1991; Marks & Miller, 1987; Ross, Greene, & House, 1977). This literature suggests, therefore, that there might be a similarity between the overall pattern of risk perceptions for the self and for such generalized others. On the other hand, other research has also shown that people typically perceive the self in more optimistic terms compared to others (Perloff & Fetzer, 1986; Weinstein, 1980), which suggests that the mean levels of risk might be lower for the self than for others. Thus, these two bodies of literature (assumed similarity effects, optimistic bias) offer somewhat different implications for the similarity of self versus other risk assessment. The present data were expected to yield insights into these and other related issues.

#### STUDY 1

Study 1 was designed as an exploratory study that was expected to be helpful in providing a preliminary test of the viability of our framework. As will be seen below, the results from this study generated promising support for our conceptualization, which we replicated and extended in Study 2 using a much larger sample size than was employed in Study 1. It should be noted that the methodology and data analytic technique (including the manner in which relevant composites were constructed) employed in Study 1 was virtually identical to that employed in Study 2. Aspects of the two studies that differed will be noted in the context in which such differences become relevant.

#### Method

##### SAMPLE

A total of 38 Washington University undergraduates, approximately equally divided by gender, received course credit in return for their participation. None of the effects to be reported below were significantly contingent on gender, and thus, the results to be reported are collapsed over this factor.

##### PERSONALITY MEASUREMENT PHASE

On the 1st day of class, participants were asked to complete a large packet of personality questionnaires, the majority of which were unrelated to present concerns. Individual differences in authoritarianism were measured using Altemeyer's (1988) RWA scale, which consists of 30 statements (e.g., "The way things are going

in this country, it's going to take a lot of 'strong medicine' to straighten out the trouble makers, criminals, and perverts") that participants are asked to rate on a scale from  $-4$  (*very strongly disagree*) to  $+4$  (*very strongly agree*). Later in the packet, participants completed the measure of BJW, which presents participants with a series of statements (e.g., "I usually get what I deserve") and asks them to indicate their relative agreement or disagreement with it along a scale from 1 (*strongly disagree*) to 6 (*strongly agree*). Scores on RWA and BJW were formed after obtaining an average of the respective items on both scales. Analyses revealed good internal reliability for both the RWA scale ( $\alpha = .82$ ) and the BJW scale (.89). The two scales were positively correlated with one another, although the magnitude of this correlation was trivial ( $r = .08$ ). Although this correlation is lower than expected, we found stronger correlations between BJW and RWA in Study 2, which had a much larger sample size than in Study 1.

##### RISK PERCEPTION PHASE

Approximately 2 months after completing the personality inventory, participants were brought into the laboratory in groups of 4 to 8 to participate in an ostensibly unrelated study. The experimenter in this phase was different from the person who administered the initial inventory. At the beginning of the session, participants were asked to complete a Perception of Risk questionnaire that was modeled closely after a similar instrument employed by Johnson and Tversky (1983). Specifically, participants were given the following instructions:

This study concerns the processes by which people judge and react to negative events. The particular kinds of negative events can, of course, vary in terms of how likely they are to occur as well as in their severity. In this experiment you will be asked to make a series of judgments for each one.

In the pages to follow, participants were presented with a series of 34 events that ranged from the relatively mundane (lose a diskette, catch a cold) to extremely negative events. These serious events included life threatening or lethal events due to natural disasters (e.g., get killed by lightning), transportation-related accidents (die in an airplane crash), as well as a number of diseases (die from hepatitis, die from leukemia).

In a blocked design, all participants rated each set of 34 events twice. Specifically, participants indicated (a) the probability that each of these events would happen to the self and (b) the probability that these events would happen to a "person of the same age and gender as you, chosen at random from the U.S. population." These estimates were made along a scale ranging from 0% (no chance at all) to 100% (certain to occur). Because many

of our participants may have already experienced the less severe negative events (e.g., lose wallet), participants were reminded in the instructions that if they had already experienced the event in question, they should indicate the probability that the event might happen again. Two counterbalancings of order were employed. First, half of the participants made the self-estimates first, whereas the remaining participants made the generalized other estimates first. Second, the order of the 34 specific events was counterbalanced such that this order was reversed for half of the participants. However, none of the results to be reported below were contingent on these two counterbalancings and thus are not discussed further.

#### SCORING/CONSTRUCTION OF RISK COMPOSITES

Preliminary analyses revealed that many of the more severe forms of risk (e.g., dying of AIDS) were positively skewed and, conversely, the mundane risks (e.g., catch a cold) were negatively skewed. Thus, before analyzing these data further, each of the separate risks were subjected to either logarithmic or power transformations (for negatively or positively skewed distributions, respectively), which resulted in successful normalization (all skews between +1 and -1). Next, to reduce the 34 separate items to a smaller number of theoretically meaningful dimensions, principal-component analyses were performed on the estimates of risk. Although we ran two separate analyses on each of the two types of judgments (self vs. other), these two analyses revealed nearly identical patterns of factor loadings. (A nearly identical pattern of loadings was found in Study 2.) In particular, both sets of analyses produced one varimax-rotated factor (which in all cases accounted for substantially more variance than the other factors) on which the following events loaded at least .50: get killed by lightning, die from leukemia, contract AIDS, get killed in a flood, get killed in a tornado, die in an airplane crash, be on a plane that gets hijacked, and die from hepatitis.<sup>2</sup>

It is worth noting that the risks listed above represent life-threatening events that, although obviously rare, pose a realistic and tangible threat to many college students. Furthermore, the similar pattern of loadings for the two sets of analyses suggests that participants tend to mentally cluster severe risks in a similar fashion, regardless of whether they are thinking about these risks in terms of the self or similar others. On the basis of these analyses, therefore, one self-risk and one other risk composite was formed on the basis of an average across the two sets of eight items. The internal reliabilities of both the self- and other-risk composite were excellent (alphas = .92 and .95, respectively). The two composites were highly correlated with one another ( $r = .85, p < .001$ ),

**TABLE 1: Correlation Between Belief in a Just World (BJW) and Perceived Risk for All Participants, High Authoritarians Only, and Low Authoritarians Only—Study 1**

	<i>Self-Risk</i>	<i>Other Risk</i>	<i>Average Risk (average of self and other)</i>
All participants ( $N = 38$ )			
Hijacking	-.17	-.19	-.30
Plane crash	-.25	-.18	-.22
Hepatitis	-.23	-.32	-.30
AIDS	-.29	-.14	-.24
Leukemia	-.19	-.19	-.20
Tornado	-.25	-.18	-.25
Lightning	-.10	.03	-.04
Flood	-.19	-.19	-.21
Average	-.26	-.19	-.24
High authoritarians only ( $n = 20$ )			
Hijacking	-.41*	-.46**	-.53**
Plane crash	-.54***	-.58***	-.61***
Hepatitis	-.59***	-.60***	-.67***
AIDS	-.43*	-.39*	-.49**
Leukemia	-.35	-.57***	-.49**
Tornado	-.54***	-.59***	-.54***
Lightning	-.26	-.32	-.32
Flood	-.34	-.57***	-.52***
Average	-.56***	-.58***	-.60***
Low authoritarians only ( $n = 18$ )			
Hijacking	.12	.04	.06
Plane crash	.15	.30	.23
Hepatitis	.20	-.03	.10
AIDS	-.12	.27	.09
Leukemia	-.04	.25	.10
Tornado	.15	.27	.15
Lightning	.04	.42	.30
Flood	-.03	.20	.09
Average	.06	.24	.16

\* $p < .10$ . \*\* $p < .05$ . \*\*\* $p < .01$ .

which led us to expect a similar pattern of results for self- and other risk. (As will be seen below, this was in fact the case.) Finally, the more mundane risks tended to load on a second factor. (This was true for both studies reported in this article.) Although our primary concern was with the serious risks based on the first factor, we shall report analyses on the less serious types of risks later in this article.

#### Results

Table 1 shows the relation between BJW and perceived risk for all participants (top third), for high authoritarians only (middle), and for low authoritarians (bottom). Overall, there was a general tendency for BJW to be negatively correlated with perceived risk, indicating that estimates of risk for both self and others were lower if participants believed in a just world than if they did not. As implied by the buffering hypothesis, however,

this pattern was much stronger among high authoritarians as compared to low authoritarians. It is worth noting, moreover, that this pattern was extremely consistent and generalized not only estimates of self- versus other risk but the different types of specific risks as well.

Hierarchical regression analyses provided some additional support for these conclusions, although the magnitude of the predicted interaction term was relatively weak. In these analyses, BJW and RWA were both centered and were then entered in a regression analyses in one block, followed by the entry of the BJW  $\times$  RWA term. (This analytic procedure was used for self- and other risk separately.) For self-risk, neither of the main effects were significant, but a marginally significant BJW  $\times$  RWA interaction emerged ( $\beta = -.29$ ,  $p = .089$ ). A similar, albeit somewhat weaker, pattern emerged for other risk. Here, as in self-risk, neither BJW nor RWA had any effects in their own right, but there was a hint of an interaction effect, although this effect was not significant ( $\beta = -.25$ ,  $p = .15$ ). Thus, although the overall pattern of correlations was consistent with predictions, the results of the regression analyses provided only promising, but not definitive, support for our framework. Because we suspected that the failure of the interaction term to reach conventional levels of significance reflected a lack of statistical power, one of the goals of Experiment 2 was to provide stronger support for our model with a larger sample size.

### Discussion

The main findings of Study 1 are straightforward and are easily summarized. When our participants were asked to indicate the probability that negative things would happen, these estimates were negatively correlated with BJW, such that participants felt less at risk if they believed in a just world than if they did not. However, this pattern only held among high authoritarians. When participants were low in authoritarianism, BJW was not related to perceived risk at all. These findings were reasonably consistent with the buffering hypothesis, which suggests that the effects of a buffering variable (BJW) should be most pronounced among people who tend to the view the world in threatening terms (i.e., high authoritarians) as compared to people who do not.

### STUDY 2

Although the results that emerged from Study 1 were provocative, several aspects of that study prevented us from drawing strong conclusions. For one thing, the number of participants in that study was small, and for obvious reasons, it would be desirable to replicate these findings with a larger sample size. Second, although these data clearly showed that RWA moderated the strength of the relation between BJW and perceived

risk, the BJW  $\times$  RWA interaction (which is implied directly by the buffering hypothesis) did not reach conventional levels of significance. Third, although the instrument used to measure BJW in Study 1 was internally reliable, it is relatively new and up to this point it has been used only in a limited number of studies. Thus, it would be useful to compare and contrast the findings obtained with this instrument with the older Rubin and Peplau (1975) instrument.

Study 2 was designed to address these issues. First, the sample size of the second study was more than twice that of the first study ( $N = 93$ ), which we expected to provide more statistical power in detecting the predicted BJW  $\times$  RWA interaction. Second, we measured BJW using both the same 18-item measure employed in Study 1 as well as the older Rubin and Peplau (1975) instrument. As we shall show presently, we found very similar effects regardless of how individual differences in BJW were measured.

### Method

#### PARTICIPANTS AND DESIGN

A total of 98 Washington University undergraduates, approximately equally divided by gender, received course credit in return for their participation. Five participants who expressed some insight into the objectives of the study were excluded from the final set of analyses. The design included two between-subject variables (BJW and RWA) and one within-subjects variable, self- versus other risk. As in the first study, none of the effects to be reported below were contingent on participant gender.<sup>3</sup>

#### MEASUREMENT OF INDIVIDUAL DIFFERENCE VARIABLES

As in the first study, BJW and RWA were measured 2 months prior to the main study. Later in the packet, RWA was again measured on the basis of the Altemeyer (1988) RWA scale. Individual differences in BJW were assessed using both the Rubin and Peplau (1975) scale as well as the BJW scale that we had used in the first study. The BJW and RWA scales were separated from each other by several other measures that were unrelated to current concerns.

#### RISK ASSESSMENT PHASE

Perceived risk was assessed using the same method and materials used in Study 1. Principal component analyses of the risk questionnaire revealed a pattern of factor loadings that was nearly identical to that obtained in the first study. For this reason, and to facilitate comparison across studies, the identical composites were formed in this study using the procedure outlined in the scoring section of Study 1.

**TABLE 2: Correlations Among and Internal Reliabilities (shown in parentheses) of Individual Difference Variables: Study 2**

	1	2	3	4	5
1. Belief in a just world (BJW) (Dalbert)	(.90)				
2. BJW (Rubin and Peplau)	.58***	(.65)			
3. Right-wing authoritarianism (RWA)	.19*	.24**	(.90)		
4. Self-risk	-.10	-.09	.01	(.88)	
5. Other risk	-.15	-.15	.11	.84***	(.90)

\**p* < .10. \*\**p* < .05. \*\*\**p* < .01.

*RELIABILITIES OF AND INTERCORRELATIONS AMONG INDIVIDUAL DIFFERENCE VARIABLES*

Table 2 shows the internal reliabilities (shown in parentheses) and the intercorrelations among the relevant individual differences variables. Consistent with the review by Furnham and Procter (1989), BJW was positively correlated with RWA, and this was true for both versions of the BJW scale, which were strongly correlated with each other. As in Study 1, the self-versus other risk composite were highly correlated with one another.

*Results*

To show the convergence of these results with Study 1, Table 3 shows the relation between BJW and perceived risk for (a) the combined sample, (b) high authoritarians only, and (c) low authoritarians only. These data show once again that BJW was strongly related to perceived risk of life-threatening events, but only when participants were high in authoritarianism. When they were low in RWA, this relation disappeared entirely and, if anything, was slightly reversed. As in the first study, these data show nearly identical effects regardless of whether participants were rendering estimates of risk for self or for others. These data imply a BJW × RWA interaction, and strong support was obtained for this critical interaction. When perceptions of risk (averaging over self-versus other risk) were submitted to a hierarchical regression analyses, neither of the main effects were significant (*ps* > .15), but strong evidence for the predicted BJW × RWA interaction was obtained (beta = -.46, *p* < .001).

A different way of assessing the implications of Table 3 is to display the regression lines that correspond to the regression of risk on just world beliefs for high versus low authoritarians. Results of this analyses are shown in Figure 1. This shows even more clearly that among participants scoring high in authoritarianism, perceived risk ranged from relatively high to relatively low levels, depending on whether participants did not (left side) or did (right side) believe in a just world. However, just

**TABLE 3: Correlation Between Belief in a Just World (BJW) and Perceived Risk for All Participants, High Authoritarians Only, and Low Authoritarians Only—Study 2**

	Self-Risk	Other Risk	Average Risk (average of self and other)
All participants ( <i>N</i> = 93)			
Hijacking	.06	-.12	-.04
Plane crash	-.08	-.17	-.14
Hepatitis	.00	-.10	-.06
AIDS	-.08	-.23	-.18
Leukemia	-.12	-.01	-.07
Tornado	-.15	-.09	-.15
Lightning	-.14	-.10	-.12
Flood	-.08	-.11	-.11
Average	-.10	-.15	-.13
High authoritarians only ( <i>n</i> = 46)			
Hijacking	-.09	-.35**	-.24
Plane crash	-.27*	-.42**	-.37***
Hepatitis	-.25*	-.35**	-.33**
AIDS	-.29**	-.53***	-.46***
Leukemia	-.32**	-.06	-.20
Tornado	-.32**	-.31**	-.32**
Lightning	-.24	-.27*	-.28*
Flood	-.46***	-.40***	-.47***
Average	-.37**	-.42**	-.41***
Low authoritarians only ( <i>n</i> = 47)			
Hijacking	.19	.14	.19
Plane crash	.11	.11	.12
Hepatitis	.23	.13	.20
AIDS	.15	.02	.09
Leukemia	.07	.03	.06
Tornado	.04	.15	.04
Lightning	-.03	.09	.03
Flood	.28	.21	.27
Average	.18	.13	.16

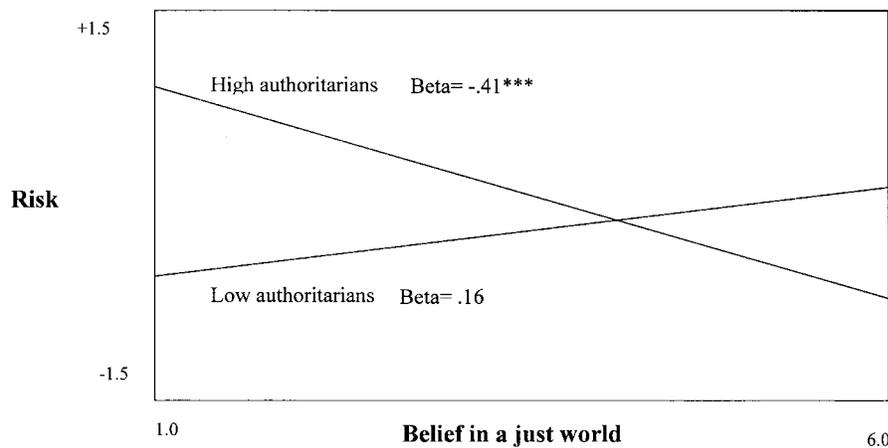
\**p* < .10. \*\**p* < .05. \*\*\**p* < .01.

world beliefs and risk were not significantly related among low authoritarians.<sup>4</sup>

*RULING OUT A RESTRICTED RANGE ACCOUNT*

A trivializing account of these results is that the range of either BJW and/or risk was greater among high authoritarians than among low authoritarians, thus permitting a larger set of correlations to emerge in the former condition. This account was ruled out by supplemental analyses, which showed that the standard deviation of BJW was nearly identical for high (*SD* = .68) versus low authoritarians (*SD* = .66). Similarly, the standard deviation of self-risk was similar for high versus low authoritarians (*SDs* = .74 vs. .70). Similar effects emerged for other risk (*SDs* = .78 vs. .74 for high vs. low authoritarians, respectively). None of these values differed as a function of RWA (all *ps* > .50).

*ANALYSES WITH RUBIN AND PEPLAU (1975) INSTRUMENT*



**Figure 1** Regression of risk on just world beliefs for high versus low authoritarians. Risk scores are expressed in terms of standardized scores; higher numbers indicate greater perceived risk. Range of possible just world beliefs extends from 0 to 6, with higher numbers indicating higher scores on the just world scale.

\*\*\* $p < .01$ .

When the risk data were reanalyzed using the Rubin and Peplau (1975) measure, a similar, albeit weaker, pattern of findings emerged. Specifically, BJW was negatively correlated with risk among high authoritarians ( $r_s = -.28$  and  $-.34$  for self vs. other risk, respectively). However, BJW was uncorrelated with risk among low authoritarians ( $r_s = .10, .00$ ). Thus, we obtained similar effects regardless of the particular type of BJW measure employed. However, given the superior reliability and the somewhat stronger effects that we obtained with the Dalbert BJW scale, subsequent analyses were conducted using this instrument only.

#### MEAN LEVELS OF RISK FOR SELF VERSUS GENERALIZED OTHER

As seen in Table 3, BJW and RWA appeared to play similar roles in moderating perceptions of risk for the self and others. The observant reader may have noted that this pattern could, in principle, coexist with a tendency for estimates of self-risk to be lower than other risk, a pattern that would be consistent with previous work by Weinstein (1980). This is exactly what the data showed. Specifically, perceptions of risk were, in fact, lower for the self versus others,  $F(1, 92) = 170.06, p < .01$ . The means corresponding to this difference (1.57 vs. 5.57) are hard to interpret because they are based on the natural logs of the raw risk scores, but for the sake of comparison, the average self versus other composites based on the raw (i.e., untransformed) scores were 9% versus 11%. Thus, although it was true that the pattern of risk data (and their relation to BJW and RWA) was similar for the two classes of judgment, it was also true that

the mean level of risk was lower (albeit modestly so) for the self than for others.

#### LESS SERIOUS RISKS

As noted in the context of Study 1, less serious types of risks tended to load on factors that were different from the primary serious risk factor. Did BJW and RWA have similar effects on these types of risks? Unlike the life-threatening risks (which, as noted earlier, showed identical loadings for the self vs. others), the more mundane risks showed different patterns of loadings across self- versus other risks. To pursue this issue further, therefore, we formed two somewhat different, lesser risk composites based on the items that loaded .50 or better on the second factor. For the self-risk composite, these included the following: get injured in a fall, get mugged, get hit by a car, catch pneumonia, get a traffic ticket, get sick from food poisoning, and break leg ( $\alpha = .81$ ). For the other risk composite, these included the following: lose wallet, catch flu, get injured in a fall, catch cold, get a parking ticket, get a speeding ticket, and sprain ankle ( $\alpha = .81$ ). Analyses of these two composites revealed, however, a weak and inconsistent pattern of results, and in no case was there a significant correlation between just world beliefs and perception of these risks. (Similar analyses in Study 1 also revealed null results). In general, our data indicate that the role of BJW and RWA in mediated risk perception arises most strongly when focusing on relatively important and/or severe events.<sup>5</sup>

#### ADDRESSING AN ALTERNATIVE GENERAL SELF-ESTEEM ACCOUNT

It is important to consider an alternative account of our data, one which suggests that the relation between BJW and risk reflected general differences in self-esteem rather than BJW *per se*. This alternative account needs to be considered because previous research has shown that individual differences in BJW are positively related to more general levels of well-being and/or positive feelings about the self (e.g., Lipkus et al., 1996). To explore this issue, we examined the contingency of our results on individual differences in self-esteem as measured by the Rosenberg scale (1965), which we had measured in the context of the personality questionnaire along with RWA and BJW. Preliminary analyses on a composite measure of self-esteem ( $\alpha = .90$ ) indicated that it was positively correlated with BJW ( $r = .27, p < .01$ ), a finding consistent with the implications of Lipkus et al. (1996). Of greater importance, however, was the fact that self-esteem was not correlated with perceived risk ( $r_s = -.11$  and  $-.16$  for the self- vs. other-risk composites, respectively, both  $p_s > .10$ ) or with RWA ( $r = .02$ ). Thus, although self-esteem was correlated with BJW, it was not correlated with perceived risk, showing that our results are not attributable to the overlap between BJW and self-esteem.

These null findings are also useful insofar as they yield additional clarity regarding the kinds of psychological variables that are likely to be linked in reliable ways to perceived risk. It is important to note that the Rosenberg (1965) measure of self-esteem is primarily oriented toward feelings of self-worth (e.g., "I certainly feel useless at times"). In our view, there is little reason to assume, *a priori*, that general feelings of self-worth would be strongly related to the estimated probability that negative outcomes (e.g., being hit by lightning) would befall the self or others, and indeed, our findings failed to provide support for this kind of relationship. On the other hand, the notion that negative events will, or will not, occur merely by chance is quite central to the principles of just world beliefs (cf. Lerner, 1980), thus suggesting that, at least in our paradigm, subjective probability estimates of negative outcomes are more reliably predicted on the basis of belief systems relating to justice (or lack thereof) rather than global positive or negative feelings about the self.

#### GENERAL DISCUSSION

The two studies reported in this article generated several new insights regarding the role of BJW and RWA in moderating perceptions of risk. The implications of our findings may be summarized as follows.

1. When participants were asked to estimate the probability that life-threatening events would happen in the future, Studies 1 and 2 showed that BJW and RWA, which had been measured 2 months earlier in a completely

unrelated context, played interactive roles in these perceptions. Among high authoritarians, BJW was strongly related to these perceptions such that perceived risk was lower if people believed in a just world than if they did not. Among low authoritarians, however, BJW played no role in these perceptions at all. Moreover, these effects arose regardless of whether participants were rendering probability estimates for the self or for a similar generalized other (i.e., a person of the same age and gender as the participant chosen randomly from the U.S. population). Supplemental analyses revealed that our findings pertained to the subjective probability of severe, life-threatening events rather than more mundane, everyday risks.

2. Study 2 showed converging evidence for our main findings regardless of whether individual differences in just world beliefs were measured using a relatively new measure of this construct (e.g., Dalbert & Yamauchi, 1994; Lipkus et al., 1996) or through an older measure developed by Rubin and Peplau (1975).

3. Supplemental analyses showed that our main results were not due to general differences in self-esteem. Moreover, the stronger relations between BJW and perceived risk under conditions of high rather than low authoritarianism was not due to differences in the variability of just world beliefs in the former as compared to the latter condition.

#### *A Working Theoretical Framework*

As noted earlier in this article, one way of conceptualizing perceived risk is in terms of two components, namely, (a) the extent to which one views the environment in relatively safe versus threatening terms (external threat component) and (b) the extent to which one believes that good/deserving people are ultimately protected from such threats (buffering component). Theoretically, RWA is associated with the threat component, such that authoritarians generally tend to see the world in more threatening terms than nonauthoritarians. On the other hand, BJW is theoretically associated with the buffer component, such that people who are high in BJW feel less personally vulnerable to threat than people who are low.

If these assumptions have merit, then one may posit a straightforward model (depicted in Figure 2), which shows how these components are likely to act in combination with each other. We should mention at the outset that this model provides a highly schematic, simplified account of perceived risk and in no way is meant to capture all of the complexities that must ultimately be addressed in this area. Nevertheless, we believe that it presents a heuristically useful summary of how BJW and RWA act together to moderate perceived risk. As one can see in Figure 2, the first consideration is whether the per-

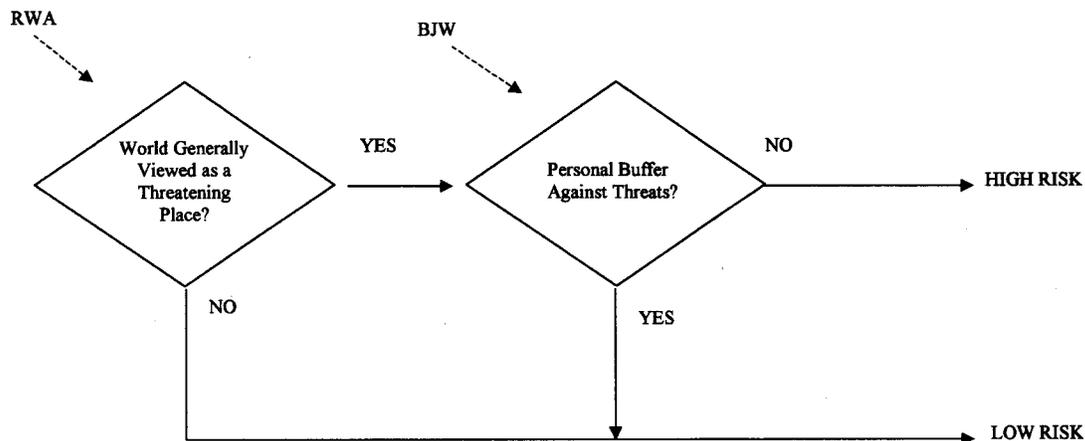


Figure 2 Theoretical roles of right-wing authoritarianism (RWA) and belief in a just world (BJW) in moderating perceived risk.

ceiver feels relatively safe or threatened at the time of judgment. If one feels relatively safe, then perceived risk should naturally be low. Although this is not surprising in itself, it points out that the presence or absence of a personal buffer should not make a difference under this condition. On the other hand, if there is a high baseline level of potential threat (i.e., the perceiver generally views the world as threatening), then the extent to which the perceiver does feel personally threatened should depend on the presence or absence of the buffer. As noted earlier, the essential assumptions of this model are similar to the buffering hypothesis, which has been developed by theorists in the social support domain (e.g., Cohen & Wills, 1985; see also Stroebe & Stroebe, 1995). According to our implementation of this model, the extent to which people view the world in threatening terms is determined, in part, by one's level of RWA, and the extent to which one feels buffered by these threats is driven by BJW.

#### RELATION TO PREVIOUS RESEARCH ON JUST WORLD BELIEFS

Although this is the first program of research known to us that has specifically examined the moderating effects of just world beliefs on perceived risk, a number of previous studies have shown that just world beliefs are positively correlated with people's ability to cope effectively with negative events in their environment, such as stressful tasks (Tomaka & Blascovich, 1994), physical disabilities (Bulman & Wortman, 1977), or job-related stressors (Hafer & Olson, 1993). These results are consistent with the buffering framework that we have articulated in this article, although the conceptualization and operationalization of the threat component is different across

these studies. In other words, threat or stressors in one's environment can arise from many sources, including single, unexpected events in one's environment (such as the sorts of personal accidents experienced by participants in the Bulman and Wortman study) as well as personality variables (such as RWA) that are associated with more chronic differences in the level of threat perceived in the environment.

#### RELATION TO PREVIOUS WORK ON RWA

Previous research concerning the link between authoritarianism and threat has approached this issue in two rather different ways. The first approach—most similar to the goals of the present research—has been to investigate whether people scoring high in authoritarianism tend to see the world as more threatening than people who score low. Other research has investigated a related but theoretically distinct idea, namely, that people become more authoritarian when they are exposed to high levels of threat than when they are not. Although some correlational evidence by Sales (1972) is consistent with this idea, subsequent attempts to confirm this hypothesis have not been entirely supportive (Duckitt, 1992; Sales & Friend, 1973; but see Doty, Peterson, & Winter, 1991). Thus, although the idea that people might become more authoritarian in the face of threatening events is an interesting one, the evidence bearing on this hypothesis appears, at best, to be mixed.

#### AN ALTERNATE CONCEPTUALIZATION

One possible alternative to our framework is derived from Loevinger's (1976) model of personality, which assumes that people can be sorted in meaningful ways with respect to their respective levels of ego-

development, including the extent to which they possess relatively complex versus simple perceptions of their social environment (see also Cohn, 1991).<sup>6</sup> This view may be briefly summarized as follows. According to this model, high authoritarians possess less mature levels of ego development, in which they think about cause and effect in relatively simple terms, more so than do low authoritarians (Loevinger, 1976; but see Browning, 1987, for some conflicting data on this point). To the extent to which authoritarianism is indeed associated with less complex reasoning, it could be that high authoritarians would, by virtue of their relatively simple view of the world, tend to be more receptive to relatively primitive or moralistic views of the world (such as those related to just world beliefs) as a basis for predicting that good things happen to good people and vice versa. On the other hand, to the extent that low authoritarians tend to have views of causality that are not as simple as their high authoritarian counterparts, this could explain why belief in a just world plays less of a reliable role in mediating perceptions of risk. Although we see this model as an extremely interesting way of viewing our data, we should note that it depends on the acceptance of several assumptions regarding the complexity of thinking among high versus low authoritarians, its link to perceived cause-and-effect relationships, and how this might interact with just world beliefs to mediate perceptions of risk. Whether these assumptions are any more or less viable than the assumptions in our own framework is, of course, an empirical question, and future research is obviously needed to test the relative merits of these conceptualizations.<sup>7</sup>

*CAVEATS AND ADDITIONAL DIRECTIONS  
FOR FUTURE RESEARCH*

It is important to emphasize at the outset that our results are correlational and, as such, raise the usual cautions that must be kept in mind regarding the limited conclusions that one can draw about causality using correlational as opposed to experimental designs. Although it is not clear on a priori grounds whether one can reliably change (even temporarily) people's level of just world beliefs or authoritarianism (cf. earlier discussion of Sales's [1972] earlier work), it is clearly important to explore if and how experimental manipulations of these constructs might have an impact on perceived risk. Reliance on such experimental approaches would, in combination with the correlational data reported here, provide additional leverage regarding inferences of causality and might offer some additional clarity as to which aspect of these belief systems are linked in predictable ways to perceived risk. We should also note that although individual differences in BJW and RWA clearly played important roles in perceived risk in this research,

we make no claims as to the exclusive role of either RWA or BJW in these considerations. As noted earlier, the available evidence suggests that BJW can act as a buffer not only for chronic differences in perceived threat but for situation-specific events as well (e.g., Hafer & Olson, 1993). By the same token, it seems reasonable to suppose that BJW would not be the only variable that could act as a psychological buffer, and future research is clearly needed to explore this issue more deeply.

Another issue that merits further investigation concerns the similarities and differences in the assessment of risk for the self versus others. On one hand, both of our studies showed that individual differences in BJW and RWA were related in similar ways to perceptions of risk for the self and a generalized similar other. On the other hand, the mean level of risk for the self was reliably lower for the self as compared to others, a finding that replicated conceptually similar work by Weinstein (1980; see also Taylor & Brown, 1988). This suggests that whatever mechanisms mediate the kinds of effects demonstrated by Weinstein may operate independently of the processes by which BJW and RWA are related to risk. Future work needs to more carefully delineate the nature of these processes and the boundary conditions under which they are likely to operate. A related line of work might also examine the extent to which our effects might depend on whether participants make estimates of risk for a single individual whose features convey that he or she is a likeable versus unlikable person. Such manipulations would be helpful to test the notion that persons who believe in a just world make inferences about the deserved outcomes of others based on inferences of their intrinsic goodness as a person (cf. Lerner, 1980).

Finally, it should be noted that our work focuses entirely on peoples' perceptions of risk but not whether certain people actually experience more negative outcomes than others due (for example) to differences in actual risk-taking behavior. Clearly, some people lead riskier lives than others, and it is important to understand what psychological variables might moderate these differences. Extending work from the laboratory to more natural settings seems likely to increase our understanding of these and other important issues.

**APPENDIX**  
**Belief in a Just World Scale**

1. I think that in general there is justice in the world.
2. Someday I will be compensated for suffered injustices.
3. By and large, people get what they deserve.
4. In my life, justice always prevails.
5. I am usually treated fairly.
- 6.

Even when confronted with great suffering, it is important to maintain one's belief in compensating justice.

7. I usually get what I deserve.
8. Injustices in all areas of life (e.g., professional, family, politics) is the exception rather than the rule.
9. Even victims of serious injustice can expect things to even out in the long run.
10. Overall, events in my life are just.
11. In the long run, people will be compensated for injustices.
12. People try to be fair when making important decisions.
13. Even my worst luck will turn out all right in the end.
14. In my life, injustice is the exception rather than the rule.
15. Justice always prevails over injustice.
16. Most of the things that happen in my life are fair.
17. By and large, I deserve what happens to me.
18. Important decisions that are made that concern me are usually just.

## NOTES

1. The version of the Dalbert scale used here (including the wording of specific items) is very similar to the measure employed by Lipkus, Dalbert, and Siegler (1996) except that the present scale combines items referring to the self and generalized beliefs about justice in the same scale, whereas Lipkus et al. (1996) measured these two subcomponents of justice using two separate instruments. In our research, we also have conducted analyses in which we used the self-justice and general justice subscales of the Belief in a Just World (BJW) scale and correlated these two indices with perceptions of risk for the self as well as similar others. These analyses yielded virtually identical pattern of results. Relatedly, it should be noted that although Lipkus et al. did find some differences in the pattern of results for self-based versus general beliefs about justice, these two measures of justice were very highly correlated with each other and, moreover, were related in similar ways to certain key measures of satisfaction.

2. In all of our research using the risk perception task, we usually find that a small number of participants provide seemingly nonsensical responses to the risk estimate task, such as indicating that there would be a 100% chance that they would die of all of the severe forms of risk. Because we regard such responses as an indication that they either misunderstood the nature of the task and/or were not paying attention, we excluded any participants from the final set of analyses if their total scores on both the self- and other risk index was more than two standard deviations above the mean. Use of this criterion removed fewer than 10% of the total number of participants across Studies 1 and 2.

3. In addition to these variables, we also attempted to investigate whether risk perceptions might be influenced by manipulating whether, earlier in the experimental session, participants had read a newspaper story that had described the death of another person to AIDS. Results showed, however, that this manipulation had absolutely no effect whatsoever on perceived risk for either the self- or other, neither did this variable have interactive effects with BJW or right-wing authoritarianism (RWA), all  $f_s > .15$ . For the sake of clarity, therefore, the results to be reported below are collapsed over this variable. Nevertheless, this raises the question of why we did not find a global elevation in perceived risk for participants who had read the AIDS article as compared to the control article, which is the type of effect found by Johnson and Tversky (1983) in a similar design. One likely explanation for this asymmetry is that the specific cause of the death depicted in our newspaper article (AIDS) was far more stigmatizing than the causes of death used in the Johnson and Tversky (1983) experiment (i.e., homicide, leukemia, fire). In other words, because AIDS represents a disease that most students associated with persons very different from the self (homosexuals, I.V. drug users) (cf. Pryor & Reeder, 1993), it seems likely that our participants (more so than the participants in the John-

son and Tversky study) reacted in a defensive manner to this article and were thus able to distance themselves from the plight of the target and hence minimize the impact of this information on perceptions of risk for the self or similar others. Although these null findings suggest that future research should investigate the boundary conditions under which information about the misfortunes of others can influence perceptions of risk, this important issue is beyond the scope of the present article and will not be discussed further.

4. To show more directly the generalizability of our results for perceived risk across the two studies, we conducted analyses on the combined data (averaging across self-vs. other risk) from Studies 1 and 2 ( $N = 131$ ). When perceptions of risk were regressed on RWA and BJW in hierarchical regression analyses, neither BJW nor RWA emerged as significant main effects, but as expected, analyses revealed a highly significant BJW  $\times$  RWA interaction ( $\beta = -.30, p < .001$ ), indicating that the relation between BJW and risk was significantly contingent on RWA across the two studies.

5. The fact that the moderating roles of just world beliefs and authoritarianism arose for the severe (but not mundane) risks in this study can be interpreted in at least two ways. First, inspection of the items used in our severe risk composite reveals that most of these events reflect catastrophic, life-threatening events that are apparently outside of personal control, more so than the mundane events. It could well be that general, moralistic belief systems (e.g., BJW) only become relevant when people think about severe events that fall outside the purview of personal control. A related possibility is that the mundane risks do not carry the kind of effect-laden, appreciable threats posed by the more severe risks and, as such, would fall outside of the processes delineated by our conceptual framework. Nevertheless, our findings do suggest that it is important for future research to explore more systematically the various dimensions underlying perceived risk (e.g., severity, controllability) (cf. Johnson & Tversky, 1983).

6. We would like to acknowledge an anonymous reviewer for bringing this alternate conceptualization to our attention.

7. One problem arising from these considerations is that much of this previous literature on ego development relied on measures of authoritarianism that predated Altemeyer's (1988) recent revision of the RWA scale. As Altemeyer has indicated, conceptual and empirical problems with previous measures of authoritarianism make it difficult to draw any firm conclusions from many past studies of this construct. More relevant to present concerns, however, the fact that we operationalize authoritarianism in terms of Altemeyer's recently revised measure raises the as yet unanswered question of how individual differences along this scale might correlate with Loevinger's (1976) measure of ego development. This strikes us as an important area that is deserving of further empirical inquiry.

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