

## Managing Fear to Promote Healthy Change

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“I’d rather my baby die than take that drug.”

A woman stated this loudly at my first focus group of women in rural Namibia, reminding me that we were not in Kansas or even in the United States anymore and to proceed with culturally-sensitive caution. These are troubling words to hear from a pregnant woman regarding her unborn child for health researchers trying to promote a better future. Some people may ask why a mother would make such a comment when she could take medicine to prevent HIV being passed to her child during the birthing process. The answer is as simple as it is complex: fear. Fear can be a powerful motivator. Careful management of people’s fear is essential to health promotion. Educators in developing countries face unique challenges; their target audiences often report high levels of fear on many issues (e.g., HIV/AIDS, STIs, malaria, stigma, infant deaths), yet feel solutions are implausible (i.e., no access, costly, stigma, against cultural beliefs). It is important to know of what the target population is afraid in order to design convincing, effective solutions to responsibly manage the fear.

The authors of this chapter have collectively amassed over 60 years of experience researching and constructing fear appeals on a range of topics in various countries. This chapter reviews the Extended Parallel Process Model (EPPM), presents examples of how EPPM can be an effective tool to promote healthy change, illustrates how scholars have extended the EPPM framework to include the presence of social threat and collective efficacy, discusses the challenges created when the target population reports high levels of pre-existing fear, and offers suggestions for future EPPM scholars trying to make a difference in global health outcomes.

## The Extended Parallel Process Model

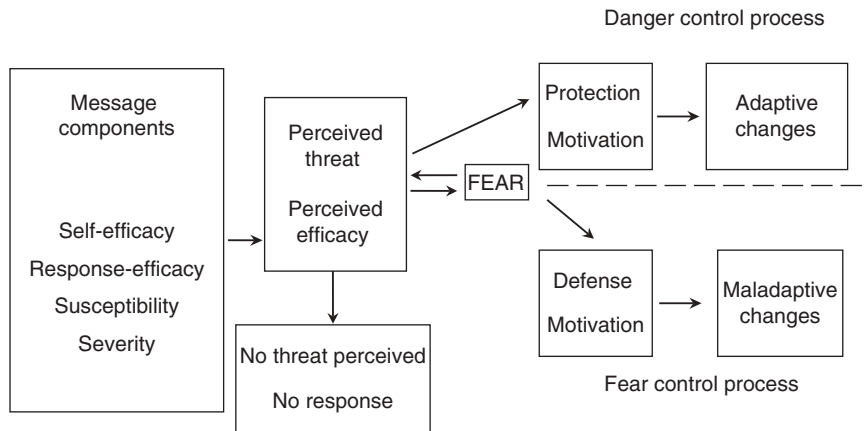
The EPPM (Witte, 1992) is an integration and extension of the fear-as-acquired-drive model (Janis, 1967), the parallel process model (Leventhal, 1970), and protection motivation theory (Rogers, 1975). Though a review of these previous theoretical perspectives is beyond the scope of the current chapter, readers interested in learning more about these perspectives are referred to the original citations, or to overviews written by Witte (1992) and Witte, Meyer, and Martell (2001). What is worth noting here is that the principal difference between the EPPM and earlier fear appeal theories is that earlier theories focused solely upon individuals who adopted the recommended response after being exposed to a fear appeal message, and placed everyone else into the no-response category. According to the EPPM, however, the no-response category is actually comprised of two groups: those who truly had no response to the campaign; and, those who attempted to control their fear rather than react (change) in response to the actual danger, which is masked as no behavior change.

Before reviewing the EPPM (Witte, 1992) itself, it is necessary to define four key variables in this model (note, these definitions are taken or adapted from Roberto, Goodall, and Witte, 2009 or Witte, 1992):

- *Susceptibility*: Beliefs about one's risk of experiencing the threat; how likely is it that the threat will occur?
- *Severity*: Beliefs about the significance or magnitude of the threat; how serious are the short- or long-term consequences of the threat?
- *Response-efficacy*: Beliefs about the effectiveness of the recommended response; is the recommended behavior safe and effective?
- *Self-efficacy*: Beliefs about one's ability to perform the recommended response; does a person have the necessary skills and resources to engage in the recommended behavior?

Together, perceptions of susceptibility and severity combine to form an individual's overall level of *perceived threat*, while perceptions of response-efficacy and self-efficacy combine to make up an individual's overall level of *perceived efficacy*.

With this in mind, the EPPM predicts that perceived threat and efficacy combine to produce one of three possible reactions to a persuasive message. *No response* occurs when perceived threat is low. In this instance, a person does not perceive the existence of a personally relevant or serious threat, and therefore will not feel the need to pay attention or respond to the message. A *fear control* response occurs when perceived threat is high but perceived efficacy is low. Under such conditions, individuals will focus on reducing their degree of fear rather than focusing on the actual danger. Finally, a *danger control* response occurs when both perceived threat and perceived efficacy are high. Under these circumstances, individuals will think carefully about the recommended response and adapt their behavior in a way that reduces their actual danger. In sum, "perceived threat motivates action; perceived efficacy determines the nature of that action – specifically, whether people attempt to control the danger or



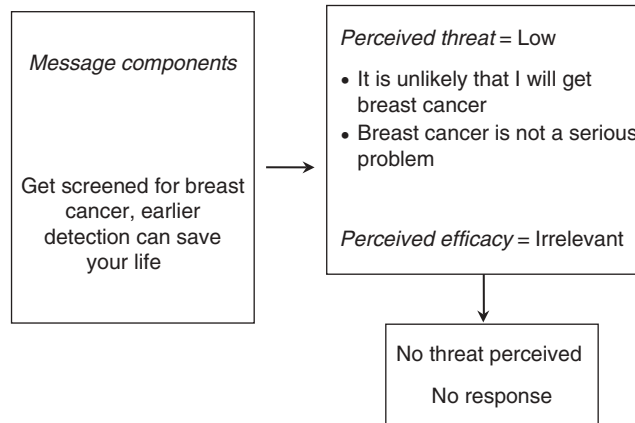
**Figure 13.1** The Extended Parallel Process Model (Witte, 1992).

Source: Adapted from Witte (1992). Reprinted by permission of Taylor and Francis, Ltd. (<http://www.informaworld.com>).

control their fear. This critical point, when perceived efficacy exceeds perceived threat, is an important concept in the development of effective applied communication messages” (Witte and Roberto, 2009, p. 586). A visual representation of how perceived threat and efficacy combine to produce these three possible outcomes is included in Figure 13.1.

To illustrate the three possible outcomes mentioned previously, let us consider an entertainment-education intervention that Anthony Roberto (coauthor of this chapter) recently helped develop. By way of background, Singhal and Rogers (2004, p. 5) define *entertainment-education* as, “the process of purposefully designing and implementing a media message to both entertain and educate, in order to increase audience members’ knowledge about an educational issue, create favorable attitudes, shift social norms, and change overt behavior.” Though this and other traditional definitions and examples of entertainment-education all focus on efforts involving some form of media message, “today there exist multiple types of E-E [entertainment-education]” (Singhal and Rogers, 2004, p. 8), and “E-E comes in many different sizes and shapes” (Piotrow and de Fossard, 2004, p. 43). For example, numerous entertainment-education programs now involve *live* (i.e., non-mediated) theatrical performances (Glik *et al.*, 2002; Guttman, Gasser-Edelsburg, and Israelashvili, 2008; Singhal, 2004).

With this in mind, Roberto recently helped design a live musical theatrical performance based on the EPPM in an effort to increase early detection and treatment of breast cancer among women in rural Bangladesh. The goal of the intervention is to encourage Bangladeshi women with breast problems to go to a local health clinic for free breast cancer screening to prevent the threat of more advanced breast cancer or death. The following section illustrates the three paths a woman might take depending on her levels of perceived threat and efficacy after hearing the entertainment-education message.



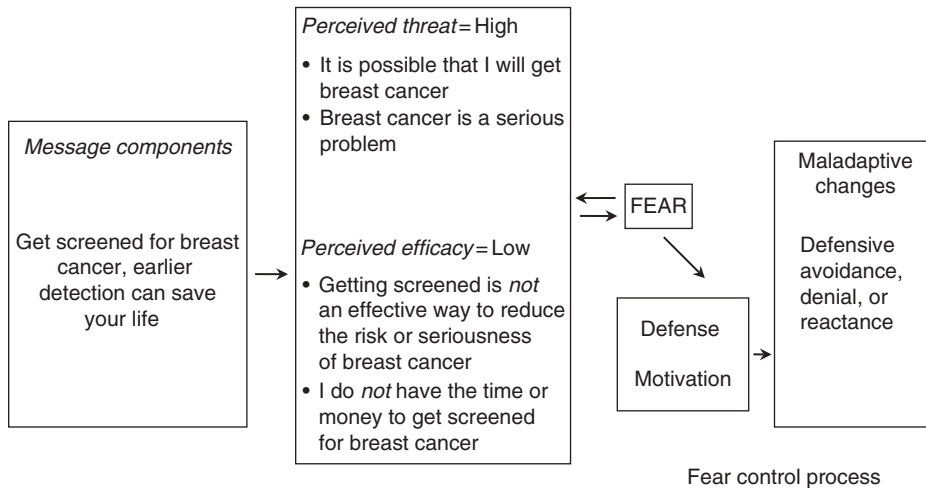
**Figure 13.2** The Extended Parallel Process Model – low-threat example.

### Low-threat path

No response will occur when perceived threat is low. That is, if a woman does not believe that she is susceptible to breast cancer (e.g., “it is unlikely that I will get breast cancer”), or if she does not believe that breast cancer has severe consequences (e.g., “breast cancer is not a serious problem”), then she will not be motivated to pay attention to or respond to the message. Under such conditions she would not be motivated to engage in an appraisal of efficacy or, in this example, to get screened for breast cancer. As a reminder, both perceived susceptibility and perceived severity have to be high for one’s appraisal of threat to be high. This path is represented visually in Figure 13.2.

### High-threat/low-efficacy path

An individual will engage in *fear control* when perceived threat is high and perceived efficacy is low. That is, if a woman believes that she is susceptible to breast cancer (e.g., “it is possible that I will get breast cancer”) and believes that breast cancer has severe consequences (e.g., “breast cancer is a serious problem”), her level of perceived threat will be high, and she will be motivated to engage in the second appraisal of efficacy. However, if she does not believe the recommended response is effective (e.g., “getting screened is *not* an effective way to reduce the risk or seriousness of breast cancer”), or if she does not believe that she has the ability to engage in the recommended response (e.g., “I do *not* have the time or money to get screened for breast cancer”), her level of perceived efficacy will be low. Since being afraid is an uncomfortable state, she is likely to take steps to reduce the fear that do not necessarily decrease the actual danger. For example, she might ignore the information (i.e., *defensive avoidance*), refuse to believe that the health threat is real (i.e., *denial*), or view the message as trying to manipulate her and therefore reject it (i.e., *reactance*). As a reminder, both response-efficacy and self-efficacy must be high for one’s appraisal of efficacy to be high. See Figure 13.3 for a visual representation of this path.

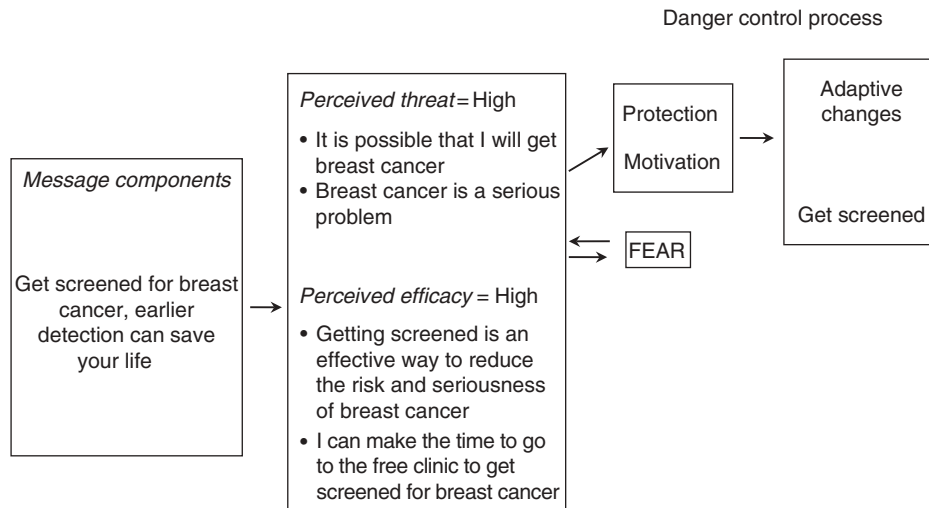


**Figure 13.3** The Extended Parallel Process Model – high-threat/low-efficacy example.

### High-threat/high-efficacy path

An individual will engage in *danger control* only when both perceived threat and perceived efficacy are high. In this case, the message will have accomplished all of its goals by convincing a woman both that a personally relevant and serious threat exists, and that an effective means to reduce the threat has been provided (e.g., high response-efficacy; “getting screened is an effective way to reduce the risk and seriousness of breast cancer”) that she is able to perform (e.g., high self-efficacy; “I can make the time to go to the free clinic to get screened for breast cancer”). It is only when *both* perceived threat and perceived efficacy are high that a person will focus on potential solutions to the problem, which will likely lead to the recommended attitude or behavior change. The visual representation of this path can be found in Figure 13.4. Notably, this is the approach that was taken in the entertainment-education intervention created by Roberto. The performance was about 25 minutes long and included images and lyrics specifically designed to create or reinforce higher perceptions of susceptibility, severity, response-efficacy, and self-efficacy in an effort to increase the likelihood that Bangladeshi women with breast problems would follow the danger control path and go to the local health clinic for a free breast cancer screening.

In addition to the breast cancer entertainment-education program reviewed above, the EPPM has been used to guide numerous international health communication campaigns since it was first developed nearly two decades ago. For example, it has been used to guide family planning and HIV/AIDS prevention projects in Ethiopia (Belete, Girgre, and Witte, 2003; Witte, Girma, and Girgre, 2002–2003), Kenya (Witte *et al.*, 1998), Namibia (Smith, Downs, and Witte, 2007), Uganda (Mulogo *et al.*, 2006), India (Witte, *et al.*, 2003), and Zimbabwe (Chikombero, 2009), and among Mexican-Americans (Hubbell, 2006) and Mexican immigrants and Taiwanese students living in the United States (Murray-Johnson *et al.*, 2001). Information about and reviews of some of these and other interventions



**Figure 13.4** The Extended Parallel Process Model – high-threat/high-efficacy example.

guided by the EPPM can be found in Roberto (2004), Roberto Goodall, and Witte. (2009), Roberto, Murray-Johnson, and Witte (in press), and Witte and Roberto (2009).

### Meta-analysis of the effects of fear appeal messages

Witte and Allen (2000) conducted a meta-analysis to determine “how people react (both perceptually and persuasively) to fear appeal messages” (p. 596). The meta-analysis included data from 96 published and unpublished studies overall, with *ks* for various analysis ranging from 8 to 51, and *ns* ranging from 1,348 to 12,735.

This meta-analysis looked primarily at the effects of various message features on perceptions. Results indicate that stronger fear appeal messages produced significantly greater fear, severity, and susceptibility. Similarly, messages with stronger efficacy components generated significantly greater response-efficacy and self-efficacy. Second, Witte and Allen (2000) assessed the main effects of various message features on three key dependent variables. The investigators found that messages including stronger fear, severity, susceptibility, response-efficacy, and self-efficacy components lead to attitudes, intentions, and behavior more strongly directed toward the recommended response.

Third, the authors next examined “danger control” processes by looking at the interaction effects between threat and efficacy using both the “additive model” and the EPPM. The additive model predicts that higher levels of threat and/or efficacy will produce greater attitudes, intentions, and behaviors (i.e., low threat/low efficacy < low threat/high efficacy = high threat/low efficacy < high threat/high efficacy). The EPPM, in contrast, predicts that the high-threat/high-efficacy group should have the highest mean, with the other three groups producing lower means that are similar to each other (i.e., low threat/low efficacy = low threat/high efficacy = high threat/low efficacy < high threat/high efficacy). It was concluded that while “both the additive model and the

EPPM model appear to fit the data” (Witte and Allen, 2000, p. 600), the additive model received the greatest support (with the main deviation from the EPPM being that the low-threat/high-efficacy and high-threat/low-efficacy groups were equal to each other but different from the low-threat/low-efficacy group, whereas the EPPM suggests that all three of these means should be the same).

Finally, Witte and Allen (2000) looked at the effects of fear appeal messages on “fear control” responses, and found that stronger fear appeal messages lead to stronger defensive responses, especially when the efficacy message is weak. Further, there was a significant negative correlation between fear control and danger control responses. Witte and Allen (2000) conclude that, because of this observation, “it is difficult to tell whether danger control or fear control processes are dominating unless one has measured and/or manipulated perceived efficacy” (p. 601). This conclusion provides important advice for researchers and practitioners who wish to use fear appeals to change individuals’ attitudes, intentions, and behaviors.

### The risk perception analysis framework

Rimal and Real’s (2003) risk perception attitude (RPA) framework is derived from the predictions of the EPPM in that it “posits that efficacy beliefs moderate the relationship between risk perception and health outcomes” (Rimal *et al.*, 2009, p. 210). However, unlike the EPPM which conceptualizes perceptions of threat and efficacy as a property of a message, the RPA framework “conceptualizes risk perception as a property not of the message but rather of the individual” (Rimal and Real, 2003, p. 327). Specifically, the RPA framework categorizes individuals into one of four groups based on their current perceptions of threat and efficacy: (1) *responsive* – high risk and high efficacy, (2) *avoidance* – high risk and low efficacy, (3) *proactive* – low risk and high efficacy, and (4) *indifference* – low risk and low efficacy. Predictions about how individuals in each group are likely to behave mirror those of the EPPM model (e.g., individuals in the high risk/high efficacy responsive category should be most motivated to enact self-protective behaviors).

To illustrate using a recent global health example, Rimal *et al.* (2009) tested the key hypothesis of the RPA framework using two HIV/AIDS-prevention behaviors (i.e., use of condoms and remaining monogamous) in Malawi, which is located in southeastern Africa. Results were consistent with the RPA framework for one of the two variables under investigation. Specifically, “efficacy beliefs were found to moderate the relationship between risk perception and intentions to remain monogamous, but not between risk perceptions and intentions to use condoms” (p. 210). So, we again see the importance of efficacy perceptions in guiding or changing attitudes, intentions, and behaviors.

### Extensions and Innovations

To return to the beginning of the chapter, a woman said she would rather her baby die than take HIV medicines such as Nevirapine and Zidovudine and formula (rather than breast) feed, each of which can significantly reduce the risk of transmitting HIV from

HIV positive mothers to their babies (McIntyre, 1998). For her, it was not a financial or access issue, nor was it an aversion to needles or hospitals. She spoke of being constantly fearful of AIDS, afraid that taking the drugs and using formula would make her and her baby social outcasts in the community. Her thoughts represent important considerations for health educators working with communities who have been immersed in a health topic like HIV/AIDS for almost two decades. When assessing people's personal efficacy, do they consider their social network? Should we move beyond individualistic health variables (i.e., condom use, getting tested) to see how we can help communities care for their orphans? Is it productive to further scare the already fearful? This chapter presents two innovative lines of research regarding HIV/AIDS in the country of Namibia that extend EPPM to address these important health questions.

### Background and need

Namibia, which established its independence from South Africa in 1990, is located on the Western coastline of Southern Africa. Despite roughly 20 years of HIV health education campaigns, Namibia is struggling with an epidemic of HIV infection. It ranks fifth in the world for adult HIV prevalence (United Nations Economic Commission for Africa, 2008), and is one of seven countries that have HIV prevalence rates higher than 15 percent (UNICEF, 2007). Although estimates vary and precise figures are difficult to obtain, the Joint United Nations Program on HIV/AIDS (UNAIDS, 2010) estimates that approximately one in six (12.5% to 18.3%) of all 15- to 49-year-old Namibians are people living with HIV/AIDS (PLWHA), of which 69 percent are women. Adults are not the only ones affected by the AIDS epidemic in Namibia. As of 2010, 14,000 Namibian children (aged 0 to 14 years) are PLWHA and over 53,000 Namibian children (aged 17 or younger) reported being orphaned because of AIDS-related deaths of one or both of their parents (UNAIDS, 2010). HIV is the number one reason for hospitalization and the main cause of death in the country. Namibians have considerable intrinsic knowledge about the causes and consequences of the virus, as most reported having had at least one loved one die from the disease or had to care for children orphaned due to AIDS (Murray-Johnson *et al.*, 2004). HIV has ravaged Namibia. Those left are knowledgeable yet highly fearful of the disease; HIV positive parents worry what will happen to their children (Murray-Johnson *et al.*, 2004; Muthusamy, Levine, and Weber, 2009).

### The social side of threat

Many public health campaigns concentrate on the adverse medical consequences of HIV/AIDS as a means to induce lifestyle change. These health scholars would suggest that, without feeling threatened by the consequences of HIV/AIDS (e.g., chronic and severe illness and death), the population at risk will not be sufficiently motivated into an alternative action. Health communication scholars have recently challenged this assumption. Smith, Ferrara, and Witte (2007) argued that perceptions of interpersonal networks can be used to motivate behavioral change. Viruses like HIV can incubate for years, so the social consequences of being ostracized within the community may be more salient and



compelling than are the physical effects of an AIDS-related illness. HIV has inspired social responses of compassion and solidarity as well as anxiety, prejudice, and rejection/banishment of PLWHA (Fredriksson and Kanabus, 2004). Some researchers have paid attention to its social context, given that it shapes and situates personal values, beliefs, and behaviors (e.g., Cohen, 2000; DeGraff, Bilsborrow, and Guilkey, 1997; Grady, Klepinger, Billy, and Tanfer, 1993; Maharaj and Cleland, 2004; Newman and Zimmerman, 2000), but behaviors such as caring for PLWHA or adopting orphaned children have been virtually unexplored in theory and research. In the study reviewed here, Smith, Ferrara, and Witte (2007) extended EPPM by incorporating stigma and collective efficacy. The research team interviewed 400 people living nearby a mission hospital in Andara, Namibia. They argued that potential caretakers assess the stigma associated with PLWHA in addition to their personal susceptibility to, and the seriousness of, HIV/AIDS when deciding whether to shelter an orphan or PLWHA. *Stigma* is a process of devaluation based on an undesirable or discrediting attribute or attributes that a person possesses. It derives from stereotypes or beliefs about the attributes used to characterize a group of people (e.g., all people with HIV are unclean, careless, immoral, promiscuous, etc.).

### The social side of efficacy

While communities may be the root of stigma, they could also be the root of positive feelings like collective efficacy, a plausible social extension to efficacy. *Collective efficacy* refers to group members' confidence (or a group's confidence) in their group's abilities to attain their goals and accomplish desired tasks (Bandura, 1986). Smith, Ferrara, and Witte (2007) posited that a person evaluates his or her community's collective efficacy in supporting those affected by HIV in addition to his personal ability to resist social hostility when assessing his own level of personal efficacy. With greater confidence in the community's ability to mobilize resources to help people living with HIV, its members would report more willingness to help those living with HIV and their associated dependents, that is, their children. The process involves perceptions or beliefs that an effective collective action to address a social or public health predicament is achievable (Figueroa *et al.*, 2002). Members of communities with high (versus low) collective efficacy participate more in their sociocultural environments, secure and access more community resources, develop stronger networks of social support, and feel more personal empowerment (Baum, 1999; Dutta-Bergman, 2003; Rappaport, 1987; Repucci, Woolard, and Fried, 1999). Perceptions of group efficacy may carry more power than self-efficacy. Even if individual group members feel efficacy in their personal ability to help adopt an AIDS orphan, low collective efficacy may hinder community dialogue about AIDS orphans and collective actions to help or to adopt them, as well as persistence in performing collective activities when barriers arise (Figueroa *et al.*, 2002).

Interestingly Smith, Ferrara, and Witte (2007) found they could motivate people who do not feel physically threatened (neither serious nor severe for them) through stigma. The threat of stigma would motivate their intentions to provide care to those affected by HIV, as long as their efficacy perceptions also remained strong. The more that people who did not feel threatened by HIV sensed that their groups held a stigma about HIV

as well as an ability to mobilize resources, the more they believed that they and their group members would adopt AIDS orphans. Personal stigma (but not self-efficacy to resist social pressure) predicted Namibian respondents' willingness to support people living with HIV. The more they held a personal stigma, the more they reported willingness to help people living with HIV.

The Smith, Ferrara, and Witte's study is unique in that it (1) extends EPPM beyond individualistic variables (self-efficacy, response efficacy, personal adoption of recommended response), (2) suggests that using stigma as a fear source results in some positive outcomes for the community, and (3) looks beyond the recommended medical response (i.e., adoption of condoms) to address the problem of whether a community would collectively house and care for orphans and PLWHA. While Smith, Ferrara, and Witte investigated collective variables, a second group of researchers sought to determine whether different levels of pre-existing fear impact EPPM.

### Pre-existing fear

Muthusamy, Levine, and Weber (2009) investigated the role of fear-inducing message content in the high-fear category among Namibians. They thought it plausible that fear appeals may not be effective when trying to persuade people who are already highly afraid, so they conducted an experiment to explore this unique idea. A total of 434 undergraduate students from the University of Namibia were randomly assigned as participants into one of six experimental conditions. Efficacy and threat were varied in a 2 (high-efficacy, low-efficacy)  $\times$  2 (high-threat, low-threat) design with one control group (no message) and one high-self-efficacy-only group.

The messages were adapted from Witte (1992). The high- and low-threat messages entailed a classic message informing participants what HIV was and including a case study of a fictitious AIDS patient. The high-threat condition emphasized severity by using vivid language and showing graphic photographs of late-stage AIDS victims. In the low-threat condition story susceptibility and severity were minimized with neutral language about non-college-aged victims and innocuous photographs of clinical tests.

The efficacy conditions included a message about the effectiveness of condoms. Self-efficacy was increased by discussing the simplicity and benefits of condoms. Helpful responses to typical excuses partners give for not wanting to use condoms were included. Response efficacy was maximized by emphasizing that condoms, when used properly, substantially minimize the transmission of HIV.

The message type was tested to see how each impacted participants' attitudes toward condom use, intentions to use condoms, and safe sex behaviors.

### Message design impact on threat

The majority of the Namibians sampled, even those in the no-message control condition, reported being "terrified" by HIV/AIDS. When they tried to induce even more threat with the experimental conditions, they were unsuccessful. The participant group that read the high-threat messages did not report significantly higher amounts of fear

than the no-message control or the low-threat group. While the messages had been assessed as scary, they did little to make an already terrified group even more so. Interestingly, the threat content of the messages did somewhat reduce fear in the low-threat message condition. Because threat content did not increase fear, message threat levels had little effect on condom-related attitudes, intentions, and behaviors.

### Message design impact on efficacy

Efficacy content of the message had little impact on attitudes and intentions, but had marginal impact on behavior. The efficacy messages were no more successful than the messages lacking efficacy content and the efficacy-only condition results did not substantially differ from the no-message control. Fascinatingly, Namibians who reported more perceived efficacy also tended to have more positive attitudes, intentions, and more frequent usage of condoms. It is possible that a more powerful efficacy message may be effective, though the authors wonder what that message may entail while maintaining factual accuracy.

### Implications

Consistent with EPPM, because initial fear was already very high, messages designed to instill fear and messages offering efficacy content had little effect on attitudes, intentions, and behaviors. The most obvious implication of this study is that using fear appeals in the context of high pre-existing fear is likely unproductive (though it does not produce a boomerang effect). Muthuswamy, Levine, and Weber (2009, p. 339) posit that:

when the extent and magnitude of a threat is so high that it crosses some threshold, fear messages do little to change fear levels or to achieving desired outcomes. Similarly, if the threat is very low or nonexistent, fear reduction is less likely to have much motivation force. Above and below these threshold points, the content of fear appeal might be irrelevant, but between the threshold points, it is likely that fear can be effectively induced to elicit desirable outcomes.

They caution that fear appeal messages in countries that have long been ravaged by HIV/AIDS may have lost their effectiveness. They do believe that fear appeals will have an impact in countries like India and China, where the spread of HIV/AIDS is comparatively new. Fear appeal messages in such countries may prove timely. The bottom line of this study – that scaring the already terrified did not improve health behaviors – clearly highlights the need to assess an audience's fear levels prior to launching a fear appeal campaign.

### Conclusions

The EPPM has successfully altered thousands of people's health knowledge base, attitudes, and behaviors worldwide through the management of fear. It details the necessary components to build a strong campaign. Scholars have extended EPPM to include the concepts collective efficacy and stigma.

Health educators who discover they are dealing with high levels of pre-existing fear, however, may consider Muthswamy, Levine, and Weber's (2009) research and consider looking elsewhere in this book for a persuasive campaign design.

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