

ORIGINAL ARTICLE

The Persuasive Influence of Emotion in Cancer Prevention and Detection Messages

James Price Dillard¹ & Robin L. Nabi²

1 Department of Communication Arts & Sciences, The Pennsylvania State University, University Park, PA 16801

2 Department of Communication, University of California, Santa Barbara, CA 93106

This paper reviews and summarizes the literature on the relationship between emotion and persuasion as it bears on the production of cancer prevention and detection messages. A series of propositions are presented that serve to illustrate the intricacies of the emotion–persuasion relationship. These propositions deal with the necessary conditions for emotional arousal, individual differences in emotional reactivity to cancer messages, the potential for emotion-inducing messages to produce persuasive and counterpersuasive effects, the conditions that circumscribe the influence of emotions on persuasion, and the mechanisms by which that influence is achieved. To the extent that the literature permits, advice on message design is offered.

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Among its many responsibilities, the National Cancer Institute produces messages that encourage individuals to (a) behave in ways that lessen their risk of cancer and (b) recommend actions to detect cancer in its earliest stages. Given the inherently threatening nature of cancer, it may be impossible for such messages to achieve these goals without intentionally or unintentionally arousing their audiences' emotions. Although emotions can overwhelm individuals, they may also motivate behaviors that are psychologically difficult to enact. The effective use of emotions as persuasive devices, however, requires an understanding of not only principles related to emotional arousal but also the processes that allow emotional arousal to be translated into an effective action. This article is intended to speak to these two overarching issues. Although there is scant literature linking persuasive effects of emotion and cancer-related issues, we illustrate our claims with cancer-related research whenever possible, including previously unpublished data on individuals' reactions to an anti-tobacco public service announcement (PSA). However, we augment these data with hypothetical message scenarios to further illuminate our points, which we outline in the eight propositions that follow.

Corresponding author: James Price Dillard or Robin L. Nabi; e-mail: jpd16@psu.edu (J.P.D.) or nabi@comm.ucsb.edu (R.L.N.).

Proposition 1: Cancer-related messages have the potential to arouse one or more emotions.

Research supports the claim that messages intended to evoke a particular emotional state may arouse not only that emotion but others as well. Dillard, Plotnick, Godbold, Freimuth, and Edgar (1996) found that all but one of 31 AIDS prevention fear appeals evoked change in more than one emotional state. This is certainly not an isolated finding. For example, Pinto and Priest (1991) showed that guilt-based advertisements evoked anger as well as guilt; Nabi (2002a) found that social issue messages designed to evoke anger also aroused disgust; Bennett (1998) reported that messages intended to produce guilt also created feelings of shame.

It is reasonable to assume that cancer prevention and detection messages are also likely to evoke multiple affects. The *Victor Crawford* PSA presents an ex-tobacco lobbyist, who is dying of cancer, admitting that he and the industry had lied to the public for years about the dangers of smoking (see Table 1). Research participants were shown the PSA, then asked to report their emotional reactions to it on a series of close-ended scales (0 = *none of this emotion*, 4 = *a great deal of this emotion*), their cognitive reactions to it using the thought-listing technique, as well as their perceptions of the message's effectiveness, and their likelihood of smoking.¹ After message exposure, the mean levels of six emotions were significantly different from 0 at $p < .05$ (even though happiness was only marginally present): surprise (0.71), fear (1.04), anger (1.10), sadness (1.40), happiness (0.03), and contentment (0.27). The implications of these results are twofold. First, as with any number of health threats, fear is likely to be the focus of cancer prevention or detection messages. However, other negative emotions, such as sadness, or even positive emotions, such as happiness, might prove to be the dominant affective outcome of such messages. Second, message creators should consider not only the emotions they intend to arouse but the unintentional ones as well as they may have implications for message effects (as will be discussed shortly).

Proposition 2: The type and intensity of emotional reactions to cancer-related messages vary across individuals based on their cognitive appraisals.

Individuals' cognitive interpretations of message scenarios underlie not only the type of emotion experienced but also the degree to which it is felt. Research on appraisal theory (Scherer, Schorr, & Johnstone, 2001), a vein of inquiry that has been mined by both authors, supports this claim. In its most basic form, appraisal theory asserts that emotions arise from assessing the implications of events and situations relative to ones' goals. These goals range from the mundane and immediate (e.g., buying a newspaper) to the abstract and distal (e.g., living a principled life). Regardless of the type of goal, when an individual judges the environment to be incongruent with his or her goals, negative emotions will result. Conversely, the perception of goal-environment compatibility yields positive emotional states.

Table 1 Description of the *Victor Crawford* Public Service Announcement

The words “The Truth” appear in white text on a black screen. The ad continues in black and white to show images of an old man, Victor Crawford. He begins by telling viewers that the tobacco company is targeting young children because “they don’t know better.” “They might get your sister or your brother” He then admits that he was a tobacco lobbyist for 20 years and knows how the tobacco industry works. Finally, he apologizes by saying, “I lied and I’m sorry.” The ad concludes with four individually presented black screens containing the following text: “Victor Crawford died. He died of lung cancer. Tobacco is addictive. Don’t smoke.”

Appraisal theory generally, and Nabi’s (1999) cognitive-functional model (CFM) specifically, provide an understanding of emotions and their causes that take us well beyond the simple positive–negative distinction. Table 2 makes this point. The first column lists the emotions measured in the *Victor Crawford* study. The second column inventories the corresponding molar appraisals or, equivalently, *core relational themes* (Lazarus, 1991; Smith & Lazarus, 1993). For example, fear arises from the perception of danger. These molar appraisals are thought to summarize specific configurations of the more numerous molecular appraisals, which appear in the third column. We see that fear is predicated on the belief that the individual faces impending danger over which he or she may have little or no control.

Table 2 provides a theoretical framework that can make understandable the range of emotional reactions people might have to cancer-related messages, such as the *Victor Crawford* PSA. Surprise likely resulted from seeing someone who devoted his life to lobbying for the tobacco companies admit to having been deceptive. In addition to the fright of viewing a man near death, the message stimulated fear by referencing powerful organizations that may harm loved ones. As intended, the PSA aroused anger by putting a face on the long-term mendacity of the tobacco companies. Sadness was also evoked by what appears to be a wasted life. Finally, the mean for contentment may reflect the satisfaction one might feel in seeing a man who may have caused harm to others suffering an unfortunate fate.

Table 2 Emotions and Their Cognitive Antecedents

Emotions	Appraisals	
	Molar	Molecular
Surprise	Novelty	Sudden, unfamiliar
Fear	Danger	High probability of serious harm
Anger	Offense	Unwarranted obstruction of goal
Sadness	Loss	Irrevocable failure to meet goal
Happiness	Progress	Acute movement toward goal
Contentment	Satisfaction	Aspirations have been met

We could make a similar argument about a hypothetical PSA promoting cancer detection behavior, like mammography screening. During exposure to such a message, a woman might be afraid if she is made to think about being diagnosed with a life-threatening disease, angry at being reminded of something so unpleasant to consider, sad at the thought of losing a breast to cancer, or even hopeful at the thought of taking action to defend her health status. Indeed, in their research on messages designed to motivate mammography screening, Williams-Piehot, Pizarro, Schneider, Mowad, and Salovey (2005) measured not only fear but also hope and reassurance, suggesting that cancer control messages might be appraised such that both positive and negative affective states may be evoked. In sum, the appraisals relevant to a range of emotions may be discernible in the content of cancer control PSAs. But it is the *audience interpretation* of the content that will influence which emotions are experienced. The stronger those perceptions, that is, the more connected one perceives the PSA content to one's goals, the more intense the emotional experience is likely to be.

Simply noting such variation in emotional response, however, does little to advance theory or practice. Rather, it is necessary to point to explanatory variables that magnify or minimize the intensity of emotional response. There are likely a range of individual differences that might impact the appraisals likely to dominate message interpretation, but unfortunately, such research is only in its nascent stages with minimal evidence on which we can draw. For this reason, we reference just one trait-based and one context-based difference—coping style and prior knowledge—that may serve as representative examples of the types of variables future research should investigate for their potential impact on appraisal processes.

Coping styles

In brief, monitoring and blunting coping styles are believed to be stable individual differences that reflect the degree to which people seek out or avoid information when confronted with threatening situations (e.g., Miller, 1987). In a health context, these coping styles are expected to influence people's cognitive and emotional reactions to health threats that, in turn, may impact the amount of information desired and the impact that information might ultimately have on health-related behaviors (see Miller, 1991, 1995; Miller, Shoda, & Hurley, 1996). Despite substantial research in clinical settings, there is little attention to how coping style might interact with persuasive message design to impact emotional reaction and persuasive success. However, recently Williams-Piehot et al. (2005) offered evidence that messages matched to the needs of monitors versus blunterners were more effective in promoting mammography screening, particularly for blunterners. Of note, blunterners exposed to messages designed to meet their information needs (i.e., simple and direct information) experienced the least amount of negative affect, whereas monitors exposed to messages designed for blunterners experienced the most negative affect. In this case, negative affect appeared to serve as a barrier to persuasive success. Conversely, though along similar lines, Nabi (2003b) found that monitors

experienced greater levels of fear and were more persuaded by a mild fear appeal regarding diabetes compared to blunters.

Combined, these studies suggest that coping style impacts perception of information, which in turn influences the extent of emotional arousal and perhaps persuasive success, though the nature and target of the emotional arousal is surely important to consider in this process. As we consider how this research might inform cancer control message design, we might speculate that those with monitoring tendencies will be more emotionally reactive to cancer information generally. Thus, more subtle emotional appeals may be needed to prevent excessive, and perhaps counterproductive, emotional reactivity. Conversely, those with more blunting tendencies may be more likely to experience counterproductive emotional reactions, like reactance. Clearly, there is too little evidence in this area to make definitive claims. Instead, we merely hope to convey the point that research on coping style, and other trait-based individual differences, to the extent they impact appraisals of cancer-related information, might serve as useful frameworks for understanding variations in the appraisal processes underlying emotional response.

Prior knowledge

As to context-based variables, prior knowledge is surely relevant to perceptions of cancer-related message information and emotional response (Nabi, 2002b). Extant research has shown prior knowledge to influence persuasive outcome by promoting more systematic processing of the message (Wood & Kallgren, 1988; Wood, Kallgren, & Preisler, 1985), stronger resistance to attitude change (Wood, 1982), and greater attitude-behavior consistency (Kallgren & Wood, 1986). As novel stimuli are more likely to evoke emotion than familiar ones, prior knowledge is poised to offer resistance to emotional arousal. Nabi (2003b) found this to be the case, showing that prior knowledge about diabetes in a sample of 18- to 72-year-olds negatively correlated with fear arousal ($r = -.13, p < .05$). In a cancer-related context, Nabi, Roskos-Ewoldsen, and Dillman-Carpentier (in press) found that young adults higher in self-perceived knowledge of testicular cancer or breast cancer were less likely to experience fear in response to cancer-related information ($r = -.15, p < .05$). This effect of knowledge dampening emotional arousal may result from people either acquiring information concerning adaptive behavior, which likely diminishes the threat and its corresponding fear, or developing strategies for defensive message processing. In either case, topic-relevant knowledge may help to explain the extent of emotional arousal in response to cancer-related messages.

In sum, both trait-based and situation-specific variables may partially govern the intensity of emotional response to a persuasive message. We offer the two above as potentially valuable means of segmenting audiences of emotionally based cancer prevention and detection messages, though we recognize the need for more systematic research on these and related variables.

Proposition 3: To effectively arouse emotions, cancer prevention and detection messages will need to contain information reflecting the core relational theme of the desired emotional state.

Nabi's (1999) CFM can be used to guide the development of emotion-based persuasive appeals. First, the CFM suggests that message producers should determine in advance which emotion would be best suited to their persuasive goals. For example, fear might be well suited for encouraging behaviors that clearly protect one from the severe consequences of developing cancer or from having it detected in its later stages of development. However, concerns over fear "backfiring" may suggest that other negative emotions, like sadness, disgust, or guilt, or positive emotions, like pride or compassion, might be more appropriate. Once the key emotional state is selected, the message should be designed to reflect the core relational theme of that emotion. To evoke fear, the message should depict a severe threat to which the audience is susceptible. To evoke sadness, the message should convey the sense of irrevocable loss. To evoke guilt, the message should suggest violation of an accepted norm of behavior, and so forth (see Table 2).

We recognize that our discussion thus far might allow the conclusion that the task of the message designer is a simple one: First, identify the emotion to be aroused, and then create a message based on the corresponding appraisal pattern. However, such a conclusion would be not only simple but also simplistic. In fact, message designers should probably not rely on their own intuitions about how best to instantiate appraisal patterns. Dillard et al. (1996) reported that about a third of the PSAs designed as fear appeals failed to arouse fear. In a similar vein, Henley and Donovan (2003) demonstrate that widely held beliefs, such as that young people are convinced of their immortality, may have no basis in empirical reality. As always, systematic formative research is needed prior to putting any message into the field. Having explored how message features might evoke particular emotions, we now turn to how that emotional arousal might relate to persuasive outcomes.

Proposition 4: Emotions can enhance, inhibit, or be unrelated to the persuasive effectiveness of cancer-related messages.

First, research supports the claim that different emotional states might enhance or impede persuasive success. Dillard and Peck (2000) make this point in modeling the impact of several emotional states on the persuasiveness of eight PSAs on a range of topics (e.g., drinking and driving, community involvement, charity donations). Their results suggested that fear, happiness, sadness, surprise, and guilt positively related to perceived effectiveness, whereas anger and contentment detracted from persuasive effectiveness. These findings were replicated in a cancer-related context with the *Victor Crawford* data. Using LISREL 8.0, we developed a structural equation model, treating individual emotional states and dominant cognitive response as predictors of perceived effectiveness and behavioral intention.² Surprise and sadness

were positively associated with perceived effectiveness, but contentment diminished perceptions of message effectiveness (see Figure 1).

Second, it is also evident that the same emotional state might, under different circumstances, enhance or inhibit persuasive success. Most famous is the early fear appeal theorizing, which was stymied by the conflicting research in which fear at times advanced, and at other times blocked, persuasive goals (see Hovland, Janis, & Kelley, 1953; Leventhal, 1970).

Third, emotional arousal might not relate to persuasive outcome at all. That is, though multiple emotions may be evoked, not every emotion will produce a persuasive effect. Again, the *Victor Crawford* data indicate that though there was a change in almost every emotional state including fear and anger, these latter two emotions were not associated with perceived message effectiveness or behavioral intention (Dillard & Anderson, 2004, provide another example).

From the standpoint of message design, statements such as Proposition 4 lack utility because they do not specify the conditions under which emotions will exhibit one of the three anticipated outcomes (i.e., enhancement, inhibition, or the absence of an effect). Before turning to a discussion of those conditions, we briefly consider the joint effects of emotion and cognition.

Proposition 5: For an emotional response to exert persuasive force, it must be perceived as both caused by the message and relevant to the advocacy.

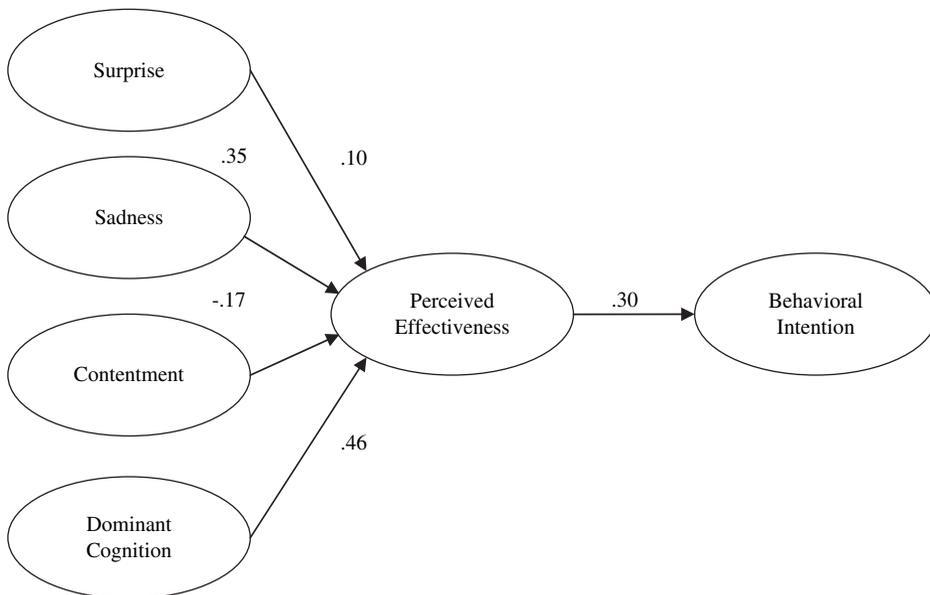


Figure 1 Structural equation model derived from the *Victor Crawford* data.

Note: $\chi^2(4) = 4.49, ns$; Root Mean Squared Error of Approximation (RMSEA) = .02; Goodness of Fit Index (GFI) = .99; Bayesian Information Criterion (BIC) = -18.65. Manifest variables, error terms, and associations among exogeneous variables are not shown.

As suggested by Proposition 4, emotional arousal, in and of itself, is not sufficient to support an emotion–persuasion connection. What else is necessary? We suggest that for affect to influence the evaluation of a target, that affect must be perceived as a genuine response to the message (cf. Keltner, Locke, & Audrain, 1993; Schwarz & Clore, 1983). We further propose that the perceived relevance of the emotion to the judgment at hand may serve as a second necessary parameter (cf. Gasper & Clore, 2000).

Consideration of previous research, which has varied the processing goals of research participants, can help to make this point clear. For example, Martin and Stoner (1996) manipulated the relevance of affect by instructing participants in their study either to keep reading until they had enough information or to keep reading until they no longer enjoyed it. Those subjects who received enjoyment instructions seemingly used their moods as input for the decision about when to stop reading. Good mood subjects read longer than bad mood subjects. Subjects who received the information instructions showed no such difference. In a similar vein, when individuals are told to evaluate a product in terms of how much enjoyment it will produce, their intentions to consume the product are influenced by their preexisting affective state such that those in a good mood report stronger intentions than those in a bad mood (Pham, 1998). Both of these studies show that mood influences evaluation when it is seen as relevant to the judgment at hand.

Proposition 6: Whether an emotion enhances or inhibits persuasion depends on its relationship with the target of evaluation.

Proposition 4 asserts that emotions may enhance, inhibit, or be unrelated to the persuasive impact of an appeal. Proposition 6 specifies the conditions under which an emotion can or cannot be expected to influence an individual's evaluation of the message and its advocacy. However, even taken together, the two propositions do not specify whether enhancement or inhibition will occur. Consideration of the *target* of emotional arousal offers insight on this point (Nabi, 2002b). For example, fear associated with having breast or colon cancer may promote effective action, whereas fear associated with the detection processes of a self-exam or colonoscopy may inhibit the action. Sadness over potentially losing a loved one to cancer might facilitate desired goals, whereas the sadness associated with the lack of a cure may impede them. Anger that tobacco companies push a cancer-causing product might be productive, but anger at the message producer for raising an upsetting issue will not be. With this in mind, cancer prevention and detection messages should take care that the emotion evoked is targeted toward the agent most amenable to message acceptance.

Assuring appropriate emotional arousal, however, also requires guarding against the evocation of *unintentional*, or *collateral*, emotions. In accordance with Proposition 1, Dillard et al. (1996) make clear that fear appeals evoke a number of emotions other than fear, and as Proposition 4 suggests, there are times when emotions, like

anger, may work against persuasive goals. Together, these propositions suggest that unintentionally aroused affects have the potential to work against persuasive goals. For example, the research suggesting that guilt appeals are counterproductive (O'Keefe, 2002) should not necessarily be interpreted to mean that guilt itself is not effective (Cotte, Coulter, & Moore, 2005). Rather, attempts to evoke guilt are likely to also evoke anger or shame, which work against persuasive goals when the target is the message source (Bennett, 1998; Coulter & Pinto, 1995; Pinto & Priest, 1991).

The potential for cancer prevention and detection messages to strike the wrong chord with audiences should not be underestimated. Those who smoke may resent reminders of their unhealthful habit. Those who decline to use sunscreen may feel uncomfortable when their behavior is pointed out to them. Of course, avoiding unintentional emotional arousal is in part dependent upon understanding a target audience's likely interpretations.

Finally, we note the potential importance of considering the type of behavior advocated, which may dictate the emotional approach most likely to be successful. In recent reviews, Salovey and his colleagues conclude that, generally speaking, gain frames, which emphasize benefits of adopting an alternative behavior, are more effective when used to encourage prevention health behaviors, such as regular exercise or sunscreen use (Rothman & Salovey, 1997; Rothman, Bartels, Wlaschin, & Salovey, 2006; Salovey, Schneider, & Apanovitch, 2002). Conversely, loss frames, which emphasize costs of not adopting the advocated behavior, appear to be more effective when used in the context of detection health behaviors, like breast self-examination and mammography use (but see O'Keefe & Jensen, *in press*). Further, it appears that loss frames are associated with more negative emotional arousal and gain frames with more positive affects. Although this research has yet to definitively identify emotional arousal as a moderator or mediator of effects, it seems evident that emotional arousal may play some role in the effectiveness of differently framed messages. As research in this area progresses, it should offer insight into how emotional arousal might best be applied in the context of gain- and loss-framed messages for cancer prevention and detection.

Proposition 7: Whether an emotion enhances or inhibits persuasion depends on audience perceptions of efficacy.

Once an emotion is aroused and appropriately targeted, its persuasive impact is likely contingent upon whether the audience believes there is a way to effectively address the source of the affect. The importance of perceived efficacy has been demonstrated in the fear appeal literature both theoretically (e.g., Rogers, 1975) and empirically (Witte & Allen, 2000). That is, it is widely accepted that for fear arousal to translate into effective action, the audience must not only believe there is a protective action that can divert the threat but also believe that they themselves can perform that action. So, for example, a PSA suggesting one is at risk for skin cancer is well advised to include information on the effectiveness and ease of

sunscreen use or visiting a dermatologist to have suspect growths examined and removed. Although it is possible that a previously well-informed audience might be able to “fill in” or supply the efficacy information were a message to omit it, explicit inclusion of efficacy information is a recommended message design strategy.

Although response and self-efficacy perceptions have been identified as critical for fear appeal effectiveness, comparable constructs have yet to be identified for emotional appeals based on other discrete emotions in part because of the minimal theorizing about their persuasive effects. Still, we are not without guidance in this regard. The CFM suggests that once a negative discrete emotion is aroused, the likelihood that it will result in persuasive success is in part a function of the audience’s expectation of receiving reassurance from the message. That is, will the message provide goal-relevant (i.e., reassuring) information that will help deal effectively with the undesirable situation and thus alleviate the negative affect? As Nabi (1999) asserted “if afraid, receivers seek information about protection; if angry, about retribution; if sad, about coping with loss; if disgusted, about avoidance of the noxious element; and if guilt-ridden, about proper reparation.” If this is the case, then, we might extrapolate that whereas fear appeals might require information suggesting an efficacious response to protect against threat, an anger appeal would be more effective if it suggested an efficacious response to retaliate against the offending agent, a guilt appeal would be more effective if it suggested an efficacious response to make amends to the injured party, and so forth. As research on these emotions is still sparse, we are unable to offer empirical support for these assertions (though see Turner, Wang, Yao, & Xie, 2005). However, they are well motivated theoretically and are worth considering for future research and practice.

Thus, just as messages should contain the information likely to stimulate the appraisals underlying the desired emotional state, the message should also likely contain information on actions one might take to successfully resolve that state. In the context of cancer control, this might mean fighting back against cancer by persisting through difficult treatment, seeking out diagnostic procedures to avoid letting one’s family down, and the like. As promoting the advocated behavior represents the primary goal of the persuasive message, the emotion selected should be sensitive to the nature of that behavior—a seemingly obvious point but one that lacks supportive empirical research at this point. Indeed, as we have reached the end of the research that speaks most directly to message design, we address, with our final proposition, the path(s) through which emotions impact persuasive outcome.

Proposition 8: Emotions influence persuasion via multiple pathways.

Because emotions are complex states that implicate a host of perceptual, cognitive, physiological, and motivational systems, it should come as no surprise that emotions might influence the persuasion process through multiple means. Although space prohibits a comprehensive treatment of this topic, we now address some of the mechanisms proposed to explain how emotions bring about changes in evaluation.

Motivated attention and motivated processing

Drawing from the literature on emotion and information processing, Nabi's (1999) CFM claims that emotions exert their persuasive impact by influencing message processing style. If message content reflects an emotion's core relational theme and if the receiver recognizes that theme and its personal relevance, the resulting emotional response then triggers two simultaneous motivations: motivation to attend to or to avoid the message content, message topic, or both (i.e., *motivated attention*) and motivation to satisfy the emotion-induced goal (i.e., *motivated processing*). Based on the type of emotion experienced, motivated attention sets a baseline attention level that will either impede (for avoidance emotions, like fear) or facilitate (for approach emotions, like anger) subsequent information processing. Expectation of reassurance from the message will then further shape the style of processing likely to be engaged. For example, given anger's nature, the CFM predicts it is likely to generally promote closer information processing, whereas fear is likely to promote closer information processing only when reassurance cues are not available (see Nabi, 1999, for specific predictions). The initial test of the CFM (Nabi, 2002a) showed that anger led to more systematic information processing than fear, and for both the anger and the fear groups, uncertainty of receiving reassurance from the message resulted in more thorough processing than certainty.

Applied to cancer prevention and detection messages, the CFM suggests that attention to key information can be generated by emotion type coupled with uncertainty perceptions. For example, Ruiteer, Kok, Verplanken, and Brug (2001) found that evoked fear (without reassurance cues) motivated more argument-based processing of a message promoting breast self-examination (see Meijnders, Midden, & Wilke, 2001, for related findings). In terms of message design, this suggests that evoking an emotion and offering strong arguments in support of the desired behavior without obvious reassuring cues (e.g., summary headlines) may be an effective way to harness the persuasive power of typical avoidance-oriented emotions. This may be especially true for relatively novel cancer-related issues, like vaccines to prevent cervical cancer or the causes of lung cancer in nonsmokers. If, however, a message promotes prevention or detection behaviors commonly known and understood by its target audience (e.g., sunscreen use to avoid skin cancer), perhaps emotional arousal coupled with reassuring cues can be an effective strategy, especially if one is particularly worried about message-based reactance. In essence, the degree and direction of message processing naturally motivated by various emotional states can be harnessed by understanding those natural predispositions and altering message features not only to evoke those states but also to maximize their effectiveness given the unique nature of each prevention or detection context.

Emotions as frames

According to Nabi (2003a), emotions, once evoked, engage the same selective cognitive processes found in framing research. That is, the information made accessible

from memory, the information we seek out or avoid, and the decisions that we make will be guided by the particular emotion (i.e., frame) experienced, particularly for more relevant or familiar topics. In an initial test, Nabi found general support for this model, though in the context of public policy rather than health. Applied to cancer prevention and detection messages, the emotion-as-frame hypothesis suggests that emotions evoked in those contexts (e.g., fear of diagnosis or hope of effective treatment) will guide both the information respondents will likely have accessible during message processing (e.g., the costs associated with the illness or the success rates of various treatments) and how the message itself is processed (e.g., focus on how to avoid the threat of illness or on the likelihood of survival).

The effects of emotional arousal, though, are expected to be influenced by prior knowledge, coping style, and other individual differences that shape responses to message content. For example, past research suggests that more subjectively knowledgeable audience members may experience weaker affective reactions to emotional appeals. But if emotions serve a framing function, the effects of that (perhaps dampened) emotional arousal may be equally or even more likely to translate into a persuasive effect than more intense emotions aroused in those with a less developed knowledge base, which limits the information made accessible and available to guide behavior. In the latter case, credible message information relevant to the particular emotional state (e.g., protection information for fear, retributive information for anger) may prove especially important to promote persuasive success.

The implications of these ideas are that to be effective, cancer-related persuasive appeals need to be responsive to audience factors such that at times, less information or less emotional evocation may be more effective than messages that are completely articulated (see Nabi et al., in press). For example, to the extent that the idea of cancer is fear inducing, it may not be necessary to point out that it poses a severe threat to health. To do so may, in fact, be counterproductive. Similarly, to point out known responses, such as smoking cessation to avoid lung cancer, may be equally unnecessary. However, for those audiences who either have no particular emotional association with cancer, related prevention, or detection behaviors, or have counterproductive associations (e.g., fear associated with treatment), emotional appeals may be important to create such associations, which in turn may facilitate desired behavior.

Discrete emotions activate behavior

Several theorists contend that the function of emotions is to direct behavior (Frijda, Kuipers, & ter Schure, 1989; Roseman, Wiest, & Swartz, 1994). Thus, each emotion has an associated motivation known as an *action tendency*. At the general level, action tendencies can be characterized in terms of engagement and withdrawal. However, because emotions are evolutionarily designed to solve specific problems, the action tendency associated with each emotion is (a) a more specific variation on one, the

other, or both of those two broad themes and (b) responsive to context. For example, anger is generally viewed as an engagement emotion (Harmon-Jones & Allen, 1998). Yet, it can invite persuasive attack (i.e., a form of engagement) or simple rejection when it encourages dismissal of a message on the basis of topic or message position (i.e., a form of withdrawal) (Dillard & Peck, 2001).

Presumably, action tendencies have direct persuasive effects in that they map directly on to evaluations. This point stands in distinction to the other mechanisms discussed above that suggest the effects of emotion on evaluation are mediated (or at least moderated) by some type of cognitive change (e.g., deeper or more selective processing). The direct effects view of emotion is also distinct from the way in which cognitive response models of persuasion, which have dominated persuasion research in recent years, consider the role of affect. The dual-process models of attitude change (Briñol & Petty, 2006; Shen & Chaiken, 1999), which suggest that persuasion is the result of cognitive responses to the message, message topic, or persuasive cues present during message exposure, consider the effects of affect (i.e., mood and emotions), but only insofar as they influence cognition (e.g., DeSteno, Petty, Rucker, Wegener, & Braverman, 2004). In essence, none of these views addresses the direct effect of emotions on attitudes.

In contrast, our theorizing and data cast cognition and emotion as concurrent phenomena that both possess the potential for persuasive impact. Dillard et al. (1996) and Dillard and Peck (2000) support this point. Through regression analyses and structural equation modeling, these studies demonstrate that emotional states explained variance in perceived message effectiveness, beyond that accounted for by cognitive responses. The *Victor Crawford* data extend this finding to a cancer-related context (see Figure 1). Despite the influence of dominant cognitive response, multiple affective states predicted perceived message effectiveness that, in turn, predicted behavioral intentions. Thus, although emotions may surely impact persuasive outcome via cognitive routes, they also appear to have a direct path to persuasion, making them all the more attractive to consider in trying to promote prevention and detection health behaviors. Future research that considers how discrete emotional states operate to directly affect attitudes and behavioral intentions in different cancer-related contexts (e.g., fear and self-exam behavior or disgust and antismoking sentiment) would be most welcome.

Summary and conclusions

Our goal in this paper was to offer insight into how persuasive messages might be designed to evoke emotions that can effectively promote cancer prevention and detection behaviors. We argued that the first task for those designing emotion-based cancer prevention and/or detection messages is to assess what emotion might be most amenable to the persuasive goals. For example, fear might be a productive means of alerting audiences to their susceptibility to risks based on their family history, environment, or previous behaviors. Sadness can be useful for encouraging

reflection on the consequences of failure to take preventive action. Disgust may help create negative associations with risky behaviors, whereas evoking hope may spur action that would otherwise be seen as impossible. Matching persuasive goals with the essence of each unique emotional state will increase the likelihood of productive emotional arousal.

After selecting an emotional strategy, appraisal theory can be used to guide the message content chosen for emotional evocation. For example, to evoke fear, the message should contain information depicting a severe threat to which the audience is susceptible. To evoke sadness, the message should demonstrate irrevocable loss. Further, we assert that to enhance the likelihood of persuasive success, the affect should be appropriately targeted, and efficacy information for how to divert threat (fear) or loss (sadness) or achieve retribution (anger) or restitution (guilt) should be made evident. Moreover, though there is little research in this domain, we argue that sensitivity to audience characteristics, like knowledge and coping style, in message design is also important.

To the best of our ability, we have summarized existing theory and research on the role of emotion in persuasion. And, we have attempted to illuminate both the potentials and the pitfalls of applying emotion/persuasion theory to cancer prevention and detection. To the extent that we have succeeded in these aims, then we have also, by implication, made clear the enormity of what remains unknown. In particular, under what conditions should emotional appeals be used rather than more rational appeals? What is the impact of intermingling emotional and rational messages? How should campaigns sequence the presentation of different types of appeals? These queries serve to remind us that the use of emotional persuasion in cancer prevention and detection is but one component of the much larger question of how to use communication to improve public health.

Notes

- 1 Two hundred thirty-eight University of Wisconsin–Madison undergraduates viewed the PSA, then indicated their *emotional reactions* on multi-item scales designed to measure fear, anger, surprise, sadness, happiness, and contentment. Information on the reliability and validity of the scales, as well as the items themselves, can be found in Dillard et al. (1996), Dillard and Peck (2000, 2001), and Dillard and Anderson (2004).
- 2 A measure of *dominant cognitive response* was created by coding open-ended responses into three categories—supporting thoughts, neutral thoughts, and counterarguments—and then subtracting the number of counterarguments from the number of supporting thoughts. *Perceived effectiveness* was measured with a series of 7-point semantic differential items (persuasive/not persuasive, convincing/not convincing, effective/ineffective, compelling/not compelling). *Behavioral intention* was tapped by three 5-point Likert-type items (e.g., “I intend to behave in ways that are consistent with the message,” “I plan to act in ways that are compatible with the position promoted by the message,” and “I am going to make an effort to do what the message urged me to do”). Higher values indicate higher perceived effectiveness and stronger intention to behave.

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