

The Effectiveness of Gain-Framed Messages for Encouraging Disease Prevention Behavior: Is All Hope Lost?

AMY E. LATIMER

Queen's University, School of Kinesiology and Health Studies, Kingston,
Ontario, Canada

PETER SALOVEY

Department of Psychology, Yale University, New Haven,
Connecticut, USA

ALEXANDER J. ROTHMAN

Department of Psychology, University of Minnesota, Minneapolis,
Minnesota, USA

This commentary is a response to O'Keefe and Jensen's (2007/this issue) meta-analysis of the persuasive effects of gain- and loss-framed messages encouraging disease prevention behaviors. We suggest that the future of message framing is promising with newly emerging approaches to increasing message effectiveness.

For almost two decades, researchers have been examining the effectiveness of gain- and loss-framed appeals for persuading individuals to make healthy lifestyle choices. Guided by the framing postulates of prospect theory (Tversky & Kahneman, 1981), Rothman and Salovey (1997) proposed that loss-framed messages emphasizing costs persuade people to engage in behaviors that are construed as risky given their potential to indicate the presence of disease (e.g., detection behaviors such as mammography screening). Conversely, they hypothesized that gain-framed messages emphasizing benefits convince people to engage in behaviors that are characterized by little risk or uncertainty (e.g., prevention behaviors such as dental flossing). The meta-analysis by O'Keefe and Jensen (1997/this issue) provides a thorough and critical evaluation of this latter hypothesis.

The meta-analysis of 93 studies showed a small but significant advantage for gain-framed over loss-framed messages for encouraging disease prevention behaviors. When O'Keefe and Jensen (1997/this issue) examined the data by behavior type, however, a significant gain-framed advantage was apparent only for dental hygiene behaviors. In their analysis, gain-framed messages did not significantly increase the promotion of other types of prevention behavior. These somewhat

Address correspondence to Amy E. Latimer, Ph.D., Queen's University, School of Kinesiology and Health Studies, 69 Union St., Kingston, ON, Canada K7L 3N6. E-mail: amy.latimer@queensu.ca

disappointing findings raise the question, "Is all hope lost?" Should researchers and practitioners abandon efforts to enhance prevention messages through gain-framing?

On the contrary! An emerging body of research suggests that the future for gain-framed messages remains promising. Accumulating evidence provides direction for strengthening gain-framing effects and for advancing theory. This next generation of framing research is the result of investigators working to refine the framing postulates (Rothman & Salovey, 1997) by specifying the optimal conditions for using gain- and loss-framed messages, looking beyond categories such as prevention versus detection (Rothman, Bartels, Wlaschin, & Salovey, 2006). Rather, they have begun to consider *individuals'* construal of a behavior and *individuals'* dispositional sensitivity to favorable or unfavorable outcomes as additional factors influencing the impact of framed appeals (Rothman, Wlaschin, Bartels, Latimer, & Salovey, in press).

O'Keefe and Jensen (2007/*this issue*) propose that there may be variability in how certain types of behaviors within the disease prevention behavior category are construed; as a result gain-framed messages may be differentially effective. For example, they suggest that dental hygiene behaviors may be construed as a prevention behavior with certain outcomes (the conditions under which a gain-framed message will be most persuasive), whereas getting a flu shot may be construed as a prevention behavior with less certain outcomes (conditions under which a loss-framed message may be most persuasive). We agree. Indeed, risk implications are an important consideration when developing framed messages. Research in this area, however, suggests that these implications should be considered at the level of the *individual* rather than at the level of the behavior type. Specifically, the effectiveness of framed messages hinges on how the *individual* thinks and feels about the behavior and not the behavior type per se. This premise has been tested in laboratory and clinical settings.

In the laboratory, the effectiveness of gain- and loss-framed messages for encouraging vaccination against West Nile virus (i.e., a prevention behavior) was compared (Bartels, Kelly, & Rothman, 2007). The construal of the behavioral outcome was manipulated experimentally. Some participants read about a vaccine that was effective 9 out of 10 times (i.e., certain outcome with minimal health risk). Other participants learned that the vaccine was effective only 6 out of 10 times (i.e., somewhat uncertain outcome with potential health risk). Subsequent to reading the risk information, participants were presented with either a gain- or loss-framed appeal encouraging vaccination. Interestingly, no main effect for message frame (i.e., the type of effects examined by O'Keefe and Jensen) emerged as significant. A gain-frame advantage did emerge, however; participants who considered the vaccine with more certain outcomes were more persuaded by the gain-framed message. Conversely, participants who considered the vaccine with less certain outcomes were more persuaded by the loss-framed appeal. Thus, despite encouraging the same behavior, the gain- and loss-framed messages were differentially effective depending on the way in which participants considered the outcome. In the appropriate conditions, gain-framed appeals optimize message persuasiveness.

In the clinic, the utility of gain- and loss-framed messages for preventing a smoking relapse was examined in the context of a smoking cessation and bupropion (Zyban, GlaxoSmithKline, Research Triangle Park, NC) trial (Toll et al., in press). Behavioral construal was determined using a self-reported assessment of the perceived risks and benefits of smoking cessation. The main effect of message frame

was nonsignificant. Nonetheless, a gain-framed advantage was revealed for women with low perception of smoking cessation risk; the women remained nonsmokers longer when they received gain-framed materials compared with women who received loss-framed materials (Toll et al., in press). Taken together, the results from these two studies emphasize the importance of establishing how *individuals* construe the target behavior when evaluating the influence of gain-framed health messages. Without considering this factor, the utility of gain-framed appeals may be underestimated.

In addition to the evidence that how people think about their behavior affects whether they are persuaded by gain-framed messages, dispositional factors also influence reactions to framed appeals. Although several individual difference characteristics have been identified as plausible moderators of messages framing effects, the dispositional characteristic with the most evidence of reliably moderating framing effects is an individual's tendency to orient his or her behavior toward favorable or unfavorable outcomes (Rothman et al., 2006). This dispositional variation in motivational style is captured by the two distinct yet conceptually similar theoretical constructs of approach/avoidance motivation (the tendency to seek out favorable outcomes or to avoid unfavorable outcomes; Carver & White, 1984) and regulatory focus (the tendency to act in ways that ensure the presence of positive outcomes or the absence of negative outcomes; Higgins, 1998). Both of these constructs have been shown to moderate the effectiveness of framed messages (e.g., Cesario, Grant, & Higgins, 2004; Mann, Sherman, & Updegraff, 2004) and, in fact, may rely on a set of processes that conceptually are analogous to those that underlie the moderating impact of the prevention/detection behavior categories (see Rothman et al., in press, for further discussion of this issue).

A consistent pattern of findings has emerged demonstrating that individuals who are motivated by the presence of positive outcomes are persuaded to engage in disease prevention behaviors by gain-framed messages. Loss-framed messages persuaded individuals who are motivated by the absence of negative outcomes to engage in disease prevention behaviors. Interestingly, whereas O'Keefe and Jensen found convincing effects of gain-framed messages for encouraging dental hygiene behaviors, three studies (Mann et al., 2004; Sherman, Mann, & Updegraff, 2006; Updegraff, Sherman, Luyster, & Mann, 2007) indicated that there are conditions when gain-framed messages are not optimally effective for persuading this type of behavior. In these three studies, individuals who received framed messages congruent with their motivational orientation were more likely to floss than individuals who received incongruent messages. That is, participants sensitive to the presence of gains were persuaded to floss after reading a gain-framed message, whereas participants sensitive to the absence of negative outcomes were persuaded to floss after reading loss-framed arguments.

A similar pattern of moderated effects of framed messages has emerged for other behaviors such as fruit and vegetable consumption and physical activity (Cesario et al., 2004; Latimer et al., in press; Lee & Aaker, 2004). Note that the majority of these studies were included in O'Keefe and Jensen's comprehensive meta-analysis and account for a number of the negative correlations reported (e.g., Lee & Aaker, 2004, Exp. 2 prevention; Cesario et al., 2004, prevention). As a consequence of these negative effect sizes resulting from when gain-framed messages were found to be less persuasive than loss-framed messages for individuals sensitive to the absence of negative outcomes, the true effects of gain-framed messages may have been

suppressed. Evidently, to obtain a full understanding of the impact of gain-framed appeals, researchers and practitioners must aim to deliver and evaluate framed messages suited to the individual.

Although implementing the strategies to create congruent messages should lead to larger effect sizes than those noted by O'Keefe and Jensen, it is wholly possible that the effects will remain small to medium sized. We are trying to change incredibly complex behaviors using comparatively simple messaging interventions, which in many cases involve a brief, single exposure to the framed information. The U.S. Center for Disease Control's VERB campaign provides an excellent starting point for creating realistic expectations of message-related behavior change. The VERB campaign is a multimillion dollar mass media campaign promoting physical activity for children 9 to 13 years of age (Huhman et al., 2007). This comprehensive campaign used multiple channels and on-going exposure to deliver the message. The effect sizes at the 2-year follow-up ranged from $r = .06$ to $.12$. These effects are comparable with those reported for other mass media interventions (Snyder et al., 2004) and are some of the largest effects documented for a physical activity campaign (Cavill & Bauman, 2004). Given that most message framing interventions are much less extensive than the VERB campaign, we must adjust our expectations accordingly. While it is likely that even framed messages congruent with the individual's construals and motives will continue to result in small size effects, when considering the difficulty of changing behavior, these can be important effect sizes (personal correspondence with members of the VERB team). Indeed, creating a small effect in a large group of people can translate into meaningful change at the population level (Rose, 1995). Furthermore, within the context of larger multicomponent interventions, the small changes induced by framed messages may contribute to the additive effects of the multiple intervention components.

The meager effects uncovered in O'Keefe and Jensen's (2007/this issue) meta-analysis surely are disappointing as the need for simple, effective principles that can guide the design and dissemination of health-promotion messages remains acute. We hope that investigators take these meta-analytic findings not as a sign to abandon efforts to optimize the persuasiveness of framed disease prevention messages, but rather as motivation to work to refine and advance current message framing postulates to specify more precisely when gain- versus loss-framed messages will be most effective (Michie et al., 2007). As new evidence emerges, the practical guidelines for developing effective messages should be updated to disseminate details about the improved message framing strategies and to create realistic expectations for change.

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