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Message Framing Variations in Health and Risk Messaging



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Summary and Keywords

Many health-related message variations have been described as variations in the framing of the message. What different applications of the term *message framing* have in common is that, in each case, something gets described in different ways (with researchers having a special interest in the consequences of these different descriptions). But what that “thing” is and how the descriptions of it differ vary across different uses of the term *framing*. In research on health-related messages, at least three different variations have been described using “framing” as a label.

One concerns variation in consequence-based arguments in persuasive messages. In this kind of framing, what varies is the description of the antecedent or consequent in arguments designed to persuade people to adopt some course of action. For example, the antecedent in an argument designed to encourage sunscreen use might be expressed as “if you wear sunscreen” or “if you don’t wear sunscreen,” and the consequent of such arguments might emphasize sunburns or skin cancer. A second concerns variation in the description of some news event, public policy issue, or health subject. For example, news media might describe obesity as controllable or as something over which one has limited control. A third concerns variation in the description of an attribute of a course of action. For example, a surgical procedure might be described as having a “90% success rate” or a “10% failure rate.”

Keywords: Argument framing, gain-loss framing, issue framing, attribute framing, risky-choice framing

In health-related messages, many different message variations have been described as variations in the framing of the message. Indeed, the term *framing* has come into common parlance as a label for capturing the possibility of different ways of talking about something. (It will not be news for communication scholars, but apparently some people find it revelatory to learn that how you talk about things matters—that if you frame your message in different ways, the message’s effects might vary.) Given such breadth of

colloquial application, the phenomena thereby identified naturally form something of a grab bag rather than a conceptually tight domain.

Even in scholarly discourse, *framing* has been used to label a great many different phenomena, to the point that some observers have urged researchers “to abandon the general term ‘framing’ altogether, and instead, distinguish between different types of framing” (Cacciatore, Scheufele, & Iyengar, 2016). This proposal has a great deal of merit, though the word may be too well established to permit much optimism about the success of the suggestion. Still, in the service of that proposal, it is possible to point to some distinct uses of the term in health communication contexts—in the hope of eventually encouraging conceptually more satisfactory treatments.

What different applications of the term *framing* have in common is that, in each case, something gets described in different ways (with researchers and message designers having a special interest in the consequences of these different descriptions). But what that “thing” is, and how the descriptions of it differ, vary across different uses of the term *framing*. In research on health-related communication, at least three different message variations have been described using framing as a label. One concerns variation in the description of the antecedent or consequent in consequence-based arguments in persuasive messages. A second concerns variation in the description of some news event, public policy issue, or health topic. A third concerns alternative ways of describing an attribute of a given course of action. In what follows, each of these kinds of framing is analyzed in greater detail. (For an alternative way of sorting out framing variations, see Levin, Schneider, & Gaeth, 1998. For discussions focused on other application areas, see Cornelissen & Werner, 2014; Dewulf et al., 2009.)

Argument Framing

One common way of persuading people to adopt a given health behavior is to make arguments invoking the consequences of an action. These are conditional, “if-then” arguments, in which the antecedent is an action and the consequent is an outcome. As examples: “If you smoke, you’ll increase your risk of heart disease”; “If you exercise regularly, your mood will improve”; “If you don’t take this medication, your blood pressure will be too high”; or “If you get a colonoscopy, your risk of colon cancer will decrease.” Arguments of this sort are a familiar way of trying to convince people to follow a given course of action.

Researchers and message designers have naturally been interested in understanding what factors influence the effectiveness of such arguments. Hence a good deal of

research has been devoted to exploring the effects of variations both in the antecedents and in the consequents of such appeals—with the term *framing* commonly used to describe such variations. What follows tries to sort out these argument varieties.

Antecedent Variation

One way in which consequence-based arguments can vary is in the wording of the antecedent. Specifically, the antecedent might be either performance of the advocated action or nonperformance of that action. For example, an argument for greater use of sunscreen might begin with either “if you wear sunscreen” or “if you don’t wear sunscreen.”

This variation in the phrasing of the antecedent has commonly been referred to as a contrast between a gain-framed message and a loss-framed message. In a gain-framed appeal, the antecedent is phrased in terms of performing the advocated action; in a loss-framed appeal, the antecedent is phrased in terms of not performing that action.

Because the messages in question are persuasive messages—ones meant to influence—this variation in argument antecedents is naturally associated with a variation in argument consequents: Performing the advocated action is said to lead to desirable outcomes; not performing the advocated action is said to lead to undesirable outcomes. Thus the antecedent “if you take your high blood pressure medication” would be combined with an outcome such as “you’ll probably get to play with your grandchildren,” whereas “if you don’t take your high blood pressure medication” would be paired with “you might not get to play with your grandchildren.”

The terms *gain-framed* and *loss-framed* are not entirely transparent labels for this message variation. After all, the “gain” from a gain-framed appeal might be avoiding a loss (“if you exercise regularly, you’ll reduce your risk of a heart attack”) and the “loss” from a loss-framed appeal might be foregoing some possible gain (“if you don’t exercise regularly, you’ll miss out on a chance to improve your mood”). In retrospect, it might have been better to use different language (perhaps “compliance-focused” and “noncompliance-focused”) so as to draw attention to the key element in this message variation, namely, the antecedent. But the terminology of *gain-framed* and *loss-framed* is too well established to hope for any such revision.

The question of interest to message designers, of course, is which of these two message kinds is more persuasive. This is a complicated subject, beyond the scope of this article, but at a minimum, two things seem clear: Gain-framed and loss-framed messages do not

generally differ in persuasiveness, and the evidence for any potential moderating factor is mixed at best. (For some relevant review discussions, see Covey, 2014; Gallagher & Updegraff, 2012; O’Keefe, 2012; O’Keefe & Nan, 2012; O’Keefe & Wu, 2012.)

Consequent Variation

A second way in which such consequence-based arguments can vary is in the nature of the consequent, the outcome that is invoked. These variations have also been labeled as message framing variations; messages are said to be framed in terms of this or that consequence. At least some of these variations can be seen to represent contrasts between more abstract categories of outcomes, so it will be helpful to catalogue such variations.

Short-Term Versus Long-Term Consequences

At least for some health message topics, the outcomes invoked by a consequence-based argument might be ones that occur relatively immediately or ones that occur at some temporal distance. For example, appeals encouraging sunscreen use might emphasize protection against either sunburn (short-term outcome) or skin cancer (long-term outcome). That is, messages can be framed in terms of short-term or long-term consequences; this argument variation is sometimes called *temporal framing*. This particular variation has been of interest because of the individual-difference variable “consideration of future consequences” (CFC). People who are high in CFC are inclined to place more emphasis on long-term outcomes, whereas those low in CFC focus on short-term outcomes. The natural hypothesis is that the relative persuasiveness of different appeals will vary depending on whether the temporal focus of the consequences mentioned in the appeal matches that of the message recipient (e.g., Kees, 2011; Zhao, Nan, Iles, & Yang, 2015).

Self-Oriented Versus Other-Oriented Consequences

At least for some health message topics, the outcomes invoked by a consequence-based argument might be ones that occur to the message recipient or ones that happen to other people. For example, appeals encouraging smoking cessation might emphasize reducing one’s own health risks (consequences for self) or reducing the health risks for one’s family such as by eliminating second-hand smoke (consequences for others). That is, messages can be framed in terms of self-oriented or other-oriented consequences; this

argument variation is sometimes called *benefit-target framing*, because what varies is the target of the claimed benefit. This kind of variation has been of interest because the more common focus for health messages is self-oriented consequences, but appeals invoking other-oriented consequences have sometimes been more persuasive (e.g., Bresnahan, Zhuang, & Sun, 2013; Gardner & Leshner, 2016).

Prevention-Oriented Versus Promotion-Oriented Consequences

At least for some health message topics, the outcomes invoked by a consequence-based argument might be ones that represent either prevention-oriented consequences or promotion-oriented consequences. For example, messages aimed at encouraging exercise might emphasize either reducing cardiovascular risk (prevention) or increasing stamina (promotion). That is, messages can be framed in terms of prevention-oriented or promotion-oriented consequences. This kind of variation has been of interest because people vary (both chronically and situationally) in their *regulatory focus*: they can be focused on achievement, improvement, making gains, and the like (promotion) or on safety, security, avoiding losses, and so forth (prevention). A number of studies have explored the hypothesis that message recipients will be more persuaded by appeals that match their regulatory motivation than by appeals that are mismatched (e.g., Latimer et al., 2008; Zhao & Pechmann, 2007; for a review, see Ludolph & Schulz, 2015).

Health Consequences Versus Non-Health Consequences

At least for some health message topics, the outcomes invoked by a consequence-based argument might be health-related consequences or non-health-related consequences. For example, appeals aimed at discouraging sun exposure might emphasize either health risks (e.g., skin cancer) or effects on physical appearance (e.g., wrinkles); appeals aimed at discouraging smoking by adolescents might emphasize either lung cancer or negative social consequences (e.g., being shunned by one's peers). That is, messages can be framed in terms of health outcomes or non-health outcomes. This kind of variation has been of interest because, even though appeals invoking health-related outcomes might seem most natural for encouraging health behaviors, appeals invoking non-health outcomes can sometimes be more persuasive, at least for some message recipients (e.g., Cornelis, Cauberghe, & De Pelesmacker, 2014; Kingsbury, Gibbons, & Gerrard, 2015).

Other Substantive Consequence Variations

Any sort of substantive variation in the outcomes mentioned (in consequence-based arguments) might potentially be described as a difference in message framing. For example, the human papilloma virus (HPV) vaccine provides protection against various disease conditions, including genital warts and cancer, but arguments invoking these outcomes might not be equally persuasive to all message recipients; message designers might want to adapt (frame) their messages correspondingly. Leader, Weiner, Kelly, Hornik, and Cappella (2009, p. 225), for instance, found that “women may be more receptive to the vaccine if it is framed as a cervical cancer prevention tool rather than a sexually transmitted infection (STI) prevention tool” (see also Sperber, Brewer, & Smith, 2008). As another example: Gollust, Niederdeppe, and Barry (2013) investigated which consequences of childhood obesity (e.g., consequences for health or for military readiness) would be perceived as providing the strongest arguments for new government policies; they found systematic differences between subgroups, which pointed to different ways of framing arguments for different recipients.

Arguably, however, underlying all of the different consequence variations that have been studied is one key variation: the perceived desirability of the consequences invoked by the argument. The relevance of the difference between (say) short-term and long-term consequences is precisely that these might be differentially appealing—and hence differentially persuasive—to different message recipients. So the common suggestion that arguments should be framed in ways that match this or that attribute of the message recipient often amounts to suggesting that persuaders should emphasize consequences that the recipient finds relatively more desirable (O’Keefe, 2013).

Sorting Out Argument Framing Variations

For a clear picture of argument framing variations, it is essential to keep in mind the basic distinction between antecedent variations and consequent variations. Given some particular “argument framing” study, understanding its focus will require examining the antecedents and consequents of the appeals involved.

Consider, for example, the study reported by Sherman, Mann, and Updegraff (2006), intended as a study comparing gain-framed and loss-framed messages. The gain-framed message was titled “Great Breath, Healthy Gums Only a Floss Away.” The loss-framed message was titled “Floss Now and Avoid Bad Breath and Gum Disease.” As perhaps is apparent, these are both gain-framed appeals (ones focused on the desirable

consequences of compliance with the advocated action of flossing). The appeals differ not in their antecedent, but in their consequents: the first emphasizes promotion-focused outcomes, the second prevention-focused outcomes. That is, this experiment did not contrast a gain-framed and loss-framed message, but rather two gain-framed messages that differed in the substantive consequences invoked.

As another example, consider the gain-framed and loss-framed messages used in Jeong et al.'s (2011) study of charitable contributions. One gain-framed appeal was "The library at Jefferson University is in need of funding. With funds, it will be able to stay open longer hours for student use and expand the book collection." An example of a loss-framed appeal was "The cafeteria at Lincoln University is in need of funding. Without funds, it will have to cut down on menu items and increase food prices." These are indeed gain- and loss-framed appeals, but that antecedent variation was unfortunately confounded with a variation in the kind of consequences mentioned: the gain-framed appeal invoked promotion-oriented outcomes, the loss-framed appeals invoked prevention-oriented outcomes. Any observed differences in persuasiveness thus could not be attributed unambiguously to the antecedent variation.

Event and Issue Framing

A second, very different kind of phenomenon called *framing* is variation in how news events, public policy issues, and related subjects are described in news or entertainment media; for present purposes this might be called "event/issue framing." The paradigmatic study concerning this kind of framing examines variations in news coverage of some public policy question (not necessarily a health-related issue). A classic illustration is provided by a study in which participants saw one of two versions of a news story about a Ku Klux Klan rally. One version emphasized the free speech issue involved; the other emphasized the disruption of public order—with corresponding differences in the degree of tolerance that recipients expressed for the Klan (Nelson, Clawson, & Oxley, 1997).

In work on event/issue framing, researchers have been interested primarily in two kinds of undertakings. One is identifying the frames used in one or another subject-matter domain. The other is studying the effects of different frames; broadly, the question is whether (or when, or how) exposure to different frames might instill, activate, or reinforce corresponding beliefs and attitudes (cognitive structures, schemas, mental frames).

Most of this work addresses non-health-related issues and policies (for some reviews, see Chong & Druckman, 2007; Tewksbury & Scheufele, 2009). Moreover, because the content of

event/issue frames is (naturally) necessarily tied to the particular subject matter under discussion, the substantive findings in one area of research do not usually have straightforward implications for other domains. As an example: News coverage of political campaigns commonly employs a “horserace” or “campaign strategy” frame, rather than a policy- or issue-oriented frame, giving rise to concerns about how such coverage might encourage political cynicism (see, e.g., Cappella & Jamieson, 1997). Although the contrast between these two ways of describing political campaigns is plainly useful, it is not obviously applicable to health questions.

However, parallel useful work does exist on health-related subjects. For example, Morgan, Harrison, Chewing, Davis, and Dicorcia (2007) studied how organ donation was framed in entertainment television programming, finding that donation was commonly described in unfavorable ways. Similarly, Riles, Sangalang, Hurley, and Tewksbury (2015) identified common frames in online cancer news and then designed an experiment examining the effects of variations in cancer news framing. (For other examples, see Frederick, Saguy, Sandhu, & Mann, 2016; Guenther, Froehlich, Milde, Heidecke, & Ruhrmann, 2014; VanderKnyff, Friedman, & Tanner, 2015.) But, as on other subjects, the frames under discussion are specific to the substantive domain being examined; little attention is usually given to identifying any broader or more abstract categories of event/issue frames.

One effort, after a more abstract treatment of (some kinds of) news framings, is represented by a contrast between episodic and thematic news frames (Iyengar, 1991). This contrast refers to two basic ways in which news reports can be structured. An episodic frame discusses issues using concrete examples and particular events. A thematic frame presents issues in a broader context with abstract and general supporting information. A good deal of research has taken up the question of how these frames might have different effects on beliefs and attitudes concerning non-health issues (see, e.g., Aaroe, 2011; Hart, 2011), but some work has used this contrast to illuminate health topics as well. Health-related work on this framing variation has been especially motivated by the possibility that episodic or thematic framing of health issues might influence attributions of responsibility for health (particularly, the balance between individual responsibility and social factors). For example, Shen, Lee, Sipes, and Hu (2012) investigated how these two frames might differentially affect attributions about the causes of obesity; Holton, Lee, and Coleman (2014) examined how these two frames might encourage different sorts of comments from readers of online health news stories.

Attribute Framing

A third kind of framing, *attribute framing*, is represented by variations in the description of an attribute of a decision option (behavior, product, etc.); the contrast is between alternative ways of describing a given feature (attribute). The classic illustration of attribute framing is a consumer advertisement that described ground beef as being either “75% lean” or “25% fat” (Levin, 1987). Narrowly construed, such attribute framing variations have not received much research attention in health communication contexts (for an exception, see Chou & Murnighan, 2013), although a good deal of research has been devoted to such questions concerning non-health issues (for some discussion, see Freling, Vincent, & Henard, 2014).

Outcome Likelihood Framing

However, the framing of one particular sort of attribute *has* been of interest to health communication researchers, namely, the likelihood of an outcome of a given course of action. The relevant experimental contrast takes the form of different ways of describing this attribute, that is, different ways of expressing the probability of some outcome from a behavior.

In the simplest sort of experiment, a given behavior is described as leading to a given outcome with some likelihood—but the way in which that likelihood is expressed varies. One classic example involved describing a new medical treatment as having either a “50% success rate” or a “50% failure rate” (with the former leading to more favorable evaluations than the latter; Levin, Schnittjer, & Thee, 1988, Experiment 2). As other examples of this kind of message variation: In Bigman, Cappella, and Hornik’s (2010) experiment, participants heard the HPV vaccine described either as “70% effective” or “30% ineffective.” Rose, Geer, France, and France (2014) presented participants with information about the likelihood of vasovagal symptoms (e.g., dizziness, fainting) from donating blood, but varied the presentation by saying either “90% of donors do not experience vasovagal symptoms” or “10% of donors do experience vasovagal symptoms.”

In these studies, the message discusses explicitly only one course of action (receiving the treatment, getting the vaccine, donating blood), with the same underlying outcome presented in each experimental condition, and with mathematically identical outcome likelihood in each condition—but with that likelihood presented (framed) in different ways in different experimental conditions. The central research question is how participants’ evaluations of the action (e.g., attitudes, intentions) are affected by framing.

In a variant of this sort of experiment, participants are presented with two overt behavioral options (two courses of action rather than one) and asked to choose between them. In the different experimental conditions, the same two decision options are described, the same substantive outcome is discussed, and the likelihood of the outcome (for a given option) is mathematically identical across conditions—but the way in which that likelihood is expressed varies between conditions. For example, in one study, participants were asked to choose between alternative disease treatments, where the outcomes were presented in terms either of the probability of living or of the probability of dying (McNeil, Pauker, Sox, & Tversky, 1982). The hypothesis explored in such designs is whether the relative preference between the two alternatives will vary between experimental conditions, that is, vary depending on the language used to describe the outcomes.

Risky Choice Framing

Another version of this sort of experimental design is represented by Tversky and Kahneman's (1981) classic research circumstance, in which participants were asked to imagine that the United States is preparing for the outbreak of a disease that is expected to kill 600 people if nothing is done, with two alternative courses of action proposed. In one experimental condition, participants are offered a choice between options A and B: If option A is chosen, 200 people will be saved; if option B is selected, there is a one-third chance that 600 will be saved and a two-thirds chance that no one will be saved. (Notice: same long-run expected outcome, but B is the option with less certainty, that is, greater risk.) In the other experimental condition, the choice is between options C and D: If option C is chosen, 400 people will die, and if option D is chosen, there is a one-third probability that nobody will die and a two-thirds probability that 600 people will die. (Again, same long-run expected outcome, but D is the option with greater risk.)

Participants in the first condition strongly preferred the less-risky option A, but participants in the second condition—facing the mathematically-identical choice between option C and option D—strongly preferred the more-risky option D. That is, participants were more willing to endorse a less-certain option (colloquially: were more willing to roll the dice) when the options were presented (framed) in a way that emphasized avoiding deaths than in a way that emphasized saving lives.

The phenomenon investigated in such designs is commonly called *risky choice framing*. In this research, the central question is whether the degree to which participants are willing to endorse a riskier (less-certain) course of action is influenced by how the outcomes are

expressed—in terms of lives saved or in terms of deaths. (For discussion and reviews, see Best & Charness, 2015; Druckman & McDermott, 2008; Kühberger, 1998.)

On the surface, risky-choice framing might not look like attribute framing (and indeed is commonly treated as something different; see, e.g., Akl et al., 2011; Peng, Jiang, Miao, Li, & Xiao, 2013). In conventional attribute framing designs, a given attribute is expressed in two equivalent ways but with different language (“70% effective” versus “30% ineffective”), and a participant sees only one of these descriptions. By contrast, in risky-choice framing designs a participant is offered two non-equivalent alternatives; option A and option B, for example, have the same long-run outcome likelihood, but they differ in the certainty of obtaining that outcome in the immediate circumstance. So at least superficially, risky-choice framing seems quite different from attribute framing.

However, a closer look shows risky-choice framing to be a variety of attribute framing. The outcome of interest in risky-choice research is not participants’ preference for option A over option B, for example; hence, the relevant comparison is not between the two options offered a participant in one experimental condition (options that are indeed not equivalent). The outcome of interest is the *comparison* between preferences in the two experimental conditions: the preference for option A (over option B) and the preference for option C (over option D). For that comparison, the two sets of participants (in the two experimental conditions) face exactly identical options: The long-run expected outcomes for all four options are identical, and the choice each participant faces (between a certain and uncertain option) is identical. What varies between conditions is whether the outcomes are expressed in terms of deaths or lives saved. So risky-choice framing is a variety of attribute framing; the attribute in question is the outcome, which is described (framed) in different ways in different conditions (framed in terms of lives saved or deaths).

Risk Communication

Risk communication is conventionally described as communication intended to convey information about some potential hazard. One central question in risk communication research has been the relative effectiveness of different means of presenting information about the likelihood or probability of some event. So, for example, researchers have compared percentages versus frequencies, absolute versus relative risk reduction, verbal versus numerical information, and so on (for some reviews, see Visschers, Meertens, Passchier, & de Vries, 2009; Waldron, van der Weijden, Ludt, Gallacher, & Elwyn, 2011; Zipkin et al., 2014).

Research of this kind is usually not described as research concerning framing. When framing is used as a label for research in this area, the context is usually one in which some variation in presentation format (e.g., percentages versus frequencies) is crossed with some evaluative variation (e.g., lives saved versus lives lost, or success versus failure)—with the latter, but not the former, called a framing variation.

However, a broader perspective would recognize any variation in risk information presentation format as a framing variation, in the sense that a given property (risk, that is, likelihood) is being described (presented) in different ways. And indeed some discussions do use the language of framing to encompass studies comparing different formats for presenting risk information (Büchter, Fechtelpeter, Knelangen, Ehrlich, & Waltering, 2014; Chandran & Menon, 2004).

For present purposes, the point to notice is that even research not usually described as concerned with message framing should nevertheless be seen as conceptually connected to work commonly called framing research. Whenever the message variation under discussion amounts to different ways of describing something, that variation should be recognized as related to other studies concerned with such phenomena.

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