Using Message Framing to Promote Healthful Behaviors: An Update

John A. Updegraff
Kent State University
Alexander J. Rothman
University of Minnesota
Peter Salovey
Yale University

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Address correspondence to John A. Updegraff, 321 Kent Hall, Department of Psychology, Kent State University, Kent, OH 44242-0001; jupdegr1@kent.edu; or Alexander J. Rothman, Department of Psychology, University of Minnesota, 75 East River Road, Minneapolis, MN 55455; email: rothm001@umn.edu
USING MESSAGE FRAMING TO PROMOTE HEALTHFUL BEHAVIORS: AN UPDATE

John A. Updegraff, Ph.D., Alexander J. Rothman, Ph.D., Peter Salovey, PhD.

Two general conclusions were drawn in our last review of the role of message framing in promoting health behavior. First, based primarily on studies of breast cancer screening behaviors, loss-framed messages were more effective than gain-framed messages in promoting detection behaviors. Second, gain-framed messages were more effective than loss-framed messages in promoting prevention behaviors, but this conclusion was based on a small number of studies.

Since our last review, research on health message framing has flourished, enabling us to revisit and expand on these conclusions. From 2006 to 2011, over 30 published empirical papers have compared the impact of gain- and loss-framed health messages on outcomes such as attitudes, intentions, and health behavior; approximately a dozen of these studies have specifically compared the impact of gain- and loss-framed health messages on the adoption of health behavior (see Gallagher & Updegraff, 2011 for details). These studies examined a range of both detection and prevention behaviors, including breast cancer screening, dietary change, oral health, physical activity, smoking cessation, and alcohol use. However, the most notable work to emerge since our last review has been a series of meta-analyses on the persuasive effects of framed health messages. Each of these meta-analyses was guided in large part by the prevention v. detection distinction articulated by Rothman and Salovey (1997). Thus, these meta-analyses offer an ideal starting point for our update.

Meta-Analytic Reviews

The first set of meta-analyses focused on the relative influence of gain- and loss-framed messages on prevention behaviors (O’Keefe & Jensen, 2007) and detection behaviors (O’Keefe & Jensen, 2009). In their review of 93 studies of prevention behavior, O’Keefe and Jensen (2007) found only a very small (r = .03) yet statistically significant advantage of gain-framed messages over loss-framed messages. Similarly, in their review of 53 detection behaviors, O’Keefe and Jensen (2009) found a very small (effect size correlation r = -.04) but statistically significant advantage of loss-framed messages over gain-framed messages, but the loss-frame advantage appeared to be driven by a single domain—breast cancer screening. No significant advantage of loss-framed messages was found for other detection domains such as skin cancer or oral health. Although these findings do not contradict our prior conclusions, they suggest that the effect of message framing on health behavior may be smaller in magnitude than we had suggested.

One important limitation of these two meta-analyses is that they did not isolate the effect of message framing on health behavior, which was the focus of our prior review. O’Keefe and Jensen’s reviews estimated the relative effect of gain- vs. loss-framed messages on attitudes, intentions, and behavior combined. As anyone who has failed at a New Year’s resolution knows, attitudes and intentions are imperfect predictors of behavior. Thus, these meta-analyses are of limited relevance to our conclusions.

A more recent meta-analysis by Gallagher and Updegraff (2011) focused on studies that utilized behavior to assess the persuasive impact of gain- and loss-framed messages. Gallagher and Updegraff (2011) found a significant main effect advantage of gain-
framed messages for the promotion of prevention behaviors ($r = .08$), larger than the effect noted by O’Keefe and Jensen (2007). This gain-frame advantage was particularly apparent in the two reviewed studies of skin cancer prevention ($r = .24$), three reviewed studies of smoking cessation ($r = .20$), and six reviewed studies of physical activity ($r = .16$). There was no significant effect of framing in the domains of diet (six studies), vaccination (one study), oral health (seven studies), and safe sex (one study), although in no case was a loss-framed advantage found for promoting behavior in these latter domains.

In contrast, Gallagher and Updegraff found no significant difference between loss- and gain-framed messages in encouraging detection behavior overall ($r = -.04$), or in the specific domains of breast cancer screening ($r = -.05$; ten studies) or testing for sexually transmitted diseases ($r = .05$; two studies). However, in no domain was there a significant gain-framed advantage found for promoting behavior in any detection domain. Gallagher and Updegraff also tested whether the influence of framed messages depended on the form of presentation. As we originally speculated, framing effects were no different when presented by video, audio, or in print.

Detection Behaviors

We first revisit our conclusions about the persuasiveness of loss-framed messages in encouraging detection behaviors. Although the lack of a significant loss-frame advantage across detection behaviors is inconsistent with our initial conclusions, we also noted that “to the extent there is variability in how people think about a test procedure, evidence of a systematic effect of framing will be harder to discern”. When people’s relevant beliefs about a detection test vary, it is these beliefs—rather than the underlying function of the behavior—that should shape responses to framed messages. In other words, loss-framed messages should motivate detection behavior more so than gain-framed messages, but only for people who view screening as a risky or uncertain behavior.

Indeed, several recent studies affirm this position. For example, detection behaviors such as pap testing can be viewed as risky behaviors if the focus of testing is on detecting the presence of cancer early. Alternatively, pap testing could be viewed as a safer behavior if the focus of testing is on preventing cervical cancer. Rivers and colleagues (2005) experimentally manipulated whether a video promoting pap testing among women recruited from a health clinic emphasized the detection or the prevention function of pap testing. Consistent with our prior predictions, when pap testing was described as a way to detect cancer early, loss-framed messages led to a greater probability of screening (52%) at a 6-month follow-up than gain-framed messages (42%). In contrast, when pap testing was emphasized as a way to prevent cervical cancer, gain-framed messages led to somewhat more screening (44%) at the 6-month follow-up than loss-framed messages (40%). However, this pattern was not apparent at a 12-month follow-up, suggesting that the effect of framing on pap screening was more likely to motivate earlier, rather than later, adoption of the test.

Do people’s naturally-occurring beliefs about risk similarly moderate the influence of framing on the adoption of screening tests? A vivid illustration of this variability comes from a recent study of mammography screening (Gallagher et al., 2011). A large, ethnically-diverse sample of women was recruited from an inner city hospital to view either a gain- or loss-framed video on the importance of screening. These women also completed several measures that assessed different aspects of their risk beliefs regarding breast cancer – including beliefs about their perceived susceptibility to breast cancer, their beliefs about the perceived risks of screening,
and their construal of mammography as a health-affirming or illness-detecting behavior. Of these beliefs, they found perceived susceptibility to significantly moderate the influence of message framing on the likelihood of screening at a 3-month follow-up. For women with high perceived susceptibility to breast cancer, loss-framed messages were significantly more likely to lead to screening than gain-framed messages. In contrast, among women who perceived low susceptibility to breast cancer, loss- and gain-framed messages were equally as persuasive.

Thus, these findings point to people’s beliefs about risk and susceptibility as being potentially important moderators of framing effects on behavior. It may not be surprising, then, that meta-analyses found a weak and/or non-significant effect of framing on promoting screening behavior. If many of these studies employed participants with a range of beliefs about susceptibility, then framing may have only been likely to influence behavior for those with high beliefs of susceptibility (see also Apanovitch et al., 2003).

Other recent studies have found statistically similar rates of adherence between women exposed to loss- and gain-framed messages in promoting mammography at 6- and 12-month follow-ups (Consedine et al., 2007) and Type 2 diabetes screening (Park et al., 2010). Thus, research since our last review suggests, if anything, loss-framed messages are more likely to promote detection behaviors than gain-framed messages, but this effect may be small and is most likely to emerge among people who perceive greater risk associated with the prospect of screening.

**Prevention Behaviors**

Our last review bemoaned the small number of studies examining framing effects on prevention behaviors. The last 5 years have rectified this situation, and meta-analyses now confirm a gain-frame advantage in encouraging prevention behavior overall (Gallagher & Updegraff, 2011). Several studies provide nice illustrations of this gain-frame advantage. For example, Latimer and colleagues (2008) found that a gain-framed audio message led to significantly greater physical activity among sedentary adults than a loss-framed message at a 9-month follow-up. Toll et al. (2007) found gain-framed messages to be more effective in leading to continued abstinence of smoking among completers of 7 weeks of bupropion treatment. Gerend and Cullen (2008) showed that gain-framed messages were more effective than loss-framed messages in reducing college student drinking behavior across a one-month period, when the messages focused on the short-term consequences of alcohol use. Our prior statement that “no studies of prevention behavior have shown loss-framed messages to be more persuasive” still holds up.

However, there are several domains of prevention behaviors – such as healthy eating, oral health, and safe sex – that have yet to reveal a gain framing effect. As was observed in the area of detection behaviors, researchers have begun to identify key moderating factors. People may differ in how they construe some prevention behaviors. For example, safe sex behaviors may be viewed as either safe or risky, depending on whether one is focusing on the long-term health consequences (safe) or the interpersonal negotiations involved (potentially risky). Kiene et al (2005) found that when messages emphasized the health consequences of carrying condoms, gain-framed messages were viewed more favorably than loss-framed messages. In contrast, when messages emphasized the interpersonal consequences of discussing condoms with a partner, loss-framed messages were viewed more favorably than gain-framed messages.
Similarly, Updegraff and colleagues observed that dispositional factors can moderate the effect of message framing, especially in domains such as dental flossing where people may not have strong, accessible beliefs about the behavior. Several studies have shown that dispositional approach and avoidance motivations moderate the influence of framing on flossing behavior, with gain-framed messages more persuasive for approach-oriented people and loss-framed messages more persuasive for avoidance-oriented people (reviewed in Sherman et al., 2008).

In our prior review, we noted that very little attention had been paid to how message frames could be used to motivate ongoing behavioral practices. Although no investigator has yet to address this issue directly, one interesting pattern reported in Gallagher and Updegraff’s (2011) meta-analysis is that the advantage of gain-framed messages in the prevention domain emerged when behavior over time was the outcome, but not when more immediate, cognitive responses such as attitudes or intentions were examined. Given that prevention behaviors are more likely to represent ongoing practices than detection behaviors, gain-framed messages may be more likely to stimulate initial adoption of prevention behaviors. Once adopted, other factors such as increases in self-efficacy or satisfaction with the behavior may help maintain these behaviors over time. Given the speculative nature of this interpretation, it is important that future research examine directly the effect of framing on the performance of behavior over time.

**Remaining questions**

In the last 4 years, relatively little research has addressed two lingering issues we identified in our earlier review. First, the processes by which framed messages influence behavior still remain poorly understood. Gallagher and Updegraff’s (2011) meta-analysis suggests that, in the domain of prevention behaviors, framing effects on behavior are not likely to be mediated by consciously reported attitudes or intentions towards the behavior. Other processes, such differences in the extent to which gain- and loss-framed messages are processed (cf. O’Keefe & Jensen, 2008) or emotional responses (Rothman & Updegraff, 2010), may be possible candidates that future researchers should address.

Second, a large literature has emerged on the factors that moderate people’s responses to framed messages—including dispositional factors (Sherman et al., 2008), beliefs about risk (Gallagher et al., 2011), and other health beliefs such as self-efficacy (van t’ Riet et al., 2010). What remains to be developed is a more integrative way of understanding how these different factors relate to each other, as well as to develop tools to assess the beliefs that are most likely to shape people’s responses to framed messages.

**Practical Recommendations for Clinicians**

Clinicians often face the challenge of persuading a patient to change his or her health behavior. We conclude that message framing is an important consideration in such communications. By strategically framing a message, a clinician can elicit a predictable, albeit small, change in the likelihood that a patient will adopt the advocated behavior.

For clinicians advocating illness prevention behaviors—such as sun safety, smoking cessation, and physical activity—gain-framed messages should be more effective than loss-framed messages. Gain-framed messages emphasize the health benefits of adopting a behavior, such as improved health, greater energy, or reduced likelihood of illness.

For clinicians advocating illness detection behaviors—such as HIV or cancer screening—we suggest that clinicians use loss-framed rather than gain-framed messages. This
recommendation may be particularly important when communicating with patients who perceive a high susceptibility for an illness. Loss-framed messages emphasize the negative health consequences—such as fewer treatment options, worse prognosis, or increased risk of mortality—that may arise as a result of delaying or foregoing an illness detection test.

REFERENCES
