Risk Perceptions of People Living with HIV/AIDS: How Similarity Affects Optimistic Bias

Maria Knight Lapinski, Rajiv N. Rimal, Katherine A. Klein and Hillary C. Shulman

J Health Psychol 2009 14: 251
DOI: 10.1177/1359105308100209

The online version of this article can be found at:
http://hpq.sagepub.com/content/14/2/251

Published by:

SAGE

http://www.sagepublications.com

Additional services and information for Journal of Health Psychology can be found at:

Email Alerts: http://hpq.sagepub.com/cgi/alerts

Subscriptions: http://hpq.sagepub.com/subscriptions

Reprints: http://www.sagepub.com/journalsReprints.nav

Permissions: http://www.sagepub.com/journalsPermissions.nav

Citations: http://hpq.sagepub.com/content/14/2/251.refs.html
Risk Perceptions of People Living with HIV/AIDS
How Similarity Affects Optimistic Bias

MARIA KNIGHT LAPINSKI
Michigan State University, USA
RAJIV N. RIMAL
Johns Hopkins Bloomberg School of Public Health, USA
KATHERINE A. KLEIN & HILLARY C. SHULMAN
Michigan State University, USA

Abstract
Little as known about how people living with HIV/AIDS (PLWH/A) assess their vulnerability to non-HIV-related risk factors, and how this judgement is affected by perceived similarity with others. This study indicates not only that PLWH/A are optimistically biased in their risk perceptions, but also that they do not use others’ HIV status to assess similarity. Perceived similarity with others, however, affects risk judgements: greater the perceived similarity with others, greater the tendency to judge others’ vulnerability relative to one’s own. Findings point to the importance of considering similarity as a key variable in understanding how risk assessments are made by persons with chronic health conditions.

Acknowledgements. An earlier version of this article was presented in the Health Communication Division at the annual meeting of the National Communication Association, San Antonio, Texas. The authors would like to acknowledge Gary Karch for his assistance with data collection and thank the Michigan PLWH/A task force for their help with the project.

Competing interests: None declared.

Address. Correspondence should be directed to:
M. K. LAPINSKI, Department of Communication, 480 Communication Arts and Sciences, Michigan State University, East Lansing, MI 48823, USA. [Tel. +1 517 353 4466; email: lapinsk3@msu.edu]
According to the optimistic bias literature, most people perceive that, in comparison to others, they are less vulnerable to diseases and risk factors (Weinstein, 1980, 1984). Although this belief of relative invulnerability may constitute a healthy response for many people, it is not known whether the same degree of optimism is also displayed by individuals with chronic conditions like HIV. On the one hand, having a known and incurable (albeit treatable) condition that compromises one’s immune system may heighten individuals’ sense of personal vulnerability. On the other hand, acknowledging vulnerability may be mentally stressful. In this study, we examine how people living with HIV view their risks to non-HIV-related factors, in comparison to the same risks faced by other people. Understanding how people living with HIV or AIDS (PLWH/A) perceive their level of health risk allows theory to be extended while also providing interesting implications for health communicators.

With some notable exceptions (cf. Taylor et al., 1992), optimistic bias studies have focused on persons without chronic conditions. There is some evidence that optimistic bias occurs even among those who have experienced health risks. Taylor et al. (1992) found that men who tested seropositive for HIV had higher AIDS-specific optimism scores than men who were seronegative. This suggests that their optimistic bias with regard to AIDS may be higher; it does not provide an indication, however, about how they rate their risks to non-HIV related factors. PLWH/A are at greater risks to various health conditions (CDCP, 2005; Cooperman & Simoni, 2005; Gielen, McDonnell, O’Campo, & Burke, 2005; Heckman et al., 2002) than members of the general population. Relatively little is known about the perceived risk of people living with HIV to diseases and conditions other than AIDS. We also know little about how PLWH/A compare themselves relative to others living with HIV. Our first research question is:

**RQ1:** Do PLWH/A experience optimistic bias pertaining to non-HIV health issues relative to other HIV-positive and HIV-negative persons?

Optimistic bias may occur because of the frame of reference that individuals use in making relative risk assessments. Rimal and Morrison (2006) found optimistic bias to be rooted in individuals’ propensity to compare themselves with others who are dissimilar to, and perhaps less fortunate than, themselves. The question then becomes whether PLWH/A perceive greater similarity with other HIV-positive or other HIV-negative people. Hence, we ask:

**RQ2:** Do PLWH/A perceive greater similarity with other HIV-positive or HIV-negative persons?

Anchoring effects can explain how perceived similarity affects optimistic bias. It refers to the idea that comparative risk assessments are made by using one’s own risk as a frame of reference, as an anchor (Davis, Hoch, & Ragsdale, 1986; Kruger, 1999). This tendency to make comparative judgments relative to one’s own as the anchor extends to other domains besides risk (Klar & Giladi, 1999). To the extent that individuals’ risk assessments are guided by anchoring effects, perceived similarity between oneself and the target should be positively associated with the tendency to view the target’s risks as being closer to one’s own risks. When a target is judged to be similar, assessments about the target are likely to be more closely aligned with individuals’ assessments about themselves. When the target is deemed to be dissimilar, however, the anchoring effect will likely be less pronounced, with the effect of a greater divergence in risk assessment between individuals themselves and the (dissimilar) target. We note that the anchoring effect does not imply that similar others will be perceived to be at lower risk; it can, however, be used to extrapolate that the relationship between risk to oneself and risk to a similar target will be stronger than the relationship between risk to oneself and risk to a dissimilar target. Hence our hypothesis is:

*H:* The relationship between risk to self and risk to a target will be stronger when the target is perceived to be similar than when the target is perceived to be dissimilar.

**Method**

Data for this study come from a self-administered survey of persons living with HIV who attended a statewide retreat in Michigan in the Fall of 2005. Individuals were recruited to the event by staff from community-based organizations, word of mouth and announcements in the statewide newsletter targeted to PLWH/A.1

Data available from the sponsors of the event indicated that 204 participants were pre-registered to attend. All who attended the first event at the conference were approached by researchers during their registration process; conference organizers...
estimate this number at 165 people. One hundred and four agreed to participate in the study, and completed informed consent procedures. Three days later, the same participants were approached for the second part of the study, and 67 participated in the second phase. This latter wave included questions designed to assess optimistic bias. Carrying this study out in two phases reduced potential demand characteristics that are often a criticism of survey research. The items measuring the theoretical variables strike can be found in the Appendix.

Perceived risk was operationalized by asking participants how likely it was (on a seven-point scale) that the designated event would happen to: (a) themselves; (b) an average HIV-positive person; and (c) an average HIV-negative person. Seven designated events were listed: drug addiction; drinking problem; attempting suicide; asthma; food poisoning; falling and breaking a bone; and arthritis. Responses to the seven questions were averaged into three separate indexes: risk to oneself, \( \alpha = .85 \); an HIV-positive person, \( \alpha = .91 \); and an HIV-negative person, \( \alpha = .86 \).

A five-item scale derived from Rimal and Morrison (2006) was used to measure perceived similarity in which participants responded to items on a seven-point scale, with higher numbers indicating greater perceived similarity. Participants were asked ‘how similar are you to (the average HIV-positive/HIV-negative) person in the following ways’ and then given a list of descriptors (e.g. ‘in your values’ and ‘in your experiences’). Confirmatory factor analyses indicated all scales were unidimensional and parallel. All scales had alpha reliability coefficients within generally accepted ranges. Questions that might identify the participants were not included in the survey instrument, and participants were asked to return the completed survey by placing it in an envelope and then in a box that was kept at a distance from the research team. This ensured that all data collected were anonymous and self-administered which helped to minimize experimenter effects and reduce social desirability biases.

Participants

All participants had received a positive HIV diagnosis, and the average length of time since diagnosis was 7.6 years (SD = 5.9). Additionally, 37.5 percent of participants had been diagnosed with AIDS. The mean age of participants was 41.6 years (SD = 8.1; Range 24–64). Twenty-eight percent of the sample comprised females, which approximates the demographics of the larger PLWH/A population (Until There’s a Cure Foundation, 2007). Half of the participants identified themselves as behaviorally gay men, 31 percent reported as heterosexual, 9 percent as bisexual, 2 percent as lesbian and 3 percent as ‘other’. Approximately 47 percent of the sample self-reported as Black, 39 percent White, 5 percent Hispanic or Latino and 2 percent biracial. Approximately 38 percent of the sample had a high school education or less, and another third had at least some college education.

Participants who remained in the sample for the second phase of the study were older (\( M = 42.91, SD = 8.70, t = 2.14, p < .05 \)) than those who dropped out (\( M = 39.42, SD = 6.63 \)). On other factors, however, the two groups were not significantly different in: education, \( t(6) = 5.93, p > .05 \); years since diagnosis, \( t = 0.49, p > .05 \); and perceived level of connection with the HIV/AIDS community, \( t = 1.30, p > .05 \).

Results

Research question 1

The first research question asked whether participants experienced optimistic bias relative to other HIV-positive and HIV-negative people for issues other than HIV. This research question was tested using a repeated measures ANOVA, in which assessment of risk to self, HIV-positive others and HIV-negative others constituted the within-subjects factor; order (in which the questions were asked) was the between-subjects factor. The perceived risk main-effect was significant, \( F (2, 96) = 11.16, p = .001, \eta^2 = .19 \). The rating order interaction term was not significant, \( F (8, 96) = 1.11, p > .05, \eta^2 = .09 \). Thus, there were no order effects, and they will not be discussed further. Perceived risk for oneself, \( M = 3.10, SD = 1.65 \), was significantly lower than that for a positive other, \( M = 4.13, SD = 1.69; t = 4.94, p < .001 \). Similarly, perceived risk for oneself, \( M = 3.11, SD = 1.69 \), was significantly lower than that for a negative other, \( M = 3.78, SD = 1.67; t = 2.92, p < .01 \). Perceived risk ratings for a positive other did not differ significantly from ratings for the negative other, \( t = 1.85, p > .05 \).

Research question 2

The second research question asked whether participants perceived greater similarity with other HIV-positive or other HIV-negative persons. This research question was addressed by examining the mean ratings of similarity for the HIV-positive referent and
Examination of the means through a paired sample t-test indicated that people with HIV did not see other HIV-positive persons ($M = 4.65; SD = 1.58$) as more similar to themselves than other HIV-negative persons ($M = 4.69, SD = 1.58; t = .29, p = .78$).

Test of the hypothesis

The hypothesis predicted that the relationship between risk to self and risk to the target would be stronger when the target was perceived to be similar than when the target was perceived to be dissimilar. This hypothesis was tested with two regression equations: one with risk ratings for the HIV-positive target and another with risk ratings for the HIV-negative target as the dependent variable, respectively. Independent variables included risk to self, similarity with the target and the interaction between these two variables. In order to determine the nature of the interaction, we followed Aiken and West’s (1991) recommendations by centering (and standardizing) the predictors and interpreting the unstandardized beta coefficients. The relationships between risk to self and risk to target along two values of similarity were plotted: one standard deviation above the mean and one standard deviation below the mean.

Table 1 shows the results from the regression equations. In each equation, the critical test is the relationship between the self-rating $\times$ similarity interaction term and the dependent variable. When rating an HIV-positive target, self-risk was a significant predictor ($b = .75, p < .01$), similarity with the target was not significant ($b = -.35, p > .05$), and the interaction term was a significant predictor ($b = .42, p < .05$). The same pattern was found in rating the HIV-negative target: self-risk ($b = .59, p < .01$) and the interaction term ($b = .46,$

![Figure 1. Risks Ascribed to HIV-Positive and HIV-Negative Targets](image-url)

Table 1. Self-Risk and Similarity as Predictors of Ratings of Risks for HIV-Positive and HIV-Negative Targets

<table>
<thead>
<tr>
<th></th>
<th>HIV-Positive Target</th>
<th>HIV-Negative Target</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$r$</td>
<td>beta</td>
</tr>
<tr>
<td>Self-risk ratings (SR)</td>
<td>.55***</td>
<td>.75**</td>
</tr>
<tr>
<td>Similarity with target (Sim)</td>
<td>$-.16$</td>
<td>$-.35$</td>
</tr>
<tr>
<td>SR $\times$ Sim interaction</td>
<td>.39**</td>
<td>.42*</td>
</tr>
<tr>
<td>(Model R$^2$)</td>
<td>(.358***)</td>
<td></td>
</tr>
</tbody>
</table>

a. Zero order Pearson correlation between predictor and risk taking.
b. Unstandardized regression coefficient.
p < .05), but not ratings of similarity (b = .17, p > .05), were significant predictors. Table 1 also shows the zero-order correlations between the predictor variables and the target’s risk ratings.

Following the Aiken and West (1991) algorithm, the nature of the self-rating × similarity interaction term is depicted graphically in Fig. 1, in which each panel contains two lines—one depicting the relationship between self-rating and the target rating for high similarity (1 SD above the mean) and the other for low similarity (1 SD below the mean); the panel on the left refers to ratings for an HIV-positive target and that on the right refers to ratings for an HIV-negative target. In both cases, when similarity was high, the relationship between self-rating and target rating was positive (t = 4.95, p < .001 for HIV-positive targets and t = 4.33, p < .001 for HIV-negative targets). When similarity was low, however, the relationship between self-ratings and target ratings was not significant (t = .99, p > .05 for HIV-positive targets and t = .41, p > .05) for HIV-negative targets. Thus, the data were consistent with the study hypothesis.

**Discussion**

This study adds to the growing body of literature demonstrating the presence of optimistic bias across a variety of settings and populations. Although previous research is ambiguous in specifying the magnitude of optimistic bias in chronically ill populations, our findings showed that the onset of a chronic illness might in fact strengthen this perceptual bias. In our sample, HIV-positive participants saw themselves as less likely to fall victim to a variety of health risks in comparison to both HIV-positive and HIV-negative others. What is most compelling about these findings is that the pattern occurred for both (HIV-positive and HIV-negative) referents.

Data from this study indicate that judgments of similarity did not differ when people were asked to consider an HIV-positive and HIV-negative other. Both were viewed as relatively similar to one another and slightly above the midpoint of the scale, indicating both were perceived as more similar to, as opposed to different from, the participants themselves. Thus, it appears that the HIV status of others is not a meaningful dimension along which HIV-positive persons evaluate similarity with others.

The hypothesis predicted that one’s own risk would serve as an anchor more strongly when the target was deemed to be similar to oneself than when the target was deemed to be dissimilar to oneself. The data were consistent with this hypothesis. In each of the two tests, the relationship between risk to oneself and risk to others was not significant when others were perceived to be dissimilar; when others were deemed to be similar, however, how individuals assessed their own susceptibility was a strong predictor of how they assessed susceptibility for others. We should also note that, across the tests of the study hypothesis, perceived similarity between oneself and the target was not a significant predictor of the target’s risk. This indicates that how individuals perceive risks faced by others is not entirely a function of similarity; rather, assessments on behalf of others are made jointly by self-assessments and similarity judgments.

The primary limitations of this study were the small sample size and the inability to obtain a random sample making generalizability issues paramount. The study was completed by a small group of conveniently sampled individuals who were brought together because of their HIV status; the researchers took advantage of a rare opportunity to study individuals about whom we know relatively little. Two things, however, need to be pointed out about the sampling used in this study. First, the small sample size limits our ability to detect differences. To the extent that significant differences were found, however, it increases our confidence that, were the sample to have been larger, these effects would have been more pronounced. Second, although it is true that the sample selection process used in this study limits the generalizability of our findings, we should note that the population of interest to us in this study were HIV-positive individuals, not the larger general population. Further, it is possible that those who agreed to participate in our study may be in some way different from those who did not; an additional limitation. We have no data as to the exact nature of these differences but may only speculate that they could exist. This study was meant to be a preliminary examination of how people who are critically ill perceive their level of risk. The sample in this study may be exceptional in that they were attending a conference focusing on coping with their illness and may therefore be unique from people who would not attend such a conference. Future work in this area could be of interest; specifically, whether attending retreats or seminars bolsters optimistic bias that promotes a healthier lifestyle. This study provides insight into how optimistic bias and similarity reflect one’s judgment of their health.

Finally, it appears that anchoring effects provide another explanation for optimistic bias. Findings
from this study show not only that individuals gauge others’ risks relative to one’s own risks, but also that this tendency to ‘anchor’ others’ conditions onto one’s own gets stronger when perceived similarity with the target is high. When the target is perceived to be dissimilar to oneself, anchoring effects do not seem to hold. This hypothesis needs to be tested with a larger population. If it holds, it signifies that feelings of empathy toward others are maximized when one’s perceived similarity with others is highest.

Future research on perceived risk in chronically ill populations carries important implications for health campaigns. Results suggest that although people who have a disease are at greater risk for contracting other illnesses, their perceptions of this risk do not mirror this reality. This study’s results imply that similarity is not necessarily inferred based on common medical history. Though many campaigns focus on anecdotal experience and connecting PLWH/A with other PLWH/A, this present research suggests that this might not be the most effective strategy especially when risk information is conveyed. Understanding how people cope with illness is an important formative issue that is in need of more sophisticated theoretical development. Future research on optimistic bias in terminally ill populations may be an area in which to continue advancements in theory.

From a health communication perspective, optimistic bias can serve as a barrier to change, despite its role as a coping mechanism. Health behavior change theories suggest that, to the extent that individuals minimize their potential risks to various diseases, they may be less likely to take self-protective measures. From the perspective of the extended parallel process model (Witte, 1992), for example, individuals will not be motivated to take action if perceptions of personal threat are below a critical point. Conversely, literature suggests that optimistic bias may also serve a protective function. The challenge for health researchers, then, is to find the balance between when optimistic bias can be protective, on the one hand, and when it can potentially serve as a barrier to change, on the other hand. Perhaps highlighting risks and simultaneously enhancing efficacy beliefs, as suggested by the extended parallel process model (Witte, 1992) and the risk perception attitude framework (Rimal & Real, 2005), would address this central challenge. Heightening perceptions of risk can initiate individual awareness concerning the need to act, while strengthening efficacy beliefs can prescribe the necessary skills to act effectively.

Notes
1. In 2006, the population of PLWH/A in Michigan was estimated at 1.6 percent (Michigan Department of Community Health, 2006).

Appendix
How similar are you to the average (HIV positive person/HIV negative person) in the following ways?

<table>
<thead>
<tr>
<th></th>
<th>Not at all similar</th>
<th>Extremely similar</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Intellectually</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>2. In the way you think?</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>3. In your values?</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>4. In your life experiences?</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>5. In your outlook on life?</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>

We would now like to (ask you to rate your personal risk/the average HIV positive person’s risk/the average HIV negative person’s risk) to several potential problems.

How do you think you are at risk for each of the health issues listed in the first column?

1 = Much Below Average…to… 7 = Much Above Average

1. Drug addiction (on a scale from 1 to 7)
2. Drinking (alcohol) problem
3. Attempting suicide
4. Asthma
5. Food Poisoning (on a scale from 1 to 7)
6. Falling and breaking a bone
7. Arthritis
References


Author biographies

MARIA KNIGHT LAPINSKI (PhD, Michigan State University, 2000) is an Associate Professor in the Department of Communication and National Food Safety and Toxicology Center at Michigan State University (MSU).

RAJIV N. RIMAL (PhD Stanford University, 1995) is an Associate Professor in the Department of Health Policy and Management in the Bloomberg School of Public Health at Johns Hopkins University.

KATHERINE A. KLEIN is a Research Scientist at the Centers for Disease Control and Prevention. Dr Klein earned her PhD from MSU in 2007.

HILLARY SHULMAN (MA, Michigan State University, 2007) is a doctoral student in the Department of Communication at MSU.