Health, Coping, and Well-Being

Perspectives From Social Comparison Theory

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CHAPTER 2

Social Comparison and Unrealistic Optimism About Personal Risk

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So little are men [sic] governed by reason in their sentiments and opinions, that they always judge more of objects by comparison than from their intrinsic worth and value . . . This no one can doubt of with regard to our passions and sensations.
—Hume (1739, p. 89)

We . . . are always trying to find out exactly what other people are doing in their lives in order to rate ourselves. —letter to the editor, Time magazine
—Worm (1994, p. 3)

The number of threats that people face is astonishing. Daily headlines and cocktail party conversations are filled with information about carcinogens, natural disasters, new viruses, chronic illnesses, AIDS, and numerous other health and safety concerns. Not surprisingly, the manner in which people appraise their chances of being victimized by these problems has captured the attention of psychologists in many fields. In this chapter, we explore the role that social comparison plays in judgments of personal risk.

We begin with the observation that personal judgments are made within a social milieu containing the feedback, scrutiny, and behavioral examples of others. People endeavor to make decisions whose outcomes will not lead to social embarrassment, and they look to others as sources of relevant information. As suggested by the quotations with which we
opened this chapter, social comparison is one of the most important influences on our self-judgments (Festinger, 1954). Comparisons with others help us judge our abilities, opinions, emotions, and many other personal characteristics (Suls & Miller, 1977; Suls & Wills, 1991). Here we argue that judgments of our risk for health and safety problems are also shaped by social comparisons, and we consider the implications of this statement for the construction of successful health campaigns.

To demonstrate that social comparison plays an important role in how people respond to health and safety risks we need affirmative answers to several questions. First, when people judge their risk, are they sensitive to factors known to influence social comparisons? For example, if social comparison is important in determining whether Janice, a smoker, considers her risk of lung disease to be worrisome, we should be able to show that her observation of other women will strongly influence her judgment. In particular, according to social comparison theory and the research tradition that follows it, Janice should feel least vulnerable when faced with other smokers of similar sex, age, and socioeconomic status who smoke even more than she. And, as we show later, Janice should feel particularly invulnerable when her social comparison targets are vague or deindividuated and when they (rather than Janice herself) are used as the standard of comparison.

A stimulus to most of the research discussed in this chapter is the finding that, when judging personal risks, people not only engage in social comparison but enter into these comparisons with an ulterior motive of appearing better off than their comparison others (cf. Helgeson & Mickelson, 1988; Wood, 1989). With this in mind, we pose our second question: Do people attempt to maintain favorable beliefs about their comparative standing on risk dimensions when such beliefs are challenged? If so, what strategies do they employ in order to do so?

Third, we ask whether people engage in such social comparisons spontaneously when assessing personal risk. The thesis that risk assessment is partly a function of social comparison cannot be based solely on research in which people are asked to make explicit social comparisons, despite the fact that most relevant research has taken this approach. There is surprisingly little work on this issue, but we review the few studies that are relevant.

The demonstration that social comparison impacts risk judgments is academic if people's responses to health and safety threats are insensitive to these comparisons. Thus, a fourth question is whether social comparison information regarding personal risk influences people's affective, self-evaluative, and behavioral reactions to hazards. Consider John, a patient who learns that his blood cholesterol is 200 mg/dl, a level his physician says is perfectly acceptable. Upon discovering that his peers tend to have still lower levels of cholesterol, will John be upset and will he modify his diet and exercise regimen? If so, this would provide direct evidence that social comparisons about risk really make a difference.

In summary, we ask four questions: Do various elements of the social comparison process influence personal risk judgments? Do people attempt to preserve their favorable comparative standing on risk dimensions? Do social comparisons with others occur spontaneously when making judgments about personal risk in everyday life? Do people's social comparisons on risk dimensions predict their affective, self-evaluative, and behavioral responses? Our examination of these issues also allows us to address two related topics—how research on risk judgment may contribute to the development of social comparison theory, and how research linking social comparison with risk judgments may suggest ways of increasing desirable health behaviors and decreasing undesirable behaviors.

To answer these questions, we draw heavily from a body of research whose consistent message is that when people estimate their risk relative to that of others, they are often unrealistically optimistic. That is, they believe they are less at risk for experiencing negative life events than others are. In an early demonstration of this bias, students compared their likelihood of experiencing a variety of negative and positive life events to that of other students at the same institution (Weinstein, 1980). A large majority believed their likelihood of experiencing the negative events to be lower (and the positive events higher) than that of their peers. Because it is impossible for the majority of a sample to be below (or above) average (barring a skewed distribution), Weinstein (1980) was able to conclude that at least some of the sample was unrealistically optimistic. Because an individual's risk is so difficult to determine, such a conclusion would have been difficult to reach by contrasting participants' risk ratings with their actual chances of experiencing these events (although see Kreuter & Strecher, 1995; Shepperd, Ouellette, & Fernandez, 1996, for recent investigations that have measured the actual risk of individual participants).

We focus here on health and safety-related events, particularly negative events, because the little work that exists on beliefs about the likelihood of positive events suggests that the latter are conceptually distinct (e.g., Hoorens, 1996). We do not address the optimistic biases held by people coping with existing health problems such as breast cancer (Wood, Taylor, & Lichtman, 1985; Wood & Vander Zee, chapter 10, this volume) or AIDS (Taylor et al., 1992). These biases may have similar origins and goals, but they arise in quite different situations and may well be adaptive responses to victimization. We do not consider
studies that only measure absolute personal risk, nor do we discuss dispositional optimism (Scheier & Carver, 1992), because this individual orientation does not necessarily involve either a social comparison or a risk judgment. We begin with a brief review of relevant literature on unrealistic optimism.

UNREALISTIC OPTIMISM

There are two ways in which people can be unrealistically optimistic. First, people can underestimate their absolute or objective risk of having a problem, such as when a potential breast cancer victim believes her risk of getting breast cancer is below 20% when in fact her diet and family background cause her risk to be over 50%. We refer to this bias as absolute unrealistic optimism. Second, people can believe erroneously that their risk of having a health problem is lower than that of their peers. We refer to this bias as comparative unrealistic optimism, and because this latter type of optimism is more commonly investigated (and more prevalent; Rothman, Klein, & Weinstein, 1996) we sometimes just refer to it by the more general term unrealistic optimism (or optimistic bias).

Investigators have used three strategies to demonstrate comparative unrealistic optimism. A relative evaluation of these methods is currently impossible because very few studies employ more than one approach (however, see Otten & van der Pligt, 1996). The direct method has been mentioned earlier; participants rate their comparative risk for experiencing an event, and the sample mean is then compared to the midpoint of the scale (usually designated as “average”). The advantage of this method is that it is simple and straightforward; a weakness is that if an intervention is shown to decrease levels of unrealistic optimism the investigator is left unable to determine whether the intervention enhanced perceptions of own risk or reduced perceptions of average risk. A solution to this problem is to use the indirect method. In the within-group version of this method, participants rate their own absolute risk and then the average person’s absolute risk on a separate but identical scale (e.g., Taylor & Gollwitzer, 1995). Absolute risk may be actual or, may appear on a scale ranging from, for example, “No chance” to “Extremely likely.” If the sample mean of the self-ratings is less than the mean of the ratings for the average person, the sample is said to exhibit unrealistic optimism. In the between-group version, one group of people might rate their own risk, whereas a separate group rates the average person’s risk. The difference between the two groups’ ratings can then be examined to see if one mean is less than the other (e.g., Harris & Middleton, 1994). Indirect methods like these permit an investigator to determine whether a manipulation shown to increase or decrease unrealistic optimism affected self-ratings or other-ratings.

Using either the direct or indirect method, researchers have found unrealistic optimism about many health and safety problems (for reviews see Hoorens, 1993a; Perloff, 1987) including lung cancer, heart disease, alcohol and other drug addictions, gum disease, diabetes, AIDS and other sexually transmitted diseases (STDs), and pregnancy (e.g., Gerrard, Gibbons, & Warrier, 1991; Harris & Middleton, 1994; Hoorens & Buunk, 1993; Perloff & Fetzer, 1986; Weinstein, 1980, 1982, 1983, 1984, 1987; Whiteley & Herr, 1991). Unrealistic optimism tends not to be found for a few problems including ulcers, unspecified cancer, and high blood pressure (Weinstein, 1980, 1983, 1994). Biases emerge in all age groups (Quadrel, Fischhoff, & Davis, 1993; Weinstein, 1987), and it is unusual for any sample to be comparatively pessimistic (e.g., Dolinski, Gromski, & Zawisza, 1987) even if the sample is at high risk (e.g., van der Velde, van der Pligt, & Hooykaas, 1994). Thus, there is a great deal of evidence that, on average, people are unrealistically optimistic about their comparative risk, although in only a few of these studies can we identify which members of the sample are biased. Moreover, unrealistic optimism appears in many different samples across a wide variety of demographics (e.g., Weinstein, 1987).

Despite the fact that all of these studies involve self-report, there is no evidence that the biases are artifacts of participants’ self-presentational motives (Hoorens & Buunk, 1993), or that participants’ answers are insensitive to the specific hazard they are asked to consider. For example, smokers are less optimistic about smoking-related hazards than about nonsmoking-related hazards (McKenna, Warburton, & Winwood, 1993); ill people feel more vulnerable to health problems than to nonhealth problems (Kulik & Mahler, 1987); and victims of natural disasters are less optimistic about their risk of those hazards than they are about other, unrelated hazards (Burger & Palmer, 1992; Dolinski et al., 1987).

Furthermore, when using the direct method, participants are attentive to the identity of the comparison target. For example, students rate the pregnancy risk of the average woman higher than that of the average woman at their university (e.g., Burger & Burns, 1988), and they see the risk of AIDS for the average same-age heterosexual college woman as lower than that of the average same-age heterosexual man, which in turn they see as lower than that of the average homosexual college man.
(Mickler, 1991). This is important because if people use a high-risk reference group when making comparisons only because they disregard instructions, it becomes more difficult to argue that they are genuinely biased about their risk.

People also maintain self-serving biases about the specific behaviors associated with health problems. They tend to believe they consume less salt, butter, sweets, and alcohol; sunbathe and smoke less often; use birth control and seat belts more often; and have sex with fewer (and safer) partners than their peers (e.g., Harris & Middleton, 1994; Klein & Kunda, 1993, Perloff & Fetzer, 1986; Suls, Wan, & Sanders, 1988; Weinstein, 1984). These comparative judgments on specific risk factors are usually correlated with comparative judgments of overall risk (e.g., Gerrard et al., 1991; Weinstein, 1984, 1987).

Several consistent determinants of comparative unrealistic optimism have emerged. For example, people are more unrealistically optimistic both about events they believe they can control (DeJoy, 1989; Harris, 1996; Klein & Kunda, 1994), and about events they have not yet experienced (van der Pligt, Oten, Richard, & van der Velde, 1993; Weinstein, 1987, 1989). Some of these determinants are motivational in nature and others cognitive (for treatments of this distinction, see Hoorens, 1993a; van der Pligt et al., 1993). Moreover, many factors (such as control and experience) do not necessitate a social comparison, showing that unrealistic optimism derives in part from mechanisms unrelated to social comparison processes. Nevertheless, many antecedents of unrealistic optimism do invoke social comparison processes, and we focus on these in the sections that follow.

**SOCIAL COMPARISON AND UNREALISTIC OPTIMISM: THE FOUR QUESTIONS**

**Question 1: Are People’s Risk Judgments Sensitive to Factors Known to Influence Social Comparisons?**

We now turn to the question of whether levels of comparative unrealistic optimism are influenced by social comparison. Research on social comparison processes offers several possible predictions. Although people tend to engage in upward comparison when choosing social contacts, they are more likely to engage in downward comparison (Wills, 1981, 1987, 1991) when undertaking self-evaluation, often leading to favorable self-assessments (e.g., Aspinwall & Taylor, 1993; Reis, Gerrard, & Gibbons, 1993; Taylor & Lobel, 1989). Moreover, people are especially likely to engage in downward comparison under threat (e.g., DeVellis et al., 1990). Given that risk judgments are a form of self-evaluation and are made about potentially threatening negative life events, we might expect that people will exhibit downward comparison when judging their risk, and will consequently see their own risk as lower than that of their peers. Other interpretations of social comparison theory might lead to the prediction that people will choose similar others with whom to compare their risk levels (Wheeler, 1991), or to the prediction that they will construct hypothetical others as comparison targets (e.g., Gibbons & Gerrard, chapter 3, this volume; Goethals, Messick, & Allison, 1991; Wood, 1989; Wood et al., 1985).

To these possibilities we add three more variables that researchers have investigated in the context of unrealistic optimism and that are relevant to the comparison process: (a) the specificity, concreteness, and level of individuation of the comparison target; (b) the salience of own and others’ standing on related dimensions; and (c) the standard of comparison used.

**Choice and Construction of Comparison Targets.** Festinger’s (1954) original theory predicts that people will choose targets who are slightly superior to them. Downward comparison theory (Wills, 1981, 1987, 1991), on the other hand, predicts that people will sometimes look to someone less well off as a target, particularly if self-esteem is threatened. From a functional perspective, it might be argued that people should compare with others less at risk, because doing so would help them learn how to reduce their own risk. Indeed, social comparison is often employed with the goal of self-improvement (e.g., Wood, 1989). However, people might find it threatening to be more at risk than their peers and thus might compare with those at higher risk (Affleck & Tennen, chapter 9, this volume; Wills, chapter 6, this volume). Indeed, one coping strategy that victims of health problems employ is to compare with others in still worse conditions (e.g., Wood et al., 1985). Support for downward comparison in risk judgments can be found in a study by Perloff and Fetzer (1976, Study 2), in which participants rated their own risk of experiencing several negative events and then provided similar ratings for the average student, their closest friend, or “one of your friends.” In the last condition, participants were asked to choose a different friend for each negative event. Thus, participants in this last condition had a great deal of latitude in their comparison choices. As predicted, these participants were unrealistically optimistic; a majority chose friends who were especially vulnerable to the life events consid-
ered. (Optimistic biases were not obtained when participants did not have such latitude—that is, when they were asked to rate the risk of their best friend.) These findings suggest that people engage in downward comparison when judging health risk.

If people compare downwardly when assessing their risk, we should find that when participants are asked to compare themselves with the average person in a large reference group, they tend to focus their comparisons on a risky subgroup within the reference group. Indirect evidence for this prediction appears in a study by van der Velde et al. (1994). Four Dutch groups varying in their objective risk of contracting AIDS estimated their own risk of being infected in the next 2 years and then estimated the same risk for a random, same-sex, same-age individual from the general population. Listed from low to high risk, the samples consisted of Amsterdam citizens, heterosexuals with multiple private partners, gay men with many sexual partners, and visitors to an STD clinic who had recently engaged in sex with prostitutes. When rating their objective risk of getting AIDS, all groups seemed to be sensitive to their risk level: The high-risk group rated their risk the highest and the low-risk group rated theirs the lowest. However, the ratings of one's own risk were still lower than the ratings of the random citizen in all except the highest risk sample. These findings suggest that participants were using different reference groups, resulting in a significant downward comparison for three of the four samples.

People are especially likely to engage in downward social comparison when threatened (e.g., DeVellis et al., 1990; Wills, chapter 6, this volume). For example, when participants in the classic study by Hakmiller (1966) were led to believe that they were hostile toward their parents (a threatening assessment), they preferred to compare themselves with individuals perceived to be even more hostile. We might expect, then, that unrealistic optimism would be greater for negative life events that are particularly threatening. However, there is very little evidence for this; investigators rarely find that more threatening events elicit greater bias (e.g., DeJoy, 1989; Otten, 1995; Weinstein, 1980, 1982, 1987).

Finally, research has shown that people not only compare with actual individuals but also construct hypothetical targets, who often turn out to be inferior (e.g., Goethals et al., 1991; Wood, 1989). There is indirect evidence that this may occur in the risk domain as well. First, health problems for which people find it easy to picture typical victims elicit greater unrealistic optimism than those for which typical victims are hard to imagine (Moore & Rosenthal, 1991; Weinstein, 1980). Second, people distance themselves psychologically from such prototypes, just as smokers trying to quit do when thinking about how they compare with the "typical smoker" (Gibbons & Eggleston, 1996; Gibbons & Gerrard, chapter 3, this volume; Gibbons, Gerrard, Lando, & McGovern, 1991). Finally, when people are asked to compare themselves with the average person, they do not report having a specific individual in mind (Alicke, Klotz, Breitenbecher, Yurak, & Vredenburg, 1995), suggesting that they may be constructing a hypothetical target (or, alternatively, that they do not think significantly about the target).

If unrealistic optimism arises from downward comparison, what happens when people are forced to compare with fixed targets such as individuals similar to themselves? In the next two sections we consider how various manipulations of the comparison target may impact levels of unrealistic optimism.

Effects of Target Similarity in Fixed Social Comparisons. When forced to compare their risk with similar others, are people less unrealistically optimistic? Perloff and Fetzer (1986, Study 2), found that participants exhibited less unrealistic optimism when comparing with a best friend (to whom they probably considered themselves most similar) than with "one of their friends," or with the average person (see also Whitely & Tern, 1991). Because ratings of personal risk were similar in this study's three conditions, these differences in unrealistic optimism levels were caused by differences in ratings of the comparison targets. Harris and Middleton (1994) had participants rate their own risk, the risk of an acquaintance ("someone you don't know very well but would like to know better"), or the risk of a friend's friend ("a friend of your best friend, someone you've heard about but never met"). The acquaintance was previously rated as more similar than the friend's friend. Participants estimating their own risk reported lower ratings than did participants rating either of the two comparison targets, yet the difference between self- and target ratings was greatest when the target was a friend's friend than when the target was an acquaintance. Finally, Boney McCoy et al. (1992) reported that unrealistic optimism for smoking-related health problems was greatest among those smokers who considered themselves least similar to the typical smoker. These studies suggest that increasing similarity to a comparison target is associated with less comparative unrealistic optimism. Unfortunately, experimental manipulations of similarity in studies of unrealistic optimism are lacking, and they are often confounded with such factors as liking of, psychological closeness to, type of relationship with, and type of knowledge about the target.

If people prefer to engage in downward comparison when judging
saying that making the comparison target more specific and concrete is not itself a sufficient condition for reducing the bias significantly. Alike et al. (1995) argued that individuation of the target is what reduces unrealistic optimism. Friends and family members are living, breathing individuals with unique traits, unlike the “average person.” (Note that individuation may occur without an increase in perceived similarity.) In a series of studies, Alike et al. (1995) increased individuation of the comparison target by having participants look at the person with whom they were comparing (on videotape or on a still image) or read a transcript of an interview with the target. In all cases, participants showed less unrealistic optimism than a control group that compared itself with the average person (although unrealistic optimism was not eliminated in any condition). The authors also found that unrealistic optimism was reduced even more when participants had personal contact with the comparison target. Ratings of personal risk did not differ among the various conditions, so these effects were due to changes in the comparison target.

Finally, it is plausible that greater amounts of unrealistic optimism are elicited when comparing with the average person than with an individuated target because people do not like to be average and therefore view the “average person” pejoratively. To test this idea, Alike et al. (1995, Study 2) gave participants a series of 9-point rating scales for several bipolar trait dimensions (e.g., extremely dependable–extremely undependable), and asked them to estimate the percentage of undergraduates at their university who would fall into each of the nine categories. The distributions were used to calculate mean ratings. Another group merely provided point estimates of where the “average person” would fall on these scales. The mean response in the latter condition was actually more positive than that calculated from the distribution, suggesting that the average person was viewed more favorably than the mean of the distribution. These data argue against the notion that the average person is seen negatively.

In summary, studies show that unrealistic optimism is reduced (though not eliminated) by having people compare with an individuated target rather than the average person, and reduced still more when the participant has brief personal contact with the target. It is significant, however, that making the comparison target more specific and concrete does not suffice to reduce optimism; individuation and personal contact are required as well. The reduction in optimism for such targets does not appear to be due to pejorative associations with being “average.” We note here that the effects described were not confounded with the amount of target information (which was equivalent in all conditions). This suggests that the reduced unrealistic optimism found in earlier
studies for single targets such as friends and acquaintances was not necessarily due to the greater knowledge about these targets, though it could well be due to greater perceived similarity with them.

**Focusing Attention on One’s Own or on Others’ Relevant Behaviors.**
We have now reviewed evidence that one set of factors known to influence social comparisons—characteristics of the target—play a significant role in unrealistic optimism. Unrealistic optimism may also depend on the nature of the comparison, such as whether people focus their attention on themselves or on the comparison target. Although social comparison research does not generally consider such attentional variables, they may play a significant role in the outcome of a social comparison.

People’s judgments are often egocentric in that they perceive their own behaviors and attributes more readily than those of others (e.g., Fienerstein, 1993; Krueger & Clement, 1994; Ross & Sico, 1979; Simon, 1993). Unrealistic optimism might occur, then, because people focus on their own risk-avoidant behavior rather than on the comparison target’s behavior (suggesting a combination of egocentrism and selective focus on one’s desirable attributes). Weinstein (1980) explored this idea by having some students list factors that increased or decreased their chances of experiencing several life events. In the actual experiment, one group reviewed the lists made by five of these students and then rated their own chances of experiencing these events. Relative to a control group, this group was less optimistic, presumably because reviewing information about others’ risk factors reduced participants’ egocentrism. However, unrealistic optimism was not eliminated. In a follow-up study, Weinstein (1983) was able to eliminate unrealistic optimism entirely by giving participants an explicit list of risk factors with the average student’s standing on each factor. In another study, unrealistic optimism was attenuated even when people were merely asked to take the perspective of the comparison target (Weinstein & Lachendorf, 1982). This last finding suggests that unrealistic optimism is generated at least in part by a failure to attend to the target, not necessarily by a lack of information about that target. Unfortunately, because all of these studies used the direct, comparative measure of risk, it is unclear whether participants reduced their perceptions of the average person’s risk or enhanced perceptions of their own risk.

Of course, increasing attention to others will not decrease unrealistic optimism if people focus on others worse off than themselves. In the context of several unsuccessful attempts to reduce unrealistic optimism, Weinstein and Klein (1995) found that focusing on high-risk others may serve to increase the amount of bias. In one of their studies, participants were given a list of risk factors for weight problems and generated a vivid mental image of a person who was on the high-risk end of each factor. Participants later reported their own risk of having a weight problem relative to a same-age, same-sex peer. Unrealistic optimism in this condition was greater than in a no-image control group, even though participants were asked to compare themselves to an average peer and not to the person in the mental image. In this case, increasing the salience of (and presumably the focus on) a potential comparison target increased unrealistic optimism. Moreover, this greater optimism resulted from increased perceptions of the average peer’s risk rather than reduced perceptions of the participants’ own risk. In a related study, participants rated themselves as happier than a comparison target who had liver disease, but even more so when they were face-to-face with the target (Strack, Schwarz, Chassein, Kern, & Wagner, 1990).

The above studies address how information about others might influence unrealistic optimism. Additional work addresses the influence that information about the self might have. Given that unrealistic optimism is associated with egocentricism, we might expect that increasing attention toward the self will increase levels of unrealistic optimism. Indeed, when people are asked to report their standing on risk factors or to review their behavioral profile before estimating their risk, they sometimes end up being more unrealistically optimistic (Gerrard et al., 1991; Weinstein, 1983). This increase in optimism seems to result from reduced perceptions of personal vulnerability rather than increased perceptions of the average person’s vulnerability (Gerrard et al., 1991). Similarly, in a study by Weinstein and Klein (1995, Study 4), participants who generated a list of personal attributes that decreased their risk of having a weight problem and then rated their comparative risk for this problem exhibited more unrealistic optimism than no-list controls. An opposite manipulation in which participants listed personal attributes that increased their risk did not reduce unrealistic optimism, suggesting that ego-enhancing processes may moderate the effects of self-focus on perceived risk.

It appears, then, that comparative risk judgments tend to be less optimistic when people are given information about (or take the perspective of) the comparison others, though when such comparison others are at especially high risk people may become even more convinced of their own invulnerability. The outcome of social comparisons about risk will also tend to be more optimistic when attention is turned inward, because people focus on what they do to decrease their risk (and even when they are asked to focus on what they do to increase their risk, their comparative risk judgments are unaffected).
Standard of Comparison. To make a social comparison, people must start with one social object as the standard and then compare another social object to that standard. Comparative judgments of Objects A and B may differ depending on whether A or B serves as the comparison standard (cf. Wanke, Schwarz, & Noelle-Neumann, 1995). In most unrealistic optimism research, people are asked to compare themselves to the average person, making the average person the standard. How might people respond if the task were inverted and they were asked to use themselves as the standard of comparison? Past research has shown that people show a self-other asymmetry in similarity ratings such that others are considered more like the self than vice-versa (e.g., Codol, 1987; Holyoak & Gordon, 1983). This suggests that when the self is used as a standard, self-other differences in unrealistic optimism might decrease. Indeed, when Otten and van der Pligt (1996, Study 2) asked participants to compare the average person’s risk to their own risk (thereby making self the standard of comparison) on a direct comparative scale, participants showed significantly lower levels of unrealistic optimism. Similar findings were reported by Hoorens (1995) for positive, but not negative, items. Thus, there is some preliminary evidence that unrealistic optimism is lower when people compare others to themselves.

These findings raise a more general question germane to most of the research in this chapter: When people compare their risk with that of others, do they begin this comparison with a well-articulated sense of the average person’s risk and then use that information to assist them in judging their own risk (as classic social comparison research might suggest), or do they begin with a well-articulated view of their own risk and use that to construct an estimate of the average person’s risk (as research on false uniqueness and false consensus effects might suggest)? In other words, what comparison standard do people normally use when judging their own risk? Because, as we discuss later, few data speak to people’s everyday risk judgments, this is a difficult question to answer, although there is already evidence in other domains that people tend to use their own standing on various attributes to judge similar attributes in others (e.g., Dunning & Cohen, 1992; Fong & Markus, 1982). Given that self-judgments of risk can be modified by information about comparison others (Rothman et al., 1996), a likely model is that the self is used as a standard to judge others and that these judgments may be used in turn to modify beliefs about the self. This reflexive model awaits further research.

It is interesting that most research on unrealistic optimism has used the average person as the comparison standard (with the reference group to which this average person belongs varying widely among different studies). This approach has been appropriate because it is far easier in health campaigns to present information about others or “the average person” than about the numerous, separate individuals to whom the message is directed. However, if it turns out that the self is normally used as a standard for judging comparative risk, past research may have exaggerated the magnitude of optimistic biases by artificially changing the standard that people use (Hoorens, 1995).

Summary. We set out in this section to show how several social comparison factors—direction of comparison; similarity, specificity, concreteness, and individuation of the target; attention toward own rather than others’ behaviors; and standard of comparison—influence the degree to which people are unrealistically optimistic. We reviewed some evidence that, consistent with some elements of social comparison theory, people choose to compare their risk with that of real or hypothetical individuals whose risk is greater. People are less likely to believe that their risk is lower than that of a comparison target when they do not hold a stereotype of a typical victim, and when the target is individuated, physically present, and perceived to be similar to themselves. Furthermore, unrealistic optimism appears to be greater when people fail to take the perspective of others and when others are used as the standard of comparison. Because social comparison research rarely examines the individuality of the target, the salience of participants’ own and others’ behavior, or the standard of comparison, these findings are theoretically significant. It remains to be seen whether these findings may be generalized to other social comparison situations. For example, when receiving negative performance feedback, will people be more likely to engage in downward comparison when the comparison target is an abstract, deindividuated person?

These findings have a number of implications for health promotion campaigns. Given that attention to one’s own behavior could exacerbate biases and that providing information about the risk of typical others is often ineffective, educational programs that rely on the dissemination of general risk information are unlikely to be successful. Instead, the use of similar, individuated, physically present others as comparison targets might lead people to exhibit less unrealistic optimism. Interventions that increase attention to these targets and that force the audience to compare these targets to themselves are also more likely to have an impact. We consider these recommendations in more detail in the final section of the chapter (see also Misovich, Fisher, & Fisher, chapter 4, this volume).

Clearly, there’s much more to learn about the comparison targets people choose when judging their health risk. There is a particular need
for experimental designs (e.g., Croyle & Ditto, 1990) in which risk feedback can be varied and target selection measured. Our understanding of unrealistic optimism would benefit greatly from such an approach, particularly given that social comparison studies using both target selection measures and comparative rating scales have sometimes yielded contradictory results (Wills, 1991; Wood & Taylor, 1991).

Question 2: Do People Attempt to Maintain Favorable Risk Comparisons?

We have seen that a variety of social comparison variables directly affect the magnitude of unrealistic optimism. In this section, we go one step further. If people use social comparisons when judging risk, and prefer these social comparisons to be self-enhancing, they may be likely to engage in several compensatory strategies when their favorable social comparisons are challenged. That is, if people are given information that conflicts with their comparatively optimistic beliefs, they may attempt to restore these beliefs. How might unrealistically optimistic beliefs be challenged? Given that people tend to overestimate the risk of their peers (e.g., Whitley & Herr, 1991), accurate information about others may serve as negative feedback. When faced with such information, will people become less unrealistically optimistic?

Rothman and colleagues (1996, Study 2) addressed this issue by giving undergraduate women statistics about their peers' risk for several negative life events. The statistics were obtained from a variety of national health information sources. For example, the investigator told participants that the average risk for a college-educated individual to divorce sometime in her or his life was 38%. The researchers also included two additional conditions in which they manipulated the statistics given to participants. In the Deflated condition, the statistics were 50% of actual risk (e.g., participants in this group were told that the average risk of divorce was 19%). The Inflated condition was given risk statistics inflated by 50% (e.g., participants in this group were told that the average risk of divorce was 57%). All participants then estimated their own absolute risk of experiencing these problems.

Because the researchers found in an earlier study that people tend to overestimate the average person's risk (Rothman et al., 1996, Study 1), they expected that the statistics offered in the Inflated condition of the current design would best match participants' own beliefs about the average person's risk and would therefore not be perceived as threatening. However, the risk statistics in the Actual and Deflated risk conditions were expected to challenge participants' overestimations of the average risk (and, in turn, their unrealistically optimistic beliefs). It was thus expected that participants in these two conditions would report lower personal risk than participants given inflated risk statistics. This is exactly what was found. Thus, participants appeared to be attempting to preserve a favorable difference between their own risk and others' risk.

Changing Beliefs About One's Behavior. Another challenge to people's favorable risk comparisons may come in the form of information about the health behaviors of their peers. We might learn, for example, that most of our peers floss daily, avoid high cholesterol foods, and do not smoke. Because people tend to overestimate the frequency of others' undesirable behaviors (Goethals et al., 1991; Perloff & Fetzer, 1986), such information should challenge prior beliefs. Given that many of the effects reported in the first section of this chapter involve beliefs about behaviors (e.g., increased focus on one's own behaviors increases unrealistic optimism), one might expect that people would be motivated to sustain favorable beliefs about their relative standing on these behaviors.

Following this reasoning, Klein and Kunda (1993) hypothesized that people may lower their estimates of how often they engage in risk-increasing behaviors if they are given peer information that challenges their prior beliefs. The researchers placed participants in one of four conditions and asked them to report, on 7-point scales, how often they engaged in nine risk-increasing behaviors that generally elicit social comparison biases (i.e., people tend to believe that they engage in these behaviors less often than others). For example, participants indicated how many meals per week they ate red meat on a scale labeled never, less than 1 meal, 1–3 meals, 4–7 meals, 8–10 meals, 11–13 meals, and more than 13 meals. In three conditions, participants were told how often their peers engaged in these behaviors, designated by an "X" on each 7-point scale. One group was given actual frequencies (which had been obtained earlier from a pretest sample; see Table 2.1, first column), another was given frequencies that were reduced by one scale point, and the third was given frequencies that were increased by one scale point. A control condition received no peer information.

As Table 2.1 shows, participants in the Actual and Decrement (reduced frequency) conditions reported engaging in the behaviors less often than did participants in the Increment (increased frequency) and Control conditions. That is, when their beliefs about their comparative standing on these risk factors were challenged, participants seemed to modify their beliefs about how often they engaged in these behaviors in order to preserve their comparative superiority. Such modification was not necessary in the Increment condition, because the "average" frequencies provided closely approximated participants' expectations. Like
TABLE 2.1
Risk-Increasing Behaviors: Self-Reported Frequencies by Condition

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Experimental Condition</th>
<th>Control</th>
<th>Accurate</th>
<th>Increment</th>
<th>Decrement</th>
</tr>
</thead>
<tbody>
<tr>
<td>How often eat eggs (2.46)</td>
<td></td>
<td>2.77</td>
<td>2.63</td>
<td>2.76</td>
<td>2.32</td>
</tr>
<tr>
<td>How often lose one's temper (2.91)</td>
<td></td>
<td>2.97</td>
<td>2.63</td>
<td>3.31</td>
<td>2.71</td>
</tr>
<tr>
<td>How many alcoholic drinks consumed at one time (2.98)</td>
<td></td>
<td>3.13</td>
<td>2.10</td>
<td>2.62</td>
<td>2.45</td>
</tr>
<tr>
<td>How often eat red meat (3.23)</td>
<td></td>
<td>3.39</td>
<td>2.87</td>
<td>3.28</td>
<td>2.77</td>
</tr>
<tr>
<td>How often drink alcohol (3.28)</td>
<td></td>
<td>3.68</td>
<td>2.70</td>
<td>2.79</td>
<td>2.71</td>
</tr>
<tr>
<td>How often eat sweet baked goods (3.72)</td>
<td></td>
<td>3.87</td>
<td>3.50</td>
<td>3.86</td>
<td>3.10</td>
</tr>
<tr>
<td>How often eat candy (3.90)</td>
<td></td>
<td>4.26</td>
<td>3.87</td>
<td>3.86</td>
<td>3.61</td>
</tr>
<tr>
<td>How often get worried/anxious (4.22)</td>
<td></td>
<td>4.61</td>
<td>4.03</td>
<td>5.38</td>
<td>4.32</td>
</tr>
<tr>
<td>How often eat greasy food (5.02)</td>
<td></td>
<td>5.39</td>
<td>4.77</td>
<td>4.97</td>
<td>4.42</td>
</tr>
</tbody>
</table>

Note. Responses ranged from 1 to 7; higher numbers indicate greater frequency. All numbers are group means. Multivariate tests revealed that means in the Control and Increment conditions, which did not themselves differ, were significantly greater than means in the Accurate and Decrement conditions, which did not themselves differ. Adapted from "Maintaining Self-Serving Social Comparisons: Biased Reconstruction of One's Past Behavior," by W. M. Klein and Z. Kunda (1993), Personality and Social Psychology Bulletin.

*Mean self-reported frequency in parentheses.

Subjects in the four conditions received no information (Control), accurate information about normative means (Accurate), ostensibly normative means that were inflated by one scale point (Increment), or ostensibly normative means that were reduced by one scale point (Decrement).

the Rothman et al. (1996) study, this investigation shows that people may revise beliefs about themselves in order to preserve their comparative superiority.

It could be argued, of course, that people have neither well-articulated beliefs about their precise numerical risk nor a good sense of how often they engage in risky behaviors. According to this argument, people’s beliefs are inherently comparative: they believe only that their risk is lower and their risky behaviors fewer than those of their peers, and when given an anchor, they simply generate self-estimates that are consistent with their prior social comparisons. However, an anchoring explanation cannot fully account for the range of findings reported here. For example, when participants received inflated peer frequencies, they did not increase reports of their own self-frequencies. Also, whether we accept the former or latter argument, both lead to interpretations of the data that acknowledge an important role for social comparison in judging risk. Indeed, the latter argument posit that judgments of risk and risk behaviors are based entirely on social comparison. In the next section, we present further evidence that lowering reports of personal risk behaviors is a strategy for preserving one’s own perceived superiority.

Of course, such changes must be made within the limits imposed by reality (Kunda, 1990). Indeed, although participants in Klein and Kunda’s (1993) Decrement condition gave the lowest estimates of frequency of risky behaviors, these estimates were still higher than the peer means that participants were given—in other words, participants stated that they engaged in these behaviors more often than what they thought the average was. Relative to the standards they were given, then, these participants actually rated their own behavior as inferior. When people are no longer able to distort beliefs about their own or others’ behavior in a way that preserves their superiority, what do they do?

Changing Beliefs About Risk Factors. One strategy people may follow when they hear that others engage in risk-increasing behaviors less than they do is to alter their evaluation of these behaviors. For example, if we learn that other people consume less salt than we do and we are unable to revise estimates of how often we use salt, we may become less convinced of the relationship between salt and hypertension, thereby preserving our unrealistic optimism about this health problem. As an alternative, we might devalue the personal importance we ascribe to avoiding this behavior. These two strategies are not the same—we can believe a behavior is risky for others and still not consider it important for us to avoid, a distinction that may be critical in whether or not we adopt a precaution (cf. Weinsteint, 1980). The personal importance people ascribe to a behavior may depend partly on its perceived relevance to health, but importance may also reflect such factors as peer pressure, religious practice, and the enjoyment the behavior provides.

In a study assessing both of these strategies (Klein, 1996, Study 1), participants reported how often they engaged in each of nine risk-increasing behaviors, and did so again 1 month later. At Time 2, the investigators gave the experimental group the mean responses collected at Time 1. A control group did not receive such information. At both times, participants rated how relevant they believed each of these behaviors was to the general risk of having health problems and how personally important they considered it to avoid these behaviors. At Time 2, participants also recalled the ratings they had provided at Time 1. Upon receiving the peer information at Time 2, the experimental group responded in the same way as those in the Klein and Kunda (1993) study, that is, by reducing their estimates of how often they
engaged in these behaviors. However, experimental participants at Time 2 also exhibited two other strategies: they rated these behaviors both as less relevant to health and as less personally important to avoid than did the control group. Interestingly, participants did not tend to engage in all of these strategies at once: Those who reduced their self-frequencies were significantly less likely to alter their beliefs about the health relevance and personal importance of the items (changes in the latter two beliefs were highly correlated). Thus, changing self-frequency beliefs and changing relevance-importance beliefs seem to be at least partially substitutable strategies. Furthermore, analyses of participants’ memory for their Time 1 ratings showed that they had distorted their memory of all three types of beliefs (self-frequencies, health relevance, and personal importance) in the direction of their Time 2 beliefs, suggesting that they were not aware that they had engaged in these comparison-preserving strategies.

In a second study by Klein (1996, Study 2), participants were told their peers engaged in nine risk-increasing behaviors (related to heart disease or alcoholism) very infrequently and then immediately reported their own behavior frequencies. The distorted peer information made it difficult for participants to see their own behavior as better than average. (Indeed, when participants reported their own frequencies of engaging in these behaviors, they lowered their self-frequencies but were unable to bring them below the extremely low peer frequencies they had been given.) Participants also rated the health relevance and personal importance of each of these behaviors— they did this before or after providing their frequency estimates—and also reported their comparative risk for heart disease and alcoholism. The relevance and importance ratings were completed on 11-point scales ranging from 1 (not at all) to 11 (extremely).

Klein predicted that participants would compensate for their inability to preserve their favorable standing on these behaviors by coming to see the behaviors as less relevant to health and less personally important to avoid. Indeed, when participants made their health relevance and personal importance ratings after rather than before reporting their self-frequencies, they availed themselves of this opportunity to compensate for their inferior standing by modifying their ratings on these other dimensions. In particular, they rated the behaviors as significantly less relevant to health and as less personally important than did participants in a control condition who had rated relevance and importance before reporting their self-frequencies (see Table 2.2). Remarkably, the comparative risk judgments in both conditions remained unrealistically optimistic despite participants’ acknowledgment that they engaged in the risky behaviors far more than their peers, according to the peer

<table>
<thead>
<tr>
<th>Condition</th>
<th>Control</th>
<th>Experimental</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart disease risk factors</td>
<td>7.07</td>
<td>6.77*</td>
</tr>
<tr>
<td>Health relevance</td>
<td>6.19</td>
<td>5.75*</td>
</tr>
<tr>
<td>Personal importance</td>
<td>7.38</td>
<td>6.60***</td>
</tr>
<tr>
<td>Alcoholism risk factors</td>
<td>8.43</td>
<td>5.88***</td>
</tr>
</tbody>
</table>

Note: Numbers in table are group means. Significance levels refer to difference between the two conditions. The higher the number the more relevant to their health subjects judged risky behaviors to be and the more personally important they felt it was to avoid them. Adapted from “Maintaining Self-Serving Social Comparisons: Altering the Perceived Significance of Risk-Increasing Behaviors,” by W. M. Klein (1996), Journal of Social and Clinical Psychology. Reprinted by permission of Sage Publications 1996 by Sage. *p < .10; **p < .05; ***p < .01.

means they were given. This finding is a testament to the resistance of people’s optimistic risk comparisons to correction.

These findings are consistent with Tesser’s (1991) self-evaluation maintenance (SEM) model, which predicts that when people are outperformed on a dimension important to their self-definition, they respond by decreasing their view of the importance of this dimension. The current findings also fit into a growing literature showing that people may even modify the importance to their self-definition of highly consequential attributes. For example, in a study by Gibbons, Benbow, and Gerrard (1994), gifted children came to see academic achievement as less important when their own performance was inferior to that of other children. Moreover, Gerrard, Gibbons, Benthin, and Hessing (1996) reported that adolescents came to see risk-increasing behaviors as less problematic the more they engaged in these behaviors. Taken all together, these findings warn health researchers and professionals that information about others’ performance of desirable health behaviors could lead people to be less rather than more convinced of the relevance and importance of these behaviors.

The successful use of strategies such as modifying beliefs about one’s behavior or about the relevance of risk factors to a health problem is likely to produce contentment with one’s current behavioral patterns and a disinterest in taking precautions. Indeed, it is conceivable that these strategies might lead individuals to become even more convinced of their invulnerability, thereby making them even less likely to modify their behavior. As an example, a smoker who has relapsed after an
attempt at quitting may come to devalue the danger of smoking and thus make no further attempts to quit (cf. Festinger, 1957; Gibbons, Eggleston, & Bershin, 1997). Clearly, additional research is needed to determine the consequences of each of the strategies just listed for subsequent precautionary behavior.

Summary. People maintain unrealistic optimism by distorting beliefs about others, about themselves, and about related behaviors. We also saw earlier that people may preserve beliefs about their favorable risk status by reducing their perceived similarity to a target who is said to be at high risk (Gump & Kulik, 1995). These strategies do not exhaust the possibilities. People might give more credit to other health-related behaviors (e.g., on hearing that their diets are only average, people might increase the perceived importance of exercise), or might invent new behaviors of questionable relevance (e.g., people might convince themselves that showering after intercourse reduces the risk of AIDS transmission; Bauman & Siegel, 1987). People could also choose to highlight the presumed health benefits of risky behaviors (e.g., the iron in red meat). Other work shows that people employ a variety of strategies to buffer themselves against the pain of negative feedback (e.g., Taylor & Brown, 1988; Taylor, Collins, Skokan, & Aspinwall, 1989). We need further research to identify these strategies, to specify when each is most likely to be used, and to find ways to counteract them. It is likely that people will use the strategies that are most economical (cf. Abelson, 1968). The strategies that have already been demonstrated, however, provide strong support for the claim that social comparison—and self-enhancing social comparison in particular—is an important component of risk judgment.

Question 3: Do People Use Social Comparison in Everyday Risk Judgments?

We have now argued that social comparison factors influence the magnitude of unrealistic optimism and that people engage in a variety of strategies to maintain their unrealistic optimism. This work provides convergent evidence that social comparison plays a significant role in the way people respond to risk. The experiments so far described establish that people respond to comparison information when the investigators provide it. Information about others is surely available in everyday life, but do people make use of such information on their own without being prompted by eager experimenters? Although this might seem to be the most important question of those we have addressed, there are surprisingly few relevant studies available.

In one study (Suls, Marco, & Tobin, 1991), 54% of an elderly sample mentioned individual or group social comparisons when asked what types of information they used when they evaluated their overall health. Of course, these participants were rating health status, not risk. In a study by Wheeler and Miyake (1992), undergraduates kept a record of their social comparisons over a 2-week period and noted in each case the dimension on which they were comparing. Approximately 56% of the comparisons were on academic, personality, and physical appearance dimensions. The next most mentioned dimension was “lifestyle” (12%), which, of the dimensions listed, is probably closest to judgments about one’s health. Finally, Helweg-Larsen (1996) asked participants to explain their ratings on a series of comparative risk scales. Surprisingly, despite the comparative nature of these scales, participants generally referred only to their own behavior (and not to others’ behavior) when attempting to account for their ratings. Although it is certainly possible that they were unaware of the role of social comparison in their judgments (cf. Nisbett & Wilson, 1977) or did not think to mention their comparison targets, Helweg-Larsen’s data do not support the notion that unrealistically optimistic judgments arise from social comparison.

In sum, the evidence from naturalistic studies for the role of social comparison in everyday risk judgment is scant and mixed. Further research employing methodologies such as those used by Wheeler and Miyake (1992) in which participants carried beepers and reported their social comparisons when beeped might help us understand the extent to which people rely on social comparison spontaneously in personal risk assessment. Naturalistic studies will also be useful to determine the effects of comparative risk judgments on subsequent behavior, a topic that we address in the next section. If people’s risk comparisons in everyday life affect their risk-related behavior, it will be easier to argue that social comparison is important in beliefs about personal risk. One plausible outcome of such research is that people use social comparison more for some health problems (particularly those that are threatening, ambiguous, and caused by controllable risk factors) than for others.

Question 4: Are Reactions to Hazards Sensitive to Risk Comparisons?

Health is one domain in which objective information, such as the significance of family history, medical tests, and a risky lifestyle, is readily available. With access to abundant information and with apparently objective criteria—health and life versus illness and death—people might not consider social comparison information particularly important when judging their own risk. Thus, we now turn to our fourth and final
question: Are people's affective, self-evaluative, and behavioral reactions to risk sensitive to social comparisons on risk status?

To assess the consequences of social comparisons, it is useful to contrast their impact with that of the knowledge people have about their absolute (or actuarial) risk of experiencing an event. At least at the aggregate level, estimates of absolute personal risk turn out to be fairly accurate (e.g., Rothman et al., 1996). And, as noted previously, objective information about health risk is often widely available. According to social comparison theory (Feshaw, 1954), objective standards are the first source of information used in self-evaluation, and social comparison is initiated only when objective standards are not available. Thus, social comparison theory predicts that judgments of risk will be more dependent on absolute than on comparative standing. The notion that objective information is considered first has rarely been tested in social comparison research, however, because most of the dimensions studied (e.g., intelligence, attractiveness, and coping) do not possess objective standards. Not surprisingly, people are sensitive to comparison information when such attributes are involved. Indeed, people are more motivated to engage in an activity in which they perform better than others than in an activity in which their performance is objectively superior but no better than others (Tesser & Campbell, 1980). For example, a student who scores more highly on a math task than on a literature task may still prefer to engage in the literature task if his or her performance is better than that of a peer on the literature task but is equivalent to that of the peer on the math task. Will this greater sensitivity to comparative standing also hold for beliefs about risk, such as one's objective chances of having heart disease?

Note that although comparative risk ratings and absolute risk ratings are positively correlated, they are not redundant. In one study correlations between the two were sometimes as low as .22 (Weinstein, 1984). When participants believe their risk for an event is objectively high, it does not necessarily mean that they consider their risk to be above average (not should they).

Social Comparison and Affective Reactions to Risk. If comparisons with others are important in judgments of personal risk, we should find that such comparisons have a significant impact on emotional responses to risk. For example, if a gay man with a risky behavioral profile learns that his risk of getting AIDS is below the average of other gay men, he should exhibit a more positive emotional response than if his level of risk is said to be above this average (even if his risk is high in absolute terms). Klein (in press) tested this idea by asking participants to imagine that they had tested positive on a salivary litmus test of a genetic marker for pancreatic disease and that their risk of having this disease was either above average by 20% or below average by 20% (constituting relative risk). Moreover, in order to determine whether participants would be sensitive to their objective risk level, Klein asked some participants to imagine that their own risk was 30% and others that it was 60% (constituting absolute risk). This resulted in four conditions, with each absolute risk group being told that their risk was either above or below average (e.g., participants in the 30% conditions were told that the average person's risk was 10% in the above-average condition and 50% in the below-average condition). Participants then estimated how disturbed they would be with their test results.

Participants' absolute level of risk had no effect on how disturbed they believed they would be; participants who were told that they had a 60% chance of having this disease did not believe they would be any more disturbed than participants who were told that they had a 30% chance of having the disease. This finding is consistent with past research showing that people are less worried about a health risk the more prevalent it is said to be (Jemmott, Dite, & Cryle, 1980); in this case, prevalence was not influential. However, there was a strong main effect for comparative standing; participants believed they would be more disturbed by a worse-than-average than by a better-than-average test. Indeed, participants whose risk of 30% was said to be above average expected to be more disturbed than participants whose risk of 60% was said to be below average. These findings suggest that affective responses to personal risk information are sensitive to social comparison, and, at least in some situations, even more so than to objective risk information.

Social Comparison and Self-Evaluative Reactions to Risk. Although people's comparisons with others may influence affective reactions to personal risk, such comparisons may not necessarily influence their self-evaluations, which are more constrained than emotional responses by factual information and prior knowledge (Kunda, 1990). In our AIDS example, gay men may be comforted by the fact that their risk is below average yet they may still believe that their objective behavior is dangerous. In an attempt to assess the effect of social comparison on self-evaluation, Klein (in press) asked participants to imagine that, because of their driving habits, they had either a 30% or a 60% chance of causing an automobile accident. As before, half imagined that the average person's risk was 20% higher than this figure and half imagined that it was 20% lower. The self-evaluation measure employed was participants' judgments of how safe they would consider their driving to be upon hearing this information. Once again, absolute risk had no
effect on participants' safety judgments. However, analyses revealed a
large effect of comparative risk such that participants thought they were
safer drivers when their risk was said to be below average than when it
was said to be above average. Participants in the 60% risk/below-average
group believed they were safer drivers than those in the 30% risk/above-
average group. These findings suggest that social comparison influences
not only affective responses to personal risk levels but self-assessments
as well.

Social Comparison and Behavioral Reactions to Risk. The question
of most interest to health researchers and public health workers is
whether behavior is influenced by social comparison. Continuing with
the AIDS example, would a high-risk gay man who learned that his
AIDS risk was below the average of other gay men be less interested in
precautionary behaviors despite the fact that he faces a substantial,
life-threatening hazard? (See also Misovich, Fisher, & Fisher, chapter 4,
this volume.) Although people's affective and self-evaluative responses
to risk information may depend more on relative than on absolute risk,
the often immediate consequences of risky behaviors may lead behav-
ioral responses to reflect a more realistic understanding of the correla-
tion between one's objective risk standing and the consequences of one's
behavior (and thus encourage less attention to relative information). In
Klein's (in press) next problem, participants again imagined that they
had a 30% or 60% absolute risk of causing an automobile accident, and
that their risk was 20% above or below the average. Participants then
indicated the extent to which they might change several different
driving behaviors. The same pattern found earlier for judgments of
driving safety was observed for participants' behavioral intentions.
Participants whose risk was said to be above average (rather than below
average) indicated that they would be more likely to drive slower on the
highway, use seat belts more often, and take public transportation more
frequently. There were no effects of absolute risk on behavioral inten-
tions.

Of course, it is difficult to draw strong conclusions from studies
involving scenarios that are hypothetical and that do not measure actual
behavior. Are people responsive to comparative risk when making a
decision with a real outcome? In the next study, Klein (in press)
informed participants that they correctly answered 8 or 12 out of 20
items on a judgment task. Half were told that the average score was 50%
higher (and half 50% lower) than the participant's score. Participants
could then engage in one of two games with the chance of winning a
prize. The first game was to complete 20 more items on the same
judgment task; participants would win if they answered 10 or more
correctly. The other option was a chance game in which participants
would spin a roulette wheel 20 times and win if the ball landed on red
10 times or more. Task choice was the primary measure. Note that
among participants who had scored an 8 on the first judgment task, the
only reason they should choose to perform this task again instead of the
chance task was if they believed they could improve their score to 10 or
higher on a second try.

The data showed that participants were sensitive to their absolute
score—participants scoring 12 were more likely than those scoring 8 to
choose the judgment task again. However, participants also exhibited
attention to the comparison information: significantly more "above-
average" participants than "below-average" participants chose the judg-
ment task again. Thus, when thinking about their risk of succeeding at
the second judgment task, participants were influenced by their com-
parative standing. A follow-up study (Klein, in press) that contrasted
these two conditions with a no-information control group showed that
the above-average group was somewhat more likely and the below-
average group somewhat less likely to choose the judgment task,
suggesting that the effects of comparative risk in the first study were
unrelated to the desirability of the information. Mediator analyses
showed that relative standing affected task choice by modifying beliefs
about the self. Returning once more to the AIDS example, this study
suggests that a high risk gay man who hears that his risk of AIDS is
below that of others may come to see his behavior in an even more
favorable light, and, in turn, neglect to make important behavioral
changes.

Correlational Studies Linking Risk to Behavior. The issue of
whether social comparison influences behavioral reactions to risk may
also be addressed by consulting the extensive literature correlating risk
perceptions with health behaviors. Given our interest in contrasting the
influence of relative risk estimates on subsequent behavior with that of
absolute risk estimates, the studies of most relevance are those that
measure both types of risk perceptions. Many investigators assess just
one of these risk variables (e.g., Kulik & Mahler, 1987) and others
measure both but combine them into a single variable when analyzing
their data (e.g., Ashworth, Kemeny, Taylor, Schneider, & Dudley,
1991). Among the few studies that analyze the variables separately,
findings are mixed. Some report that behavior correlates more highly
with absolute risk than with comparative risk (e.g., Gladis, Michel, Waler, & Vaughan, 1992; Hoovens & Baun, 1993), whereas others
report the opposite (van der Velde et al., 1994). This inconsistency could
reflect variations in the timing of behaviors. Cross-sectional correla-
tions
between risk and behavior usually indicate the accuracy of risk perceptions, whereas prospective correlations between risk perceptions and future behavior pertain to the effects of risk perceptions on behavior (Gerrard, Gibbons, & Bushman, 1996; Weinstein & Nicoll, 1993; Weinstein, Rothman, & Nicoll, in press). Several of the prospective studies find that future behavior is predicted better by comparative risk than by absolute risk (e.g., Blalock, DeVellis, & Affl, 1990; van der Velde, van der Pligt, & Hooykaas, 1992; although see Weinstein, Sandman, & Roberts, 1990). We encourage researchers to use both risk variables in order to determine which best predicts precaution adoption.

**Summary.** The studies reviewed show that people are sensitive to the comparison between their risk and the risk of their peers. In fact, some reactions seem more sensitive to comparative than to absolute risk status, arguing against the assumption in social comparison theory that objective information is used first. In other ways these findings provide strong support for social comparison theory because they show that social comparison may be even more ubiquitous than the theory predicts.

In addition to highlighting the importance of social comparison in the way people feel about risk, these studies suggest that any interventions focusing solely on one’s personal, actuarial risk may not be successful in changing behavior. Campaigns that provide personal risk information may be more effective if they add information about a person’s relative risk. Of course, this adjustment may sometimes backfire, because if people learn that their risk is below the average for their reference group they may become even less interested in behavioral change. We consider this possibility further in the next section.

**Dilemmas of the Health Professional**

For anyone hoping to change people’s health habits, the findings reviewed here might appear quite discouraging. People not only hold optimistically biased beliefs about their health, but vigorously attempt to maintain these beliefs when challenged. However, knowledge about the importance of social comparison in risk judgments suggests a number of approaches for designing more effective interventions. In our first section, we found that comparative unrealistic optimism is attenuated under a variety of conditions: when people compare with similar, individuated, or physically present others; when people pay attention to what others are doing to decrease their risk; and when people compare others to themselves (rather than vice-versa). In our last section, we discussed research that showed that people’s affective, self-evaluative, and behavioral reactions to risk information are sensitive to comparisons with others. These two bodies of work suggest that people will feel particularly concerned about their own risk if they are forced to compare with a similar, highly individuated peer who has a healthier lifestyle (and thus a relatively lower risk) than they do. Alternatively, people may become strongly concerned about their risk by comparing themselves to another who is at high risk but similar on all other dimensions. Indeed, this assumption is at the heart of work by Misovich, Fisher, and Fisher (chapter 4, this volume): these researchers showed that films of seemingly normal undergraduates who also happen to be HIV-positive have a great impact on viewers’ beliefs about (and behavioral reactions to) their own HIV risk. Of course, it is essential to reduce biases about risk without creating feelings of hopelessness and helplessness (cf. Janoff-Bulman, 1989). With this caveat in mind, researchers should determine which comparison targets elicit the most behavior change.

The picture becomes more complicated when we realize that people harness several strategies to maintain biased beliefs about their comparative risk and their comparative standing on relevant risk factors. Interventions that merely include the use of comparison targets without taking these strategies into account are probably doomed to fail and may even exacerbate biases (Weinstein & Klein, 1995). For example, presenting a comparison target that is a prototype of the type of person who contracts a particular disease may not only be ineffective but may make people believe they are even less at risk than they thought before. One promising implication of the Klein (1996) studies is that if people report their risky behaviors and health beliefs before rather than after an intervention they may be prevented from reducing estimates of how often they engage in these behaviors or from changing their beliefs about the significance of these behaviors to their health. According to this argument, having people report their beliefs prior to a social comparison intervention will make them feel a greater need to justify any changes they make in these beliefs after the intervention. Further research will determine the kinds of interventions that work best, but one thing is clear: the effect of educational interventions will in all likelihood be enhanced by the inclusion of carefully chosen social comparisons and further enhanced if these comparisons block people’s bias maintenance strategies.

**Conclusions and Reflections**

Our inquiry into the role of social comparison in biased comparative assessments of personal risk addressed four questions. On balance, the
available research suggests that social comparison may play an important role in risk appraisal. We found that several aspects of the social comparison process influence the magnitude of unrealistic optimism, that people try to maintain favorable comparisons with others on risk dimensions, and that in their reflective, self-evaluative, and behavioral reactions to risk people are sensitive to social comparison information. We also reported very preliminary and mixed research on the role social comparison plays in everyday risk perceptions.

Several interesting questions remain. First, does the importance of social comparison in judging personal risk match the importance of social comparison in other life domains? Although research on social indicators has provided some sense of the value of social comparison in judging different life dimensions (e.g., Diener & Fujita, chapter 11, this volume; Emmons & Diener, 1985; Fox & Kahneman, 1992), health is rarely among the dimensions examined. This question awaits further research.

Could it be that the processes reported here are present in other self-enhancement biases, such as false consensus (e.g., Marks & Miller, 1987), false uniqueness (e.g., Goethals et al., 1991), and positivity biases in judgments of personality (Brown, 1986) and ability (Larwood & Whitaker, 1977)? Given that processes of self-assessment are generally related (e.g., Hoovers, 1934; Tesser & Cornell, 1991), we think the answer is yes. Indeed, Klein and Goethals (1997) have recently shown that people's attempts to maintain favorable comparisons in the face of challenging information may increase uniqueness bases.

Moreover, it is likely that social comparison is relevant to other risk-specific issues such as the decision to see a medical professional or submit to a risky medical procedure. In general, an integration of these research findings will be helpful in constructing a theoretical understanding of self-enhancing social comparison and its effects on everyday functioning (see also Salz, Martin, & Lewenthal, chapter 7, this volume).

Another interesting question is whether cultural factors determine the role of social comparison in risk perception. Optimistic biases have been found among individuals in Singapore (Lek & Bashop, 1995), Denmark (Heweg-Larsen, 1994), and the Netherlands (van der Plig et al., 1993), as well as among American Indians (Lighsclad, Oken, Klein, Welty, & Landrigan, in press). It remains to be seen whether social comparison influences risk judgment equally in these and other cultures. For example, in cultures where one is taught not to stand out from others, seeking favorable social comparisons may be avoided (cf. Markus & Kitayama, 1991); in this context, optimistic biases would presumably have their roots in some phenomenon other than social comparison. In some cases, cultural tendencies may even prevent unrealistic optimism from appearing at all (e.g., Heine & Lehman, 1995). The role of cultural and other individual differences such as SES and personality deserves further attention.

It is important to emphasize that when social comparison is used to judge risk, self-enhancement is only one possible goal (cf. Hegtson & Mickelson, 1995). People may be genuinely interested in risk information about similar others, especially when new health problems such as AIDS and skin cancer arise or receive additional public attention. Individuals will also be interested to know that members of their in-group are especially susceptible to a health problem, as are Jews to Tay-Sachs disease and African Americans to sickle-cell anemia.

Learning that others in one's ethnic group have been victimized by a problem is likely to increase personal risk perceptions. People may also use low-risk targets as models (upward comparison) in order to ascertain how to lead healthier lifestyles.

Still, social comparison in risk judgment often appears more focused on self-enhancement. Although this makes reducing comparison biases a major challenge, the search for successful interventions is under way. As we discover what works, we will undoubtedly learn more about the many ways that social comparison and risk judgment are intertwined.

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2. SOCIAL COMPARISON AND UNREALISTIC OPTIMISM


