The SAGE Handbook of Persuasion: Developments in Theory and Practice

Fear Appeals

Contributors: Paul A. Mongeau
Edited by: James Price Dillard & Lijiang Shen
Book Title: The SAGE Handbook of Persuasion: Developments in Theory and Practice
Chapter Title: "Fear Appeals"
Pub. Date: 2012
Access Date: April 9, 2018
Publishing Company: SAGE Publications, Inc.
City: Thousand Oaks
Print ISBN: 9781412983136
Online ISBN: 9781452218410
DOI: http://dx.doi.org/10.4135/9781452218410.n12
Print pages: 184-199

Fear Appeals

Paul A.Mongeau

The half-life of social science theory and research is notoriously short. Scholars have a seemingly insatiable need to focus on new, different, and unique ideas, even if they represent old wine in new academic skins. The study of persuasion, however, seems immune to this short attention span. This may be because the nature of attitudes; how they are shaped, reinforced, and changed; and how they are (un) related to behaviors are, relatively speaking, less strongly influenced by social and cultural changes. As a consequence, the social scientific study of many persuasion theories and concepts has relatively long histories. What is more, the study of fear appeals is among the oldest in all such persuasion research.

The chapter's primary goal is to review social science fear appeals theory and research. Despite considerable uncertainty in the early years, general conclusions of the effectiveness of fear appeals have become more optimistic in the past few decades. Fear appeals work, at least for most audiences and most contexts. Disagreements abound, however, concerning why fear appeals work (and why they don't). I will conclude that one reason that this is the case is that the explanations have not been given a fair test. Therefore, this chapter will spend more time considering explanations than the actual research. Before doing so, two fundamental issues—the nature of emotions and the nature of fear appeals—are considered.

Emotions and Persuasion

There is a general consensus that emotions are an amalgam of cognitive, physiological, and behavioral elements (Bradley & Lang, 2000; Nabi, 2002; Shiota & Kalat, 2011). The relative importance of these elements in the production of emotion, however, has been the source of considerable disagreement (e.g., Zajonc, 1980, versus Lazarus, 1982). Cognitively based views of emotions tend to ignore physiological processes (e.g., Witte, 1992). Psychophysiological views of emotion, on the other hand, largely ignore cognition and typically consider emotion to be identifiable solely from physiological measures (e.g., Williams et al., 2001). Although it is important to integrate, and truly balance, physiological, behavioral, and cognitive elements in the production and effects of emotion (Bradley & Lang, 2000), actually finding scholarship that actually does so is rare.

The persuasion literature generally considers emotions from a cognitive perspective (Nabi, 2002). Given this focus, emotions have four particularly useful characteristics (Guerrero, Andersen, & Trost, 1998). First, emotions involve a rapid cognitive evaluation of environmental changes. The emotion of fear, for example, necessitates identifying a threat to health and well-being (e.g., Leventhal, 1970). Second, emotions reflect an affective evaluation of the environmental change. Changes that reflect positively on health and well-being generally generate positive emotions (e.g., joy or love), while environmental changes that reflect poorly on us likely generate negative emotions (e.g., jealousy or fear). Third, even from a cognitive perspective, there is an understanding that emotions involve physiological responses. Finally, and most relevant to persuasion, emotions have a behavioral component; that is, “The primary function of emotion is to guide behavior” (Dillard & Meijnders, 2002, p. 318).

Defining Fear, Threat, and Fear Appeals

Given this view of emotions, it is important to define fear and associated terms. Witte defined fear as “a negatively-valenced emotion accompanied by a high level of arousal and is elicited

by a threat that is perceived to be significant and personally relevant" (Witte, 1992, p. 331; see also Easterling & Leventhal, 1989). This definition highlights three important points. First and most simply, fear is an emotion. Second, the experience of fear involves, by definition, physiological arousal (e.g., increases in heart rate, respiration rate, blood pressure as well as pupil dilation and releases of adrenaline; Guerrero et al., 1998). Thus, an approach to fear appeals that ignores physiology is missing an important element of the emotional process. Finally, Witte's (1992) definition suggests an important link between fear and threat. I consider this distinction and its implications for the construction of fear appeals next.

Despite important differences between fear and threat, these terms have been used synonymously throughout the history of fear appeals (Witte, 1992; see, for example, Hovland, Janis, & Kelly, 1953). Fear is an internal characteristic, that is, a negative emotion that is thought to intervene between fear appeals and responses (Hovland et al., 1953; Witte, 1992). Threat, on the other hand, is an environmental characteristic that represents something that portends negative consequences for the individual. Thus, messages depict a threat, that when processed by the receiver, creates fear.

The distinction between fear and threat has clear implications for the construction of fear appeals. According to Rogers (1975, 1983 and most scholars that followed), fear appeals contain two parts: a threat component and a coping component. Each of these components is further subdivided into two parts. First, fear appeals depict an environmental *threat* to recipients' health and well-being. In most fear appeal manipulations, the depicted threat to well-being is physical (e.g., second-hand smoke causes cancer). More specifically, through intense verbal text often (but not necessarily) accompanied by vivid graphics (e.g., gruesome photographs), researchers typically manipulate the threat's *severity* (e.g., lack of adequate dental hygiene cases great pain from toothaches, mouth infections, decayed teeth and painful trips to the dentist; Janis & Feshbach, 1953). The second threat component is *susceptibility* (or vulnerability) that indicates that the environmental threat is likely to strike unless preventative action is taken (e.g., painful outcomes will occur unless message recommendations are followed; Janis & Feshbach).

Fear appeals initially depict a threat to the receivers' health and/or well-being. This message component, according to some (but not all) fear appeal explanations, generates the emotion of fear in the audience members (e.g., Hovland et al., 1953; Witte, 1992). For a fear appeal to be persuasive (i.e., generate responses in the direction of message recommendations), however, it must also indicate how audience members can *avoid* the threat. Therefore, the second fear appeal component is the *coping component* (Rogers, 1975, 1983; Witte, 1992) that includes both response efficacy and self-efficacy information. First, response efficacy represents "the availability and effectiveness of a coping response that might reduce or eliminate the noxious stimulus" (Rogers, 1975, p. 97). Second, self-efficacy represents the extent to which the recipient has the ability to perform the recommended behavior (Rogers, 1983). Self-efficacy is important, for example, in the case of smoking cessation. A tobacco smoker might understand that smoking dramatically increases the probability of contracting several nasty diseases (high perceived noxiousness and vulnerability) and that smoking cessation reduces those probabilities (high perceived response efficacy). If the recipient, however, considers smoking an addiction, a lack of self-efficacy would likely interfere with enacting the recommended coping behavior. In short, current thinking suggests that in order to be effective, fear appeals must not only depict a serious and imminent threat, but must also provide the individual with a way of *avoiding* that threat.

Do Fear Appeals Work?

The social scientific study of fear appeals begins, for all intents and purposes, with Janis and Feshbach's (1953) seminal investigation (also described in Hovland et al., 1953). In their study, they presented the entire freshman class of large Connecticut high school (in intact classrooms) with minimal, moderate, or strong fear appeals concerning dental hygiene (i.e., proper tooth brushing technique and equipment) or a control message. Their results indicated that as the strength of the fear appeal increased, behavior change in the week following message reception decreased. In short, they reported a negative linear relationship between fear appeals and behavior change.

As in other cases where an initial study generates counterintuitive results (e.g., LaPiere, 1934), considerable fear appeal research ensued over the next two decades. Most studies during this time generated positive linear relationships between fear appeals and attitude and behavior change. On the other hand, some studies from that era (i.e., Goldstein, 1959; Janis & Terwilliger, 1962; Leventhal & Watts, 1966) were consistent with Janis & Feshbach's (1953) results (i.e., a negative linear relationships between fear appeal strength and attitude change).

When I began reading the fear appeal literature in the early 1980s, reviews typically included wailing and gnashing of teeth as authors described incongruous and confusing results (e.g., Smith, 1982). This confusion stemmed, in large part, from the contradictory results among those early fear appeal studies. Over the past three decades, reviewers of the fear appeal literature have become more positive. Early meta-analyses (Boster & Mongeau, 1984; Sutton, 1982) suggested that the literature was not as confusing or as scattered as the previous reviews suggested. In addition, an important methodological milestone in clarifying the effects of fear appeals is Rogers's (1975, 1983) explication of the fear appeal manipulation (described earlier). A large majority of performed studies after Rogers' clarification of the structure of fear appeals report *positive* linear relationship between the strength of a fear appeal and message acceptance (see Witte & Allen, 2000).

Recent meta-analyses (e.g., Witte & Allen, 2000) indicate that the accumulated research clearly suggests that fear-arousing messages work, at least for most audiences and on most occasions. (This caveat is an important one that will be discussed later in the chapter.) In summarizing their meta-analytic results, Witte and Allen conclude:

> In sum, the stronger the fear appeal, the greater the attitude, intention and behavior changes. Similarly, the stronger the severity and susceptibility in the message, the more attitude, intention, and behavior changes. Finally, the stronger the response efficacy and self-efficacy in a message, the stronger the attitudes, intentions, and behaviors toward the recommended response. (p. 598)

Fear Appeal Explanations

Over the past several decades, several explanations attempted to elucidate fear appeals successes and failures. Therefore, this section describes and evaluates five historically important approaches to fear appeals: the drive model (Hovland et al., 1953), the parallel response model (Leventhal, 1970), the protection motivation explanation (Rogers, 1975, 1983), the extended parallel processing model (Witte, 1992), and the stage model (Stroebe, 2000). These explanations reflect predominant contemporary social science paradigms. In the 1950s and 1960s, the predominant explanation (the drive model; e.g., Hovland et al., 1953;

Janis, 1967; McGuire, 1969) reflected classical condition and learning paradigms. Through the 1970s and beyond, as the cognitive revolution challenged, and eventually superseded, the reinforcement paradigm (G. A. Miller, 2003), fear appeal explanations quickly followed suit. During this time, fear appeal explanations swung from entirely emotion and reinforcement-based, to presenting a balance between emotion and cognitive foci, to finally becoming entirely cognitive (and, thus, representing threat appeal explanations as previously defined), where consideration of emotion processes waned. It is only relatively recently that the emotion of fear has returned to the study of fear appeals, but only from a cognitive perspective.

Another interesting aspect of these explanations is that rather than representing entirely new formulations, each attempt builds on, and includes elements from, earlier explanations. This is an interesting choice as the explication of each new explanation generally involves a scholarly thrashing of the predecessors.

The Drive Model

As with several other topics, the social scientific study of fear appeals largely begins with Hovland et al.'s (1953) *Communication and Persuasion.* Their fear appeal chapter offered considerable speculation (in part because there were very few data beyond Janis & Feshbach, 1953) concerning the persuasive effects of fear appeals. The chapter introduced many concepts that remain at the forefront of fear appeal scholarship today. Moreover, their drive model dominated the fear appeals conversation for over 20 years. Although its predictions are inconsistent with the accumulated data, it remains important bedrock on which the foundations of other explanations are built.

Working from the classical conditioning paradigm, Hovland et al.'s (1953) *drive model*, depicts fear as a drive; that is, a negatively valenced state that an individual is motivated to avoid or (once experienced) eliminate. The explanation claims that the threat presented in a persuasive message initiates fear as a drive state. The emotional arousal generates a search for, and effort to work through, several strategies to reduce the drive. Whatever strategy is successful in reducing the drive state is considered a reward, thereby increasing the probability that it will be repeated in the future (Hovland et al., 1953). If rehearsing and advocating message recommendations reduces fear, they will be integrated into the receiver's cognitive structure (i.e., attitude and behavior change occur) and this strategy will represent the preferred option for processing future messages. If, on the other hand, rehearsing message recommendations fails to reduce the drive, audience members will attempt alternative strategies. For example, Hovland et al. suggest that the receiver might attempt to disregard the message (i.e., inattentiveness), derogate the message source, or minimize or ignore the threat. Of course, if receivers take this route, attitude and behavior change seems unlikely. Again, if any of these alternative strategies are successful in reducing drive, it is rewarding and represents the response of choice in similar future situations.

From the drive model, Hovland et al. (1953) predicted a curvilinear (i.e., inverted-U shaped) relationship between the strength of a fear appeal and attitude and behavior change. Specifically, “from zero to some moderate level, acceptance tends to increase, but as emotional tension mounts to higher levels, acceptance tends to decrease” (Hovland et al., 1953, pp. 83–84). In short, the drive model predicts that greatest levels of attitude and behavior change will occur when fear appeals are moderate (when compared to when they are either low or high).

Two noteworthy extensions of the drive model are Janis's (1967) "family of curves" and McGuire's (1968, 1969) two-factor explanation. Janis argues that fear arousal creates competing forces of vigilance to the threat, on the one hand, and hypervigilance (i.e., interference) on the other. Increasing fear arousal facilitates audience members' motivation and ability to process the persuasive message, however, as fear arousal increases further, facilitating factors are countered by interference (e.g., defensive avoidance through counterarguing in a search for loopholes; Janis, 1967, p. 176). The point on the arousal continuum at which inhibiting factors outweigh facilitating factors varies across messages and audiences, resulting in a *family of curves* where the function's peak falls at different points on an emotional arousal continuum.

McGuire (1968, 1969), on the other hand, argued that when a persuasive message creates fear, the emotion can act as a cue or as a drive. As a cue, receivers depend on learned responses that interfere with message reception and acceptance. On the other hand, as a drive, fear motivates receivers to avoid the threat and is thought to facilitate message acceptance. Both drive and cue functions increase monotonically as fear arousal increases, but at differing rates. This combination of competing forces leads to the predicted inverted U-shaped relationship.

Evaluating the Drive Model

One important criticism of the drive model focuses on the representation of fear as a drive. Equating these terms essentially places emotion in the same category as hunger or thirst. Thus, although it refers to emotional arousal, does little more than wave its hand toward emotion as it is considered in more recent theory and research.

What is more, the curvilinear prediction between fear appeal strength and responses derived from the drive model was doomed from the beginning. Although social science theorizing at the day was replete with inverted-U-shaped functions (Leventhal, 1970), pairing the drive model with a curvilinear relationship was a curious choice. The most complete data that Hovland et al. (1953) reported was the negative linear relationship on behavior change from Janis and Feshbach (1953). It is difficult to shoehorn these data into the drive model's inverted U-shaped function. Hovland et al. claim that the negative linear relationship represents the downward slope in the inverted-U (see also Janis, 1967). For this to be the case, however, Janis and Feshbach's *minimal* appeal would have to be at least moderate on some objective fear arousal continuum. This supposition is handicapped because Hovland et al. also went into great detail describing the truly mundane nature of the *minimal* appeal. In summary, evidence consistent with the curvilinear relationship in subsequent research is virtually nonexistent (Boster & Mongeau, 1984; Witte & Allen, 2000), although I will argue later that the methods typically used in fear appeal studies do not fully test the model.

Given the drive model's inability to explain the accumulated data, subsequent explanations attempted to explain both positive linear and negative linear relationships between the strength of fear appeals and responses. Specifically, similar to McGuire's (1968) two-factor approach, these explanations present multiple ways of processing fear-arousing messages (e.g., Das, de Wit, & Stroebe, 2003; Leventhal, 1970; Witte, 1993). Typically, one way of dealing with fear appeals facilitates message acceptance while the other inhibits it. Moreover, over time, the next generation of explanations focused increasingly on the cognitive, rather than affective, processes.

Parallel Response Model

Although other explanations appeared in the interim (e.g., G. R. Miller, 1963), the second historically important fear appeal explanation is the parallel response model (Leventhal, 1970, 1971). This explanation acts as a bridge between the largely affectively focused drive model and the more recent, cognitively oriented, explanations. Specifically, the parallel response model suggests that audience members will deal with the depicted threat in one of two ways: fear control or danger control.

Fear Control

In fear control, internal affective responses (e.g., physiological arousal) are interpreted as a sign of fear. When further cognitive work suggests that there is nothing to be done to avoid the threat, audience members will look internally to reduce emotional arousal. Leventhal (1970) argues that a wide variety of responses might occur during fear control (e.g., defensive reactions, eating or drinking to interfere with emotional responses, or reinterpreting the arousal). Audience members' internal focus likely inhibits focusing on, elaborating about, and accepting message recommendations. When audience members engage in fear control, then, the strength of fear appeals should be inversely related to attitude and behavior change.

Danger Control

Danger control represents a problem-solving process whereby recipients consider how to deal with the message threat. Information guiding problem-solving typically comes from the message itself, though other sources of information (e.g., memory, coping abilities, and emotional responses) are also important, particularly as the problem-solving process develops (Leventhal, 1970). In other words, danger control increases the probability that receivers will attend to, elaborate on, and accept message recommendations. Therefore, when audience members engage in danger control, the strength of fear appeals should be positively correlated with attitude and behavior change.

As the model's label suggests, danger control's problem solving process works parallel to, and independently from, fear control emotional processes. Thus, emotional arousal (i.e., fear) should be positively correlated with attitude and behavior change, however, this relationship is spurious as both responses are caused by the message (Leventhal, 1970). Thus, fear appeals generate *both* fear and adaptive responses; however, they are not causally related.

Evaluating the Parallel Processing Model

The primary value of the parallel processing model is historical, as it was the first explanation to clearly and explicitly separate cognitive from affective responses to a fear appeal. Therefore, the parallel processing explanation provided a logical explanation for the inconsistencies in fear appeal studies of the time. Specifically, studies generating negative relationships between fear appeals and attitude change (e.g., Janis & Feshbach, 1953) produced fear control while studies producing positive correlations (e.g., G. R. Miller & Hewgill, 1966) produced danger control.

Although this explanation facilitated thinking about fear appeals' persuasive successes and failures, it had one serious flaw. Specifically, it lacked the specificity necessary to generate clear predictions and tests (Beck & Frankel, 1981; Boster & Mongeau, 1984; Rogers, 1975). Specifically, Leventhal (1970, 1971) neither developed operationalizations fear control and danger control, nor specified the conditions under which each would operate. (Ironically,

Leventhal criticized both Janis' family of curves explanation and the drive model on the same grounds.) Leventhal predicted that the strength of fear appeals would generally be positively related to attitude and behavior change. Sternthal and Craig (1974), however, used the same explanation to predict an inverted-U-shaped relationship between fear appeal strength and attitude and behavior change. Specifically, danger control would predominate from low to some moderate level of emotional arousal after which fear control would take over. Given the lack of specificity in construct specification and predictions, it is impossible to differentiate, or test, these predictions.

Therefore, although historically important for extending thinking about fear appeal processing, the parallel response model is not testable. Following the trend sweeping the social sciences, the next family of explanations (e.g., Beck & Frankel, 1981; Rogers, 1975) posited that attitude and behavior change was an exclusive function of the cognitive processing of fear appeals and virtually ignored emotional arousal (Witte, 1992). Although fear and perceptions of threat are "intricately and reciprocally related" (Witte & Allen, 2000, p. 592), the emotion of fear went AWOL from fear appeals for nearly two decades.

Protection Motivation Explanation

Rogers (1975) attributed the inconsistent fear appeal results to the haphazard manner in which fear appeals had been conceptualized and operationalized. Thus, the primary contribution of Rogers' (1975, 1983) protection motivation explanation (both original and revised) is the specification of fear appeal components. Although these components had been previously described several times (e.g., Hovland et al., 1953; Janis, 1967; Leventhal, 1970), Rogers's systematic descriptions generated greater consistency in the development of fear appeals and, perhaps, study results.

As previously noted, Rogers (1975, 1983) described fear appeal as containing four components (severity, susceptibility, self-efficacy, and response efficacy). Working from an expectancy value perspective (cf., chapter 8 in this volume), the protection motivation explanation posits that receivers evaluate messages along each message component (i.e., perceived severity, perceived susceptibility, perceived response efficacy, and perceived self-efficacy). In the initial formulation, these perceptual variables combined multiplicatively to create protection motivation, an intervening variable that "arouses, sustains, and directs activity" (Rogers, 1975, p. 94). Protection motivation, in turn, directly influences behavior change. Thus, protection motivation (akin to behavioral intention) replaces fear as the mediating variable between fear appeals and responses. "Our emphasis on 'protection motivation' rather than 'fear' is designed to emphasize the importance of cognitive processes rather than visceral ones" (Rogers, 1983, p. 169).

In short, the protection motivation explanation initially predicted a threat by efficacy interaction on attitude and behavior change. When either threat or efficacy levels are zero (e.g., either the threat is weak or if the coping response is ineffective), no attitude or behavior change is predicted to occur. Messages that present a severe threat that is likely to strike the audience member will be persuasive *only* if they are combined with recommended coping responses that are effective in avoiding the threat and that are in the receiver's behavioral repertoire.

Evaluating the Protection Motivation Explanation

The primary strength of the protection motivation explanation is the specification of fear appeal components; particularly the bifurcation of threat and coping components. Although

they were discussed earlier (e.g., Hovland et al., 1953), Rogers's (1975, 1983) conceptualizations and operationalizations represent important grounding for subsequent theoretical frames (e.g., Stroebe, 2000; Witte, 1993).

The revised protection motivation explanation is relatively difficult to evaluate as it relates to fear appeals because it extends beyond persuasive messages to include other information sources (e.g., intrapersonal and social) relevant to coping. Thus, the revised explanation includes, but extends far beyond fear appeals. As a consequence, recent meta-analytic studies (Floyd, Prentice-Dunn, & Rogers, 2000; Milne, Sheeran, & Orbell, 2000) do not speak directly to the issue of fear appeals. One issue is clear, however. The multiplicative combination of cognitive meditational variables (i.e., perceived severity, perceived susceptibility, and perceived response efficacy, and perceived self efficacy) from the original protection motivation explanation has been rejected (Rogers, 1983). Factors influence responses separately rather than in combination (Floyd et al., 2000; Milne et al., 2000; Rogers, 1983).

Witte (1993) claims that an important limitation of the protection motivation explanation is that it foregrounds cognitive (especially subjective expected utility) processes while giving emotions only a tertiary role. For example, in the revised protection motivation model, fear influences protection motivation only as a function of perceptions of threat and efficacy (Rogers, 1983). In short, with the protection motivation explanations, the pendulum had swung entirely from an emotional position (where fear alone mediated the effectiveness of fear appeals) to nearly an entirely cognitive one (where the only cognitive concepts were of consequence).

Extended Parallel Processing Model

Witte (1992) lamented the erosion of fear and, more broadly, affective processes from fear appeal explanations. To reverse this trend, Witte created the extended parallel processing model (or EPPM), which attempted to balance cognitive and affective processes. This balance was attempted by combining elements from the drive, parallel processing, and protection motivation explanations. Specifically,

> Leventhal's model forms the basis of the theory. PMT explains the danger control side of the model (i.e., when and why fear appeals work), and portions of Janis and McGuire's explanations can be accounted for under the fear control side of the model (i.e., when and why fear appeals fail). (Witte & Allen, 2000, p. 594)

In short, the parallel processing model (Leventhal, 1970) differentiated fear control from danger control, however, it failed to specify when each would operate. The EPPM (Witte, 1992) uses protection motivation components to fill this gap. Specifically, the EPPM predicts that when threat is weak, no attitude or behavior change will occur because receivers are unmotivated to engage in active message processing. If the message threat is either weak or remote (or both), there is no need to attend to, and/or heed, message recommendations (i.e., no threat, no sweat).

When the threat depicted in the message is both severe *and* likely to strike, receivers will experience fear (Witte, 1992). Fear creates further increases in perceived threat and motivates receivers to look for ways of avoiding it. Whether audience members engage in fear control or danger control, then, depends on the message's coping component. Specifically, if threat is high and efficacy is low (the recommended coping response is ineffective and/or the receiver

is unable to perform it), fear increases greatly and participants are predicted to engage in fear control. Fear control processes include any of several forms of defensive avoidance, such as message avoidance and not thinking about the issue in the future (Witte, 1992). Under these conditions, attitude and behavior change in the direction of message recommendations is unlikely as participants focus on emotional reactions.

When both threat and efficacy are strong, on the other hand, receivers are predicted to engage in danger control. In doing so, receivers engage in unbiased cognitive processing of message content in choosing responses (Witte, 1992). Under these conditions, attitude, intention, and behavior change in the direction of message recommendations are predicted to occur.

In summary, in the EPPM, "threat-by-efficacy interactions are the fundamental determinants of study outcomes" (Witte, 1992, p. 330). Specifically, the model predicts a multiplicative interaction between threat and efficacy where both threat and efficacy have to be present for attitude, behavior, or intention change to occur. In any other combination of threat and efficacy, little or no change in attitude, behavior, or intention is expected. If threat is low, receivers are unmotivated to process the message. If threat is high and efficacy low, fear control processes predominate.

Evaluating the Extended Parallel Processing Model

Witte and Allen's (2000) meta-analysis seems to be of two minds. The meta-analytic results comparing the four EPPM conditions (i.e., high threat-high efficacy, high threat-low efficacy, low threat-high efficacy, and low threat-low efficacy) indicate main effects for both threat and efficacy, but no interaction effect. Specifically, consistent with the EPPM, the high threat-high efficacy condition produced the greatest attitude change. Inconsistent with model predictions, the low threat-high efficacy and high threat-low efficacy conditions both generated greater attitude change than did the low threat-low efficacy condition. (The EPPM predicts that all three of these conditions should generate equal amounts of attitude change, though for different reasons.) In short, although the EPPM predicts a multiplicative interaction between threat and efficacy, these results suggested an additive process where threat and efficacy separately influence responses.

In an effort to save the EPPM's multiplicative prediction, Witte and Allen (2000) performed effects-coded analyses pitting the predicted multiplicative model with the additive model suggested by the data. Using unreported contrasts to represent the two effects, Witte and Allen report that *both* the additive and multiplicative patterns significantly predicted outcomes, suggesting that the predicted multiplicative model might fit the data after all. The flaw in that logic, however, is that the two models' predictions are strongly interrelated. Specifically, the multiplicative interaction contains the two main effects from the additive model. Therefore, any set of effects codes representing the additive model will correlate strongly with those representing the multiplicative model.[1] In such a case, it would be nearly impossible to generate effect-code models that could differentiate these two sets of predictions.

In summary, the accumulated data appear similar to tests of the original formulation of the protection motivation explanation. When considering the separate impact of predictor variables, the data match predictions reasonably well. Both threat and efficacy positively influence attitude and behavior change. When considering the *specific combinations* of threat and efficacy, however, the accumulated data do not fit predictions as clearly. Specifically, the "off" cells (i.e., high threat-low efficacy and low threat-high efficacy) produce greater attitude

change than the model predicts. Why this might be and how it could be explained from the EPPM perspective remains unclear.

The Stage Model of Fear Appeals

The most recent explanation for fear appeals is the stage model (e.g., de Hoog, Stroebe, & de Wit, 2007; Das et al., 2003; Stroebe, 2000); not to be confused with the transtheoretical (or stages of change) model (see Prochaska & DiClemente, 2005). As is typical for this literature, the stage model combines concepts from earlier explanations (e.g., parallel response, protection motivation, and the EPPM) but also combines them with the dual-process model of message processing (Chaiken, 1980), stress-coping explanations (e.g., Lazarus & Folkman, 1984), and models of message evaluation, evidence, and inference (e.g., Kunda, 1987). The model is quite recent, more complex than its predecessors, and relatively untested. Therefore, this review will be brief.

Like the other explanations, the stage model assumes that fear appeal components include threat (i.e., severity and susceptibility) and coping (i.e., response and self-efficacy). These components are presented, and processed, in stages (thus the explanation's label) with threat assessments potentially influencing subsequent efficacy assessments (Das et al., 2003; Stroebe, 2000). The stage model considers threat components (i.e., severity and susceptibility) as differentially influencing depth of message processing (heuristic or systematic), receiver's processing goals (i.e., accuracy or defensive), and persuasive outcomes (i.e., attitude or behavior change). For example, while both severity and susceptibility are predicted to influence attitudes, only susceptibility is predicted to influence behaviors and intentions. What is more, both the processing of the threat and efficacy message components are predicted to be biased (the threat component negatively and the efficacy component positively). When threat is strong, audience members will attempt to counterargue and find logical flaws (loopholes) in message arguments (Das et al., 2003; Stroebe, 2000). Failing to find such loopholes, receivers will likely accept *any* coping response unless it is totally implausible and/or impossible to enact. Such a positive bias allows the receiver to feel good in the face of a severe threat.

Evaluating the Stage Model

The stage model is intriguing; however, evaluating it is difficult, first, because few published studies directly test it and, second, its predictions are slippery. For example, de Hoog et al. (2007) assert several times that main effects either *could* or *should* be moderated. Thus, it is not clear whether main effects or interaction effects should influence responses. The body of studies in the de Hoog et al. meta-analysis included only those studies that manipulated *either* severity or susceptibility or manipulated both, but separately (i.e., studies that confounded severity and susceptibility, e.g., Janis & Feshbach, 1953 and all of Witte's work, were not analyzed). Meta-analytic results (de Hoog et al.) indicate that several predictions were inconsistent with meta-analytic results. For example, susceptibility predicted behaviors, but not attitudes (as expected), however, severity significantly predicted attitudes (where only efficacy judgments were supposed to have the influence). Finally, although response efficacy predicted attitudes, but not behaviors, self efficacy predicted both attitudes and behaviors (while only the former was predicted).

The Current State of Fear Appeal Theory and Research

On the whole, the current state of fear appeal theory and research is simultaneously clear and confused. The results of several meta-analytic investigations are relatively clear. Fear appeals work, for most audiences and messages. As Witte and Allen (2000) noted, both the strength of fear appeals (including both severity and susceptibility) and the efficacy of the coping response (both self-efficacy and response efficacy) influence experienced fear, attitudes, intentions, and behaviors.

That fear appeals work *for most audiences and messages*, however, represents an important caveat to this conclusion. Witte and Allen (2000) report that, in most all cases, effect sizes vary more across studies than is expected by chance alone. Such heterogeneity in study effect sizes suggests that fear appeals are more effective for some topics and for some audiences than they are for others, due presumably to some unknown moderator variable (or variables). Consideration of such variables will be taken up shortly.

Why Don't Fear Appeal Explanations Work?

Given the state of the literature, a summary evaluation of fear appeal explanations has not changed substantially since 1984 when Boster and Mongeau claimed "none of the fear appeal explanations are consistent with the available evidence" (p. 366). Fear appeals work (most of the time at least), but it is safe to say that fear appeal explanations do not. Specifically, the drive model never came close to explaining the data; the parallel processing model was untestable; and predictions from the most recent explanations (i.e., protection motivation, extended parallel processing, and stage models) were inconsistent with how various fear appeal components (i.e., severity, susceptibility, self-efficacy, and response-efficacy) influence attitude, intention, and behavior change (de Hoog et al., 2007; Rogers, 1983; Witte & Allen, 2000).

There are several potential reasons why fear appeal explanations don't match the accumulated data. Some of these reasons center on the nature of the explanations themselves, while other reasons are a function of the research methods used to test them. I will consider each of these factors in turn.

Issues Relevant to the Explanations Themselves

There are at least three factors associated with fear appeal explanations (both what they have and what they lack) that likely lead to their demise. First, ever since Hovland and colleagues' (1953) seminal work, each new fear appeal explanation has taken something from previous work, changed it and/or combined it with other perspectives and/or concepts, in order to develop something *new*. Parallel processing was built with bricks from the drive model. The EPPM combined parts of the drive, parallel response, and protection motivation explanations. Most recently, the stage model combined elements from all these explanations with several other persuasion concepts (e.g., Chaiken, 1980). In short, instead of becoming more consistent, terse, and compelling over time, fear appeal explanations are becoming more bloated, convoluted, and no closer to explaining the accumulated data. Such a state of affairs is due, in part, to the perpetration of several central constructs that are poorly conceptualized and operationalized (e.g., fear control, danger control, and defensive avoidance). What is more, one has to question whether the accumulated data necessitate this level of conceptual complexity.

A second shortcoming of fear appeal explanations is that they consistently highlight cognition and shortchange physiological aspects of emotion. This cognitive focus likely reflects social

science paradigm shift over the past half-century. This shift has generated considerable useful inquiry and theory (e.g., G. A. Miller, 2003) in many scholarly areas, including persuasion (see, e.g., Eagly & Chaiken, 1993, and many chapters in this volume). On the other hand, the concept of fear (and emotion more generally), particularly the concept of physiological arousal, has faded into the background. This leaves explanations of how fear appeals work (or don't work) simplistic and incomplete.

With the exception of the EPPM, recent fear appeal explanations are more accurately characterized as threat appeal explanations (Witte, 1992) as they focus nearly exclusively on the cognitive processing of messages. Largely gone is any consideration of arousal (e.g., physiological or emotional) or emotional labeling. Even within the EPPM, physiological processes given a tertiary role, guiding message rejection more than message acceptance (Witte, 1992).

Given the imbalance between cognitive and emotional (particularly physiological) factors in fear appeal explanations, we know more about danger control (i.e., message acceptance) than we do about fear control (and message rejection). Moreover, much of the thinking on the fear control centers on defensive avoidance, both of which are particularly poorly defined constructs. Rather than constructs used to make predictions, fear control and defensive avoidance are typically utilized to explain (after the fact) the failure of a fear appeal. What is more, discussions of defensive avoidance frequently include a variety of responses that likely stem from different (cognitive or emotional or both) processes that occur during message processing, long afterward, or both. Different defensive avoidance processes likely produce different outcomes, but this claim has not been adequately considered or tested. As it stands, defensive avoidance seems to be more of a post-hoc shorthand description of study outcomes rather than a compelling theoretical variable. Although the accumulated data appear consistent with danger control processes, greater theory and research needs to focus on fear control processes as well.

A third area where fear appeal explanations are lacking is the consideration of moderator variables (i.e., any variable that influences the direction and/or strength of relationship between two other variables; Stiff & Mongeau, 2003). When I teach persuasion, each major topic typically involves discussing at least one moderator variable (e.g., vested interest as a moderator of the attitude-behavior relationship; Sivacek & Crano, 1982). The recent study of fear appeals is an exception. Consideration of moderator variables is important given the heterogeneity of fear appeal effects (Witte & Allen, 2000). Although early fear appeal research considered several moderator variables (e.g., source credibility, trait anxiety, participant age, etc.; Boster & Mongeau, 1984), the study of such variables has largely died. (One exception is trait anxiety, see Hale, Lemieux, & Mongeau, 1995; Witte & Morrison, 2000.)

Despite the dearth of moderator variables in modern fear appeal research, future research might fruitfully investigate several important candidates. One potentially important moderator variable is the novelty of the threat. Fear appeal explanations suggest that describing the severity and susceptibility of the threat are important components of fear appeals. Recent research, however, suggests that this might not be the case (Nabi, Roskos-Ewoldsen, & Carpentier, 2008). When the threat is new to the audience, the threat component is indeed likely critically important to a fear appeal's success. What we don't know is whether it is necessary to remind audience members of a threat they are already aware of. During the Cuban Missile Crisis, did U.S. residents really need to be reminded of the dangers of a nuclear attack to convince them to build a basement bomb shelter? In the present, do tobacco smokers really need to be reminded of the health threats of their habit in order to

motivate them to change? Nabi et al. suggest that when the threat is well-known to participants, that presenting only the efficacy information can be more persuasive, and produce less reactance, than presenting the full fear appeal. Although their results are somewhat equivocal (they work better for men when the issue is testicular self-examination than for women for breast self-examination), they do suggest that this is an important issue for future fear appeal research.

A second set of moderator variables relevant to the effectiveness of fear appeals represent the nature of the recommended behavioral change. The fear appeal literature (and persuasion in general) seems to assume that message factors work in a *one-size-fits-all* fashion. This is a questionable assumption because, first, effect sizes differ across studies and, second, behavioral changes differ dramatically across message topics. Some changes are drastic, occur over time, and require consistent maintenance (e.g., dietary change to reduce blood cholesterol levels; Prochaska & DiClemente, 2005). In such cases, not only must an individual decide to make drastic changes in one's diet, but must consistently maintain those changes when making daily dietary decisions. Other behavioral changes only need to be made once and following that decision, no further elaboration is likely necessary (e.g., signing an organ donation card). The nature of the successful persuasive message (or campaign) is likely quite different if the behavior in question is ongoing rather than discrete. Also, eliminating a behavior (e.g., quitting smoking) might involve fundamentally different persuasion processes than initiating behaviors (e.g., starting an exercise regime; Floyd et al., 2000).

Another aspect of behavioral change that fear appeal explanations fail to consider is the receiver's *readiness* to make a change. Smoking cessation, for example, is likely a long and complicated process requiring several stages (e.g., Prochaska & DiClemente's, 2005, pre-contemplation, contemplation, and preparation stages). Convincing a smoker that they *should* quit likely has to precede convincing people *how* to quit. Put another way, where an individual might be in the *process* of change or their readiness for making a major multibehavioral, longitudinal change are likely important moderators of the effectiveness of fear appeals. These are issues discussed in detail by the transtheoretical (stages of change) explanation (Prochaska & DiClemente, not to be confused with the stages of change model discussed earlier, Stroebe, 2000).

Reasons Centering on Research Methods

Fear appeal explanations have changed dramatically since Janis and Feshbach's (1953) drive model. The research methods used to test these explanations, however, have changed less drastically. Thus, a second set of reasons why fear appeal explanations don't work lies not with the explanations themselves, but with the predominant methods used to test them. Specifically, the operationalization of fear arousal (i.e., perceived fear) seems particularly problematic.

Put simply, the drive model and the EPPM suggest, essentially, that the fear appeal's threat component creates the emotion of fear while the coping component is supposed to reduce it. The operational definition of perceived fear (in most studies) is a self-report measure of how much fear (or concern or worry) participants experienced during message reception (Witte & Allen, 2000; for exceptions, however, see Dillard & Anderson, 2004; Mewborn & Rogers, 1979). Many times self-report measure of perceived fear represents little more than a manipulation check rather than an important theoretical variable in and of itself.

There are two problems with the self-report measure of fear in such an experimental design.

First, the *perceived fear* judgment participants make is inherently ambiguous. Given a typical fear appeal, recipients are likely calm at the beginning of the message, emotionally aroused in the middle (after processing the threat component), and relatively calm at the end (after processing an effective coping component). If this is indeed the case, how does he or she respond to an item asking, after the fact, how much fear (or concern or worry) they experienced during the message? If the actual level of fear varied (perhaps dramatically) during the message, what does such an overall measure really tell us?

Moreover, given the typical post-test only design used in most fear appeal studies, not only are self-report data ambiguous, they are unable to capture a great deal of important information. As a fear appeal explanation, the EPPM centers on the creation and reduction of emotional arousal as a central determinant of attitude and behavior change. The typical (post-test only) fear appeal study provides no data that speak to this critically important point. Put another way, researchers need to utilize physiological, rather than exclusively self-report indicators of fear arousal and reduction.

If physiological measures of fear arousal are so important to testing fear appeal explanations, why are self-report measures the norm? Certainly they are less expensive, don't require sophisticated equipment, and are easier to interpret. Moreover, Witte claims that self-report measures are the preferred operational definition of fear because they are likely more sensitive than physiological measures "because self-rated fear is more global in nature and more adequately reflects an overall emotional state, while physiological arousal fluctuates substantially during the presentation of a fear appeal" (Witte, 1992, p. 331).

There are three curious aspects to Witte's (1992) claim about the superiority of self-report measures of fear. First, she was describing Rogers's (1983) view from the protection motivation explanation, which is disinterested in fear as an explanatory construct. Second, Witte admits that the correlation between self-report and physiological indicators of fear in Mewborn & Rogers (1979) is "quite modest" (p. 346). Clearly, one indicator cannot simply stand in for another. Finally, and most important, the EPPM predicts that the creation of emotional arousal and its reduction are central to determining fear control or danger control processes. Therefore, the substantial fluctuations of arousal during processing of a fear appeal are critically important data rather than unnecessary noise.

Summary Comments

In summary, the accumulated fear appeal literature indicate that this message type works for most audiences and topics, however, the predictions made by fear appeal explanations do not clearly match the accumulated data. Fear appeal explanations, however, have not been given a fair test in large part because of the inadequate operational definitions and research designs. Specifically, due largely to the highly cognitive nature of the entire literature, the important physiological processes presumed to mediate the relationship between fear appeals and responses have gone dramatically understudied.

Future fear appeal research, then, should gather physiological data concerning the arousal and reduction of fear during message processing. Some fear appeal explanations rely heavily on physiological responses such that a full accounting of these formulations is impossible without the messier, more complex data. Once collected, I suspect that physiological data will likely require additional theory building. As researchers generate evidence as to how physiology is involved (or not involved) in the processing of fear appeals, existing explanations will almost certainly be found wanting. Explanations that truly balance cognitive and

physiological components of emotion are clearly needed to advance fear appeal scholarship to the next level. As Bradley and Lang (2000) note, “As a bare minimum, an experiment should include a sample measure from each major system: overt acts, language, and physiology” (p. 245).

Notes

1. For example, assume that the additive contrasts were −1, 0, 0, and +1 for the low-low, low-high, high-low, high-high conditions respectively. For the multiplicative model, assume contrasts of −1, −1, −1, and +3 for the same conditions. Given that the multiplicative model contains the same main effects as the additive models, these two sets of contrasts are very strongly correlated (r = .82).

References

Beck, K. H., & Frankel, A. (1981). A conceptualization of threat communications and protective health behavior. Social Psychology Quarterly, 44, 204–217. Retrieved May 4, 2012, from http://www.jstor.org/stable/3033834http://dx.doi.org/10.2307/3033834

Boster, F.J., & Mongeau, P. (1984). Fear-arousing persuasive messages. In R. N.Bostrom (ed.), Communication yearbook 8 (pp. 330–375). Newbury Park, CA: Sage.

Bradley, M. M. & Lang, P. J. (2000). Measuring emotion: Behavior, feeling, and physiology. In R. D.Lang, L.Nadel, & G.Ahern (eds.), Cognitive neuroscience of emotion (pp. 242–276). New York, NY: Oxford University Press.

Chaiken, S. (1980). Heuristic versus systematic information processing and the use of source versus message cues in persuasion. Journal of Personality & Social Psychology, 39, 752–766. doi: 10.1037/0022-3514.39.5.752 http://dx.doi.org/10.1037/0022-3514.39.5.752

Das, E. H. H. J., de Wit, J. B. F., & Stroebe, W. (2003). Fear appeals motivate acceptance of action recommendations: Evidence for a positive bias in the processing of persuasive messages. Personality and Social Psychology Bulletin, 29, 650–664. doi: 10.1177/0146167203029005009 http://dx.doi.org/10.1177/0146167203029005009

de Hoog, N., Stroebe, W., & de Wit, Jon B. F. (2007). Impact of vulnerability to severity of a health risk on processing and acceptance of fear-arousing communications: A meta-analysis. Review of General Psychology11, 258–285. doi: 10.1037/1089-2680.11.3.258 http://dx.doi.org/10.1037/1089-2680.11.3.258

Dillard, J. P., & Anderson, J. W. (2004). The role of fear in persuasion. Psychology and Marketing, 21, 909–926. doi: 10.1002/mar.20041 http://dx.doi.org/10.1002/mar.20041

Dillard, J. P., & Meijnders, A. (2002). Persuasion and the structure of affect. In J. P.Dillard & M.Pfau (eds.), The persuasion handbook: Developments in theory and practice (pp. 309–327). Thousand Oaks, CA: Sage. http://dx.doi.org/10.4135/9781412976046

Eagly, A. H., & Chaiken, S. (1993). Psychology of attitudes. Belmont, CA: Wadsworth.

Easterling, D. V., & Leventhal, H. (1989). Contribution of concrete cognition to emotion: Neutral symptoms as elicitors of worry about cancer. Journal of Applied Psychology, 74, 787–796. doi: 10.1037/0021 9010.74.5.787 http://dx.doi.org/10.1037/0021-9010.74.5.787

Floyd, D. L., Prentice-Dunn, S., & Rogers, R. W. (2000). A meta-analysis of research on Protection Motivation Theory. Journal of Applied Social Psychology, 30, 407–429. doi: 10.1111/j.1559-1816.2000. tb02323.x http://dx.doi.org/10.1111/j.1559-1816.2000.tb02323.x

Goldstein, M. J. (1959). The relationship between coping and avoiding behavior and response to fear arousing propaganda. Journal of Abnormal and Social Psychology, 58, 247–252. doi: 10.1037/h0044492

Guerrero, L. K., Andersen, P. A., & Trost, M. R. (1998). Communication and emotion: Basic concepts and approaches. In P. A.Andersen & L. K.Guerrero (eds.), Handbook of

communication and emotion: Research, theory, applications, and contexts (pp. 5–27). San Diego, CA: Academic Press.
Hale, J. L., Lemieux, R., & Mongeau, P. A. (1995). Cognitive processing of fear-arousing message content. Communication Research, 22, 459–474. doi: 10.1177/009365095022004004 http://dx.doi.org/10.1177/009365095022004004
Hovland, C., Janis, I., & Kelly, H. (1953). Communication and persuasion. New Haven, CT: Yale University Press.
Janis, I. L. (1967). Effects of fear arousal on attitude change: Recent developments in theory and research. In L.Berkowitz (ed.), Advances in experimental social psychology (Vol. 3; pp. 167–222). New York, NY: Academic Press.
Janis, I. L., & Feshbach, S. (1953). Effects of fear-arousing communications. The Journal of Abnormal and Social Psychology, 48, 78–92. doi: 10.1037/h0060732 http://dx.doi.org/10.1037/h0060732
Janis, I. L., & Terwilliger, R. F. (1962). An experimental study of psychological resistance to fear arousing communications. The Journal of Abnormal and Social Psychology, 65, 403–410. doi: 10.1037/h0047601 http://dx.doi.org/10.1037/h0047601
Kunda, A. (1987). Motivated inference: Self-serving generation and evaluation of causal theories. Journal of Personality and Social Psychology, 53, 636–647. doi: 10.1037/0022-3514.53.4.636 http://dx.doi.org/10.1037/0022-3514.53.4.636
LaPiere, R. T. (1934). Attitudes vs. actions. Social Forces, 13, 230–237. Retrieved May 5, 2012, from http://www.jstor.org/stable/2570339http://dx.doi.org/10.2307/2570339
Lazarus, R. S. (1982). Thoughts on the relations between emotion and cognition. American Psychologist, 37, 1019–1024. doi: 10.1037/0003066X.37.9.1019 http://dx.doi.org/10.1037/0003-066X.37.9.1019
Lazarus, R. S., & Folkman, S. (1984). Stress, appraisal, and coping. New York, NY: Springer.
Leventhal, H. (1970). Findings and theory in the study of fear communications. In L.Berkowitz (ed.), Advances in experimental social psychology (Vol. 5, pp. 119–186). New York, NY: Academic Press.
Leventhal, H. (1971). Fear appeals and persuasion: The differentiation of a motivational construct. American Journal of Public Health, 61, 1208–1224. doi: 10.2105/AJPH.61.6.1208 http://dx.doi.org/10.2105/AJPH.61.6.1208
Leventhal, H., & Watts, J. C. (1966). Sources of resistance to fear-arousing communications on smoking and lung cancer. Journal of Personality, 34, 155–175. doi: 10.1111/j.1467-6494.1966.tb01706.x http://dx.doi.org/10.1111/j.1467-6494.1966.tb01706.x
McGuire, W. J. (1968). Personality and susceptibility to social influence. In E.Borgatta, W. L.Lambert (eds.), Handbook of personality theory and research (pp. 1130–1187). Boston: Rand McNally.
McGuire, W. J. (1969). The nature of attitudes and attitude change. In G. L.Lindzey & E.Aronson (eds.), The handbook of social psychology (
2nd ed.
, pp. 136–314). Reading, MA: Addison-Wesley.
Mewborn, C. R., & Rogers, R. W. (1979). Effects of threatening and reassuring components of fear appeals on physiological and verbal measures of emotions and attitudes. Journal of Experimental Social Psychology, 15, 242–253. doi.org/10.1016/0022-1031(79)90035-0 http://dx.doi.org/10.1016/0022-1031%2879%2990035-0
Miller, G. A. (2003). The cognitive revolution: A historical perspective. TRENDS in Cognitive Science, 7, 141–144. doi:10.1016/S1364-6613(03)00029-9 http://dx.doi.org/10.1016/S1364-6613%2803%2900029-9
Miller, G. R. (1963). Studies on the use of fear appeals: A summary and analysis. Central States Speech Journal, 14, 117–125. doi: 10.1080/1051097630 9362689 http://dx.doi.org/10.1080/10510976309362689

Miller, G. R., & Hewgill, M. A. (1966). Some recent research on fear-arousing message appeals. Speech Monographs, 33, 377–391. doi: 10.1080/0363775 6609375505 http://dx.doi.org/10.1080/03637756609375505
Milne, S., Sheeran, P., & Orbell, S. (2000). Prediction and intervention in health-related behavior: A meta-analytic review of protection motivation theory. Journal of Applied Social Psychology, 30, 106–143. doi: 10.1111/j.1559-1816.2000.tb02308.x http://dx.doi.org/10.1111/j.1559-1816.2000.tb02308.x
Nabi, R. L. (2002). Discrete emotions and persuasion. In J. P.Dillard & M.Pfau (eds.), The persuasion handbook: Developments in theory and practice (pp. 289–308). Thousand Oaks, CA: Sage. http://dx.doi.org/10.4135/9781412976046
Nabi, R. L., Roskos-Ewoldsen, D., & Carpentier, F. D. (2008). Subjective knowledge and fear appeal effectiveness: Implications for message design. Health Communication, 23, 191–201. doi: 10.1080/10410230701808327 http://dx.doi.org/10.1080/10410230701808327
Prochaska, J. O., & DiClemente, C. C. (2005). The transtheoretical approach. In J. C.Norcross and M. R.Goldfried (eds.), Handbook of psychotherapy integration (
2nd ed.
, pp. 141–171). New York, NY: Oxford University Press.
Rogers, R. W. (1975). A protection motivation theory of fear appeals and attitude change. Journal of Psychology: Interdisciplinary and Applied, 91, 93–114. doi: 10.1080/00223980.1975.9915803 http://dx.doi.org/10.1080/00223980.1975.9915803
Rogers, R. W. (1983). Cognitive and physiological processes in fear appeals and attitude change: A revised theory of protection motivation. In J.Cacioppo & R.Petty (eds.), Social psychophysiology (pp. 153–176). New York, NY: Guilford.
Shiota, M. N., & Kalat, J. W. (2011). Emotion (
2nd ed.
). Belmont, CA: Cengage.
Sivacek, J., & Crano, W. D. (1982). Vested interest as a moderator of attitude-behavior consistency. Journal of Personality and Social Psychology, 43, 210–221. doi: 10.1037/0022-3514.43.2.210 http://dx.doi.org/10.1037/0022-3514.43.2.210
Smith, M. J. (1982). Persuasion and human action: A review and critique of social influence theories. Belmont, CA: Wadsworth.
Sternthal, F., & Craig, C. (1974). Fear apples: Revisited and revised: A comparative analysis. Journal of Consumer Research, 1(3), 22–34. Retrieved May 4, 2012, from http://www.jstor.org/stable/2488776http://dx.doi.org/10.1086/208597
Stiff, J. B., & Mongeau, P. A. (2003). Persuasive communication (
2nd ed.
). New York, NY: Guilford.
Stroebe, W. (2000). Social psychology and health (
2nd ed.
). Buckingham, UK: Open University Press.
Sutton, S. R. (1982). Fear-arousing communications: A critical examination of theory and research. In J. R.Eisner (ed.), Social psychology and behavioral medicine (pp. 303–337). New York, NY: John Wiley.
Williams, L. M., Phillips, M. L., Brammer, M. J., Skerrett, D., Lagopoulos, J., Rennie, C., et al. (2001). Arousal dissociates amygdala and hippocampal fear responses: Evidence from simultaneous fMRI and skin conductance recording. NeuroImage, 14, 1070–1079. doi.org/10.1006/nimg.2001.0904 http://dx.doi.org/10.1006/nimg.2001.0904
Witte, K. (1992). Putting the fear back into fear appeals: The extended parallel process model. Communication Monographs, 59, 329–349. doi: 10.1080/03637759209376276 http://dx.doi.org/10.1080/03637759209376276
Witte, K. (1993). Message and conceptual confounds in fear appeals: The role of threat, fear,

and efficacy. Southern Journal of Communication, 58, 147–155. doi: 10.1080/10417949309372896 http://dx.doi.org/10.1080/10417949309372896
Witte, K., & Allen, M. (2000). A meta-analysis of fear appeals: Implications for effective public health campaigns. Health Education & Behavior, 27, 591–615. doi: 10.1177/109019810002700506 http://dx.doi.org/10.1177/109019810002700506
Witte, K., & Morrison, K. (2000). Examining the influence of trait anxiety/repression-sensitization on individuals' reactions to fear appeals. Western Journal of Communication, 64, 1–27. doi: 10.1080/10570310009374661 http://dx.doi.org/10.1080/10570310009374661
Zajonc, R. B. (1980). Feeling and thinking: Preferences need no inferences. American Psychologist, 35, 151–175. doi: 10.1037/0003-066X.35.2.151 http://dx.doi.org/10.1037/0003-066X.35.2.151

- fear appeals
- self-reports
- fear
- appeals
- efficacy
- arousal
- attitude change

http://dx.doi.org/10.4135/9781452218410.n12