헬스커뮤니케이션연구, 제20권 제1호
Health Communication Research, 2021, Vol. 20, No. 1, 1-35
DOI: 10.24171/hcr.2021.20.1.1.

Hope in the Depths of Despair: Theorizing About Hope in the Fear Appeal Context

Hanyoung Kim*
(Jack J. Valenti School of Communication, College of Liberal Arts and Social Sciences, University of Houston)
Jeong Yeob Han**
(Department of Advertising & Public Relations, Grady College of Journalism & Mass Communication, University of Georgia)

The present article investigates the antecedent and consequence of hope arousal over the course of processing a fear appeal message by considering constructs and propositions of the extended parallel process model (Witte, 1992). In order to empirically test the mechanism through which hope is produced, this study employed an online experimental study concerning genital warts and HPV vaccination. In the experiment, participants first attended to threat information about HPV infection and genital warts, and then read efficacy information about the effectiveness of HPV vaccination. Results revealed that the impact of perceived efficacy on hope was greater

* hankim@uh.edu, 교신저자, https://orcid.org/0000-0001-5721-4104
** jeonghan@uga.edu

when perceived threat level was higher. Furthermore, evoked hope predicted participants' intention to adopt a self-protective behavior. The effect of perceived efficacy on intention was mediated by hope, and this mediation effect was greater when a level of perceived threat was higher. The results of this article demonstrate that the emotion of hope needs to be considered as an important affective construct explaining a potential mechanism underlying the persuasive process of fear appeals.

Key words : cognitive appraisal theory, extended parallel process model, fear appeals, functional emotion theories, hope

Fear appeal is one of the most prevalent message strategies among persuasive attempts that utilize emotion evocation (Yzer, Southwell, & Stephenson, 2012). A number of models of fear appeal have been advanced to delineate the mechanism through which fear appeals produce persuasive outcomes. One notable aspect of preceding models is their heavy emphasis on cognitions generated in response to fear appeals in explaining persuasion, except for the fear-as-acquired drive model (Hovland, Janis, & Kelly, 1953). For example, Witte's extended parallel process model (EPPM; 1992) proposes that persuasive outcomes of fear appeals are mainly a product of cognitive consideration of threat and efficacy information in a message. In the model, in contrast, fear, the only affective construct included in the model, is directly associated with undesired persuasive outcomes (e.g., Proposition 6) and could conditionally lead to desired outcomes when efficacy perception is

sufficiently high (e.g., Proposition 7, Witte, 1998). However, later studies testing EPPM's propositions concerning the role of fear only yielded mixed results or evidence contradicting the predictions (Popova, 2012). Faced with the model's heavy foci on cognitions and largely limited roles of fear, Witte (2013) asserted the need for further exploration of emotional aspects of fear appeals and their association with persuasion.

Typically, two components of fear appeals, threat and efficacy, are arranged in sequence, such that message recipients are informed with a potential threat, followed by action recommendations addressing the threat (Beck & Frankel, 1981; Witte, 1992). This sequential arrangement of threat and efficacy components has recently yielded two theoretical possibilities regarding emotional arousal. For one, given that fear is known to be the emotional response made to an existential threat (Frijda, 1986; Lazarus, 1991a), fear intensity might be heightened when processing the threat component, then diminished after attending to the efficacy component claiming that the threat can be effectively reduced or avoided by adopting protective actions (e.g., Meczkowski, Dillard & Shen, 2016; Shen, 2017). From an alternative perspective, a few recent studies suggested that the problem-solution style arrangement of fear appeals may not only result in changes in fear level but also produce emotions other than fear. For example, Nabi (2015) argued that the feeling of fear resulting from exposure to the threat component could be substituted for hope or relief after the efficacy component is processed. Afterward, Nabi and Myrick (2019) provided empirical support for the above assertion by showing a positive association between hope level and

perceptions emerging from the efficacy component.

This article aims to contribute to the understanding of the affective dimension of persuasion through fear appeals by exploring the theoretical possibility of hope arousal offered by previous studies and the emotion's association with persuasive outcomes. To do so, the present study further investigates the condition in which hope is elicited over the course of processing fear appeals, taking into consideration of EPPM's suppositions and the cognitive appraisal theory (Lazarus, 1991a). Specifically, based on the cognitive appraisal theory proposing that hope evocation requires an environmental condition of harms or threats, with an expectation that the condition might be improved in the future (e.g., Lazarus, 1991a; Smith & Lazarus, 1990), we investigate if and how appraisals of threat and efficacy components, and the resultant perceptions jointly engender the emotion of hope. Furthermore, the present study aims to test if evoked hope, in turn, leads to desired persuasive outcomes, drawing upon functional emotion theories (e.g., Frijda, 1986; Izard, 1977). Finally, the role of hope in linking perceptions of efficacy and threat, and persuasive outcomes is examined. The current study employs an experimental study in which participants were first provided with a message about the risk of HPV infection (i.e., threat component) and then exposed to a message addressing the effectiveness of HPV vaccination (i.e., efficacy component).

1. Danger Control versus Fear Control Process of EPPM

The main explanatory mechanism of EPPM is centered on two cognitive processes, namely the threat and coping appraisal, that sequentially occur as individuals evaluate the corresponding message components. According to the model, when encountered with the threat component of fear appeals, individuals first gauge seriousness (i.e., severity) and personal relevance (i.e., susceptibility) of the presented risk, resulting in perceived severity and susceptibility (Witte, 1992, 1998). In this threat appraisal process, if the risk is conceived to be serious and relevant enough by individuals, they are expected to engage in the coping appraisal process, which involves the evaluation of the effectiveness of a recommended action suggested in the efficacy component in averting or reducing the risk (i.e., response efficacy) and their capability to take that action (i.e., self-efficacy). The coping appraisal process is known to yield perceived response efficacy and self-efficacy.

The perceptions arising from the two appraisal processes are proposed to determine the occurrence of one of two modes of response to fear appeals: danger control and fear control process (Witte, 1998; Witte et al., 1996). To wit, if one's overall level of perceived efficacy, a general score created by combining perceived response efficacy and self-efficacy, outweighs the overall level of perceived threat, a general score created by combining perceived severity and susceptibility, he or she is likely to follow the danger control process, whereby protection motivation to reduce or avert the risk occurs (Witte, 1998; Witte et al., 1996). On

the contrary, if a level of perceived threat is higher than a level of perceived efficacy, the fear control process takes place, triggering a defensive motivation to avoid or deny the existence of the threat. In the following sections, we elaborate on how the above-discussed appraisal processes and the resultant perceptions could be understood as eliciting factors of hope.

2. Cognitive Appraisal Theory of Emotion

The cognitive appraisal theory (e.g., Frijda, 1986; Lazarus, 1991a, 2001) proposes that discrete emotions stem from cognitive evaluations of person-environment relationships. This cognitive appraisal is comprised of two different categories: the primary and secondary appraisal. The primary appraisal involves assessments of an environmental condition in terms of (a) its relevance to an individual's well-being or motivational goal (i.e., goal relevance) and (b) its congruence with his or her well-being or motivational goal (i.e., goal congruence) (Lazarus, 1991a). In principle, in order for any emotions to be elicited, an environmental condition should be conceived as being personally relevant, and if the condition facilitates (thwarts) motivational goals or well-being, a positive (negative) emotion will be experienced. In the secondary appraisal, individuals assess (a) whether the environmental condition evaluated in the primary appraisal is externally or internally caused (i.e., blame or credit), (b) if and how they can manage the condition (i.e., coping

potential), and (c) whether the condition is likely to become more or less goal-congruent for any reason (i.e., future expectancy) (Lazarus, 1991a). These evaluative components of primary and secondary appraisal are combined to generate relational meaning or *core relational theme* of each discrete emotion (Lazarus, 1991a). For example, when there is a personally relevant (i.e., goal relevance), concrete, sudden danger of imminent physical harm (i.e., goal incongruence), one would have the feeling of fear (Frijda, 1986; Lazarus, 1991a). The core relational theme and appraisal components of fear echo with the supposition of EPPM, conceptualizing fear as a negative emotional state induced as a result of the subjective evaluation of a risk in the threat component in terms of personal relevance (i.e., perceived susceptibility) and significance (i.e., perceived severity) (Witte et al., 1996).

3. Hope as an Emotional Response Corresponding to Danger Control Process

The cognitive appraisal theory assumes the emotion of hope as the outcome of two primary appraisal components - goal relevance and goal incongruence - and one secondary appraisal component - future expectancy - which refers to the perceptual possibility for changes in the motivational congruency of the negative circumstance (Lazarus, 1991a; Smith & Lazarus, 1990). Reflecting these components, the core relational theme of hope, “yearning for amelioration of a dreaded outcome,” (Lazarus, 1991a,

p. 282) suggests that hope would occur when a circumstance is perceived to be personally relevant and negative, but expected to be improved or more congruent with one's motivation in the future (Lazarus, 1991a, 1991b).

The appraisal components and core relational theme of hope share similarities with the appraisal patterns in which the danger control process is expected to take place. First, the primary appraisal components of hope accord with two sub-dimensions of the threat appraisal process in EPPM. Both hope arousal and the occurrence of the danger control process require a condition to be personally pertinent (i.e., goal relevance vs. perceived susceptibility), and negative or threatening (i.e., goal incongruence vs. perceived severity). In EPPM, specifically, a certain level of perceived threat is required for individuals to be motivated to engage in the coping appraisal, and thus, the danger control process (e.g., proposition 1; Witte, 1998). Similarly, Lazarus (1991a) stated that hope is a state of mind wishing for better in a presently fearing or negative situation, whereas if a personally relevant circumstance is completely benign or positive, one would have emotions close to optimism or happiness, rather than hope. This is an important distinction in that having optimism or happiness may not be always beneficial in adopting self-protective behaviors (e.g., Lazarus, 1991a; Weinstein & Klein, 1996).

The secondary appraisal component necessary for hope arousal is future expectancy. Among several factors possibly influencing future expectancy, one that has particular relevance in the fear appeal context is the existence of effective coping means dealing with negative conditions or

risks (Lazarus, 1991b), although coping potential is not included as the necessary appraisal component of hope (Lazarus, 1991a). The assessment of coping was conceptualized as being pertaining to the effectiveness of action against risk and if one can enact the action (e.g., Rippetoe & Rogers, 1987). EPPM incorporated this conceptualization into the coping appraisal process (i.e., response efficacy and self-efficacy). Hence, if one thinks that a recommended action addressing the risk is effective and feasible, he or she may have a prospect of positive changes in the negative situation. Given this, although the concepts of efficacy perceptions and future expectancy differ in terms of their foci (i.e., behavior vs. outcome) and sources (i.e., internal vs. internal or external) (Chadwick, 2015), the former could positively influence the latter, possibly contributing to hope evocation. Concerning this matter, Lazarus (1999) stated that while efficacy beliefs are not essential to hope arousal because people could sustain hope when they are helpless to control the outcome, these beliefs increase the perceptual likelihood of a positive result in the future, and thus, facilitate the emotion.

In fact, hope has been linked to a number of factors that have much in common with self-efficacy and response efficacy of EPPM, such as Bandura's self-efficacy (i.e., ability to perform a specific behavior; Magaletta & Oliver, 1999), existence of effective strategies to attain desired goals (Snyder, 1995), and locus of control (i.e., the degree to which people believe that they have control over the outcome of certain events; Brackney & Westman, 1992; Lin & Tsay, 2005). In the fear appeal context, Nabi and Myrick (2019) empirically showed that EPPM's

self-efficacy and response efficacy were positively associated with hope arousal.

4. The Multiplicative Model of Hope Evocation

Based upon the prior discussion on (a) the analogies between the evaluative dimensions of a risk in EPPM (i.e., severity and susceptibility) and the primary appraisal components of person-environment relationship of hope (i.e., goal relevance and goal incongruence), and (b) the potential association between perceived efficacy and future expectancy, we expect that hope would be experienced when individuals engage in the danger control process. Hence, it is reasonable to investigate the exact way in which perception of threat and efficacy contribute to hope evocation in light of how these perceptions are considered to prompt the danger control process by EPPM and previous studies.

EPPM posits that if a threat is negligible, individuals would not be motivated to take a proactive action recommended in a message, regardless of perceived efficacy level (e.g., proposition 1, Witte, 1998). In other words, greater perceived efficacy will be associated with greater protection motivation when the risk is serious and likely enough for individuals to consider protective means. In line with this supposition, hope is theorized to arise from expecting a positive outcome in the midst of a threatening circumstance, as discussed in the earlier section. Therefore, the relationship between perceived threat and perceived efficacy

in leading to hope arousal can be illustrated as being *multiplicative*: The effect of perceived efficacy on a level of hope might be none or weak when a level of perceived threat is low, while a level of hope will be elevated as both perceived efficacy and perceived threat increase. Therefore, we predicted:

H1: Perceived efficacy will interact with perceived threat in contributing to hope arousal. That is, perceived efficacy will lead to a higher level of hope when a level of perceived threat is higher.

5. The Role of Hope in Predicting Desired Persuasive Outcomes

In functional emotion theories, discrete emotions are considered as distinct internal states generated in response to external environmental conditions (e.g., Lazarus, 1991a; Roseman, 1984). To deal with environmental conditions, each emotion embodies unique motivational goals and the corresponding action tendencies (Arnold, 1960; Frijda, 1986; Izard, 1977; Lazarus, 1991a; Roseman, 1984). In regards to hope's action tendency, Lazarus (1991a) argued that responding to the negative circumstance, hope carries the tendency of approaching to the desired outcome, rather than avoiding from the threatening situation. Similarly, Smith and Lazarus (1990) proposed that hope can make individuals sustain commitments and coping to attain a positive outcome out of a threatening situation. Averill and colleague's (1990) action rule

of hope also suggests that "people who hope should be willing to take appropriate action to achieved their goals, if action is possible" (p. 34).

Considering the above conceptualizations of hope's action tendency, one may predict that individuals with hope are likely to engage in a recommended protective action against the risk (i.e., the danger control responses), instead of denying or avoiding the existence of risk or derogating a fear appeal message (i.e., fear control responses). Some recent research yielded empirical results in support of the adaptive role of hope in leading to persuasion. For example, Volkman and Parrott (2012) showed that narrative message induced-hope was positively associated with intention to take protective actions via increases in positivity of cognitive response made to the message and perceived message effectiveness in the osteoporosis prevention communication context. In the fear appeal context, Nabi and Myrick (2019) exhibited that hope evoked from efficacy perception led to sun safety intentions. On the basis of the conceptualization of the behavioral tendency of hope and empirical evidence, it is expected that hope stemming from threat and efficacy perceptions will promote intention to follow a recommended action of fear appeals.

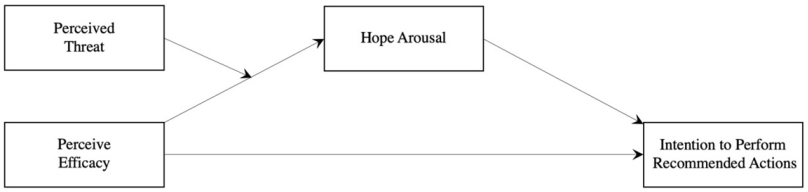
H2: Hope will positively predict intention to perform an action recommended in fear appeal messages.

Taking the above H2 and H1, which predicts the effect of perceived efficacy by perceived threat interaction on hope, we posit a mediating

role of hope in connecting efficacy and threat perceptions, and intention to enact a recommended action in fear appeal messages: The indirect effect of perceived efficacy through hope on intention would be greater when a level of perceived threat is higher. Therefore, the conditional indirect effect of perceived efficacy on intention through hope arousal is proposed.

H3: The indirect effect of perceived efficacy on intention to perform an action recommended in fear appeal messages through hope arousal will be moderated by perceived threat. That is, perceived efficacy will lead to greater intention through hope when a level of perceived threat is higher.

Collectively, H1 through H3 engendered a hypothesized model (see <Figure 1>).



〈Figure 1〉 A conceptual model of the effect of perceived efficacy, as moderated by perceived threat and mediated by hope arousal, on intention to perform an action recommended in fear appeal messages

6. Method

1) Participants and Overview of Experimental Design

Data collection was conducted from October 12 to 25, 2017. A total of 267 college students were recruited in exchange for extra course credit through a departmental research participation system at a large public university in the United States. Although we predicted that it is perceived efficacy, which encompasses self-efficacy and response efficacy, that leads to hope evocation, self-efficacy may not be readily formed or altered by a single message (Danaher, Smolkowski, Seeley, & Severson, 2008), and it is generally conceived as a factor stemming from individuals' skills and available resources. For this reason, we employed a 2 (level of threat: high vs. low) 2 (level of response efficacy: high vs. low) between-subject online experiment.

Upon agreeing to participate, first, participants were randomly assigned to one of the two threat conditions and asked to read messages introducing the risk of HPV infection and genital warts. Participants were then instructed to respond to questions gauging their levels of perceived threat. Next, they were randomly assigned to one of the two response efficacy conditions. After reading an efficacy message claiming that HPV vaccination can prevent HPV infection and genital warts, participants reported their levels of perceived efficacy, hope, intention to obtain the HPV vaccination, demographic information, and previous experience with HPV vaccination. After the completion of data collection,

fifty-five point eight percent of the participants (n = 149) were excluded from the analysis because they had received the HPV vaccine previously. The remaining 118 participants were predominantly female (87.3% female, M_{age}= 20.55, SD_{age}=1.12) and distributed across the experimental conditions fairly evenly: low threat condition (N_{Male} = 9, N_{Female} = 51), high threat condition (N_{Male} = 6, N_{Female} = 52), low response efficacy condition (N_{Male} = 8, N_{Female} = 54), and high response efficacy condition (N_{Male} = 7, N_{Female} = 49).

2) Stimuli Messages

The message stimuli used in the current study were concerned about genital warts and HPV vaccination. In the United States, genital warts are a very common sexually transmitted disease caused by HPV infection (Centers for Disease Control and Prevention, 2017). Because HPV infection can occur via various forms of genital contact and does not require the exchange of bodily fluids, HPV vaccine is recommended as the most effective mean to prevent HPV infection (Centers for Disease Control and Prevention, 2013). Nonetheless, HPV vaccination rates remain at a suboptimal level in the United States (Williams, 2017). Given that fear appeal communication has been widely used to increase HPV vaccination uptake (Carcioppolo et al., 2013; Krieger & Sarge, 2013), genital warts and HPV vaccination were selected as the context for the current project.

Addressing the risk of genital warts and the effectiveness of HPV

vaccination, the stimuli messages employed in the current study consisted of three parts: general information about HPV infection and genital warts, a threat component, and a response efficacy component. These components were created based on information from the Centers for Disease Control and Prevention, the National Institutes of Health, the Mayo Clinic, and WebMD. Because perceived threat includes perceived severity and perceived susceptibility, messages in the high and low threat conditions differed in (a) seriousness of the symptoms and consequences of genital warts and (b) personal relevance of genital warts to the message recipient. In the low threat condition, for instance, the message stated that "[genital warts] are usually too small to be visible and are painless" and "genital warts could disappear or regress on their own after a few months without any treatment." In addition, the message listed the general risk factors of HPV infection, which can lead to genital warts. In the high threat condition, on the other hand, the message stated that "genital warts can grow large or multiply into huge clusters, causing pain, discomfort, itching, or even bleeding during intercourse." Psychological distress and potential problems during pregnancy caused by genital warts were also mentioned. To make contracting genital warts personally relevant to participating college students, personal language was used (e.g., "you, in particular, are susceptible"). In addition, the high infection rate of HPV among college students was highlighted. In the low and high response efficacy messages, the effectiveness of HPV vaccination was different (i.e., "HPV vaccines provide close to 100% protection against genital warts" vs. "HPV

vaccines do not protect against all HPV types, so they will not fully prevent genital warts"). The messages in each manipulation condition were similar in terms of length and sentence structure. The high-threat and low-threat messages were 1,186 and 1,099 characters in length, respectively, while the high-efficacy and low-efficacy components were 891 and 863 characters in length, respectively.

3) Measures

A 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) was used to measure each multiple-item variable.

(1) Perceived efficacy

Six items from Witte et al. (1996) constituting two sub-dimensions of perceived efficacy, self-efficacy and response efficacy, were measured. Sample items included "It is easy for me to get vaccinated against genital warts," "Getting vaccinated against genital warts is no problem for me," "I am able to go to get vaccinated against genital warts easily," "The HPV vaccine is important to limiting the spread of genital warts," and "If I get the HPV vaccine, I am less likely to get genital warts" (M = 5.51, SD = 1.00, α = .87).

(2) Perceived threat

Six items adopted from Witte et al. (1996) constituting two sub-dimensions of perceived threat, perceived severity and perceived

susceptibility, were assessed. Sample items included “I believe that genital warts are a severe health problem,” “I believe that genital warts are a serious threat to my health,” “I believe that I am at risk of getting genital warts,” and “It’s likely that I will get genital warts” (*M* = 4.38, *SD* = 1.29, α = .79).

(3) Hope

Hope level was measured using four items from Ellsworth and Smith (1988), “I feel hopeful,” “I feel confident,” and “I feel encouraged” (*M* = 4.53, *SD* = 1.28, α = .85).

(4) Intention

Intention to obtain HPV vaccination was measured using four items: “I intend to obtain the HPV vaccine in the near future,” “I will make it a priority to get the HPV vaccine in the future,” “I plan to visit my health care provider to obtain the HPV vaccine in the near future,” and “I consider getting the HPV vaccine in the near future.” (*M* = 4.21, *SD* = 1.70, α = .97).

(5) Covariates

Participants’ gender, race/ethnicity, and response efficacy and threat manipulation conditions were served as covariates.

7. Results

1) Induction Checks

An independent sample *t*-test indicated that the participants in the high threat condition reported a higher level of perceived threat (M = 5.12, SD = .93) than those in the low threat condition (M = 3.83, SD = 1.25), $t(116) = 6.14$, $p < .001$. The participants in the high response efficacy condition reported a higher level of perceived efficacy (M = 5.78, SD = .93) than those in the low efficacy condition (M = 5.25, SD = 1.00), $t(116) = 2.8$, $p < .01$.

2) Hypotheses Testing

The hypotheses were tested via a moderated mediation analysis using Hayes (2016) PROCESS Macro model 7. The analysis was conducted with perceived efficacy as an independent variable, perceived threat as a moderator, hope arousal as a mediator, and intention to receive HPV vaccination as a dependent variable, while controlling for response efficacy manipulation and threat manipulation conditions, participants' gender, and race/ethnicity. In the analyses, 5,000 bootstrap estimates for the construction of 95% bias-corrected confidence intervals were used (Preacher, Rucker, & Hayes, 2007).

H1 predicted that perceived efficacy will lead to a higher level of hope when a level of perceived threat is higher. The analysis resulted in

a significant interaction between perceived efficacy and perceived threat on hope arousal, b = .28, SE = .09, t(108) = 2.93, p < .01. The effect of perceived efficacy on hope was further estimated at values of mean (4.38), one standard deviation below the mean (3.09), and one standard deviation above the mean (5.67) of perceived threat. The results revealed that the effect of perceived efficacy on hope was greater as participants' levels of perceived threat increased from the mean, b = .48, SE = .13, t(108) = 3.79, p < .001, to one standard deviation above the mean, b = .84, SE = .19, t(108) = 4.40, p < .001. On the contrary, perceived efficacy did not lead to hope arousal when the value of perceived threat was one standard deviation below the mean, b = .12, SE = .16, t(108) = .76, p > .05. Therefore, H1 was confirmed.

H2 predicted that hope would positively predict intention to perform action recommendations in fear appeals. As expected, hope was positively associated with intention to obtain HPV vaccination, b = .38, SE = .12, t(109) = 3.25, p < .01, confirming H2.

H3 anticipated that perceived efficacy will lead to greater intention through hope when a level of perceived threat is higher. The analysis resulted in a significant moderated mediation index, effect = .11, SE = .06, 95% Confidence Interval (CI) (.03, .24). The indirect effect was further estimated at values of mean (4.38), one standard deviation below the mean (3.09) and one standard deviation above the mean (5.67) of perceived threat. The indirect effect of perceived efficacy on intention through hope arousal was greater as participants' levels of perceived threat increased from the mean, indirect effect = .18, SE = .08, 95%

〈Table 1〉 Results of the Moderated Mediation Analysis

Mediator variable (hope arousal) model: R^2=0.19, F(9, 108) = 2.78, p < .01					
Predictor	*b*	*SE*	*t*	*p*	95% CI
Perceived efficacy	-.73	.41	-1.77	.079	[-1.54, .09]
Perceived threat	-1.58	.55	-2.86	.005	[-2.68, -.48]
Perceived efficacy Perceived threat	.28	.09	2.93	.004	[.09, .46]
Threat manipulation condition	-.39	.26	-1.46	.148	[-.91, .14]
Efficacy manipulation condition	-.19	.24	-.82	.417	[-.66, .28]
Gender	-.55	.35	-1.58	.117	[-1.23, .14]
Race/ethnicity					
Black (ref. = white)	.01	.54	.03	.980	[-1.05, 1.08]
Hispanic (ref. = white)	.23	1.22	.19	.849	[-2.19, 2.65]
Others (ref. = white)	-.03	.35	-.07	.941	[-.72, .67]
Conditional effects of perceived efficacy at the values of perceived threat					
Perceived threat	Effect	*SE*	*t*	*p*	95% CI
-1SD Mean (3.09)	.12	.16	.76	.447	[-.20, .44]
Mean (4.38)	.48	.13	3.79	.000	[.23, .73]
+SD Mean (5.67)	.84	.19	4.40	.000	[.46, 1.21]
Outcome variable (vaccination intention) model: R^2=0.25,F(8, 109) = 4.65, p < .001					
Predictor	*b*	*SE*	*t*	*p*	95% CI
Perceived efficacy	.51	.16	3.15	.002	[.19, .83]
Hope	.38	.12	3.25	.002	[.15, .62]
Threat manipulation condition	.44	.30	1.48	.142	[-.15, 1.02]
Efficacy manipulation condition	.20	.30	.65	.516	[-.40, .79]
Gender	-.43	.44	-.97	.334	[-1.31, .45]
Race/ethnicity					
Black (ref. = white)	.42	.66	.63	.528	[-.89, 1.73]
Hispanic (ref. = white)	1.84	1.54	1.19	.235	[-1.22, 4.91]
Others (ref. = white)	.22	.44	.49	.622	[-.66, 1.10]
Model indices	*b*	*SE*			95% CI
Index of moderated mediation	.11	.06			[.03, .24]
Conditional indirect effects					
Mediator	Moderator		Effect	*SE*	95% CI
Hope	-1SD Mean (3.09)		.05	.07	[-.10, .20]
Hope	Mean (4.38)		.18	.08	[.05, .37]
Hope	+1SD Mean (5.67)		.32	.14	[.10, .63]

CI (.05, .37) to one standard deviation above the mean, indirect effect = .32, *SE* = .14, 95% CI (.10, .63). However, the indirect effect of perceived efficacy was not significant when the value of perceived threat was one standard deviation below the mean, indirect effect = .05, *SE* = .07, 95% CI (-.10, .20). Thus, H3 was supported. <Tables 1> represents results of the moderated mediation analyses.

8. Discussion

This study sought to investigate the antecedent and consequence of hope arousal while processing a fear appeal message. Overall, the results indicate that hope could be generated from the cognitive evaluations of fear appeal's components, and evoked hope was found to be a construct connecting efficacy and threat perceptions, and intention to adopt the protective action. Detailed findings and implications are discussed below.

Relying on the cognitive appraisal theory and EPPM, we tested the condition in which hope is elicited. Specifically, perceived efficacy by perceived threat interaction had a positive impact on hope level. This result implies that appropriate levels of perceived threat and efficacy stemming from the appraisals of fear appeals' information may function as the primary and secondary appraisal components of hope, respectively, thus inducing the emotion. Notably, the stimuli used in the current study were a conventional type of fear appeal messages and not particularly created to bring out hope, suggesting that the condition for

hope evocation may be inherently built in fear appeal's problem-solution way of presenting threat and efficacy information.

Further, the significant effect of perceived efficacy by perceived threat interaction on hope provides evidence supporting the multiplicative model. Specifically, higher levels of perceived efficacy led to higher levels of hope as a level of perceived threat was increased, while when a level of perceived threat was low, the association between perceived efficacy and hope arousal was not significant. These results align well with the cognitive appraisal theory (Lazarus, 1991a; Smith & Lazarus, 1990), suggesting that the fundamental condition of hope is unsatisfactory or threatening situations. Thus, it seems natural that efficacy beliefs became less influential or non-significant in hope arousal when the risk was less threatening. In line with the recent study showing the association between efficacy perceptions and hope (Nabi & Myrick, 2019), the above findings may provide the more nuanced understanding of the condition in which the feeling of hope is experienced during exposure to fear appeal messages.

A majority of studies on fear appeal and its emotional aspect tend to focus on fear to date, while the possibility of arousal of other emotions and their role in explaining persuasive outcomes have been relatively understudied. By showing the positive relationship between hope and intention to adopt the recommended action, the results of this study may lend relevance to investigating the emotion of hope in the fear appeal context. Such results corroborate previous studies suggesting that hope could function as a motivational force driving individuals towards

positive outcomes despite the negative situations. Considering that reducing or avoiding risks often involves constant commitments (e.g., exercising regularly), self-regulation (e.g., healthy diet), or unpleasant medical administrations (e.g., vaccination), thus requiring substantial motivation to attain desired outcomes in the future, the emotion of hope and its role in various persuasion context is worth exploring further in the fear appeal scholarship.

Collectively, the above results indicating that hope can be evoked from the processing of fear appeals and the emotion's adaptive role could grant legitimacy to the feeling of hope as a meaningful construct mediating the persuasion process involved in fear appeals. Although a number of cognitive and affective constructs have been suggested, recent theorizing of fear appeal tends to view persuasion via fear appeals as a primarily cognitive process, marginalizing the influence of emotions. With related to this tendency, Witte (2013) commented that the major flaw of EPPM lies in its heavy emphasis on cognitions and that emotional aspects and their relation to persuasion in the model still await future investigations. The findings of this study shed some light on this issue by showing how hope could tie other constructs of EPPM into the explanatory mechanism predicting persuasive outcomes of fear appeals.

Even though it is posited that both levels of perceived threat and perceived efficacy need to be adequately high enough to bring out hope, we found that the level of perceived efficacy (M = 5.51, SD = 1.00) reported by participants was higher than their level of perceived threat (M = 4.38, SD = 1.29). These results are in line with EPPM's

conceptualization anticipating the occurrence of the danger control process and the core relational theme of hope suggested by cognitive appraisal theory: A threat is necessary, but one should feel being able to overcome it. Thus, it seems that efficacy information in a fear appeal needs to be designed to convince recipients that the risk can be effectively prevented or reduced by taking protective actions, resulting in hope arousal and subsequent intention to enact protective behaviors.

In light of the positive influence of hope on the desired persuasive outcome, some of the results lead to important practical implications for public health practitioners designing a fear appeal message. For one, the results suggest that a message can induce hope in the minds of audiences by presenting information with proper levels of threat and efficacy. Our results showed that the influence of perceived efficacy was magnified as perceived threat level was elevated, and perceived efficacy did not contribute to hope evocation when perceived threat level was low. As discussed earlier, Lazarus (1991a) suggested that when a personally relevant circumstance is perceived to be entirely positive, one would entertain the feeling of happiness or optimism, which might lead him or her to take maladaptive actions (e.g., Lazarus, 1991a; Weinstein, 1989). Thus, it is recommended for practitioners to tailor fear appeal messages by emphasizing the seriousness and relevancy of the potential risk before presenting an effective and feasible action to appropriately induce hope among audiences.

Although this study was conducted using a sample of U.S. college students, the findings of this study could inform Korean public

health practitioners. For instance, HPV vaccines have been promoted, predominantly focusing on their effectiveness in preventing cervical cancer. It is important to note that cancer is often associated with fatalism-a perception that death is inevitable when contracting cancer (e.g., Powe, 1995)-which encompasses beliefs characterized by pessimism, helplessness, and confusion (Cohen, 2013). As discussed, the findings of this study suggest that a threat needs to be perceived as surmountable, thereby generating hope when there is a sufficient level of perceived efficacy. Thus, solely focusing on cervical cancer may not be effective; rather, an optimal level of hope for persuading Korean audiences to receive the HPV vaccines can be achieved by addressing other risks of HPV infection, such as warts, followed by the effectiveness of the vaccines.

9. Limitations and Future Studies

The results of the current study should be interpreted taking some limitations into consideration. First, the sample consisted of college students, limiting the external validity of the findings. For example, because college students tend to be highly sexually active (e.g., Chandra et al., 2011), psychological reactions of participants to risks associated with HPV and genital warts might be different from those of the general public. Thus, it is recommended for future studies to replicate the findings of this study using samples drawn from the general population group. Second, the health context of the current study might

qualify the generalization of the findings. For instance, given that different types of risk might involve different cognitive and emotional processes (e.g., Jepson & Chaiken, 1990; Loewenstein, Weber, Hsee, & Welch, 2001), cognitive appraisals of information concerning other types of risk and the resultant emotional response may differ from those observed in our study when processing information regarding the sexually transmitted disease.

10. Conclusion

The present research aims to contribute to the literature by exploring the theoretical possibility of hope arousal as a result of processing fear appeals. In line with the predictions built upon the propositions of EPPM and the cognitive appraisal theory, we found that efficacy and threat perceptions jointly generated the emotion. In addition, the hypothesized value of hope in fueling individuals to adopt a protective action against risks was supported. The findings showed that hope could be integrated into the models of fear appeal and plays a crucial role in understanding the mechanism through which persuasive outcomes of fear appeals are rendered. The findings of this study could lay the foundations for future research on fear appeals.

References

Arnold, M. B. (1960). *Emotion and personality*. New York, NY: Columbia University Press.

Averill, J. R., Catlin, G. and Chon, K. K. 1990. Rules of hope, New York: Springer-Verlag.

Beck, K. H., & Frankel, A. (1981). A conceptualization of threat communications and protective health behavior. *Social Psychology Quarterly*, *44*(3), 204-217.

Brackney, B. E., & Westman, A. S. (1992). Relationships among hope, psychosocial development, and locus of control. *Psychological Reports*, *70*(3), 864-866.

Byrne, B. M. (2010). *Structural equation modeling with AMOS: Basic concepts, applications and programming*. Mahwah, NJ: Lawrence Erlbaum Associates.

Byrne, B. M. (2001) Structural equation modeling with AMOS, EQSand LISREL: comparative approaches to testing for the factorial validity of a measuring instrument. *International Journal of Testing 1*(1).

Carcioppolo, N., Jensen, J. D., Wilson, S. R., Collins, W. B., Carrion, M., & Linnemeier, G. (2013). Examining HPV threat-to-efficacy ratios in the extended parallel process model. *Health Communication*, *28*(1), 20-28.

Centers for Disease Control and Prevention (2013, January 1). Blood/Body Fluid Exposure Option [PDF]. Retrieved from https://www.cdc.gov/nhsn/pdfs/hps-manual/exposure/3-hps-exposure-options.pdf

Centers for Disease Control and Prevention (2017, August 24). Genital HPV

Infection - Fact Sheet. Retrieved from https://www.cdc.gov/hpv/parents/vaccine.html

Chadwick, A. E. (2015). Toward a theory of persuasive hope: Effects of cognitive appraisals, hope appeals, and hope in the context of climate change. *Health Communication*, *30*(6), 598-611.

Chandra, A., Mosher, W. D., & Copen, C. (2011, March). Sexual behavior, sexual attraction, and sexual identity in the United States: Data from the 2006-2008 National Survey of Family Growth. *National Health Statistics Reports*, Number 36. Washington, DC: U.S. Department of Health and Human Services.

Cohen, M. (2013). Cancer fatalism: Attitudes toward screening and care. In B. I. Carr & J. Steel (Eds.), *Psychological aspects of cancer* (pp. 83-99). New York, NY: Springer.

Danaher, B. G., Smolkowski, K., Seeley, J. R., & Severson, H. H. (2008). Mediators of a successful web-based smokeless tobacco cessation program, *Addiction*, *103*(10), 1706-1712.

De Hoog, N., Stroebe, W., & De Wit, J. B. (2007). The impact of vulnerability to and severity of a health risk on processing and acceptance of fear-arousing communications: A meta-analysis. *Review of General Psychology*, *11*(3), 258-285.

Ellsworth, P. C., & Smith, C. A. (1988). Shades of joy: Patterns of appraisal differentiating pleasant emotions. *Cognition and Emotion, 2*, 301-331.

Folkman, S., & Lazarus, R. S. (1990). Coping and emotion. *Psychological and biological approaches to emotion*, 313-332.

Frijda, N. H. (1986). *The emotions: Studies in emotion and social interaction*. New York, NY: Cambridge University Press.

Goei, R., Boyson, A. R., Lyon-Callo, S. K., Schott, C., Wasilevich, E., &

Cannarile, S. (2010). An examination of EPPM predictions when threat is perceived externally: An asthma intervention with school workers. *Health Communication*, *25*(4), 333-344.

Hovland, C., Janis, I. L., & Kelly, H. (1953). *Communication and persuasion*. New Haven, CT: Yale University Press.

Jepson, C., & Chaiken, S. (1990). Chronic issue-specific fear inhibits systematic processing of persuasive communications. *Journal of Social Behavior and Personality*, *5*(2), 61-84.

Kline, R. B. (2005). *Methodology in the social sciences. Principles and practice of structural equation modeling* (2nd ed.). New York, NY: Guilford Press.

Krieger, J. L., & Sarge, M. A. (2013). A serial mediation model of message framing on intentions to receive the human papillomavirus (HPV) vaccine: Revisiting the role of threat and efficacy perceptions. *Health Communication*, *28*(1), 5-19.

Lazarus, R. S. (1991a). *Emotion and adaptation*. New York, NY: Oxford University Press.

Lazarus, R. S. (1991b). Progress on a cognitive-motivational-relational theory of emotion. *American Psychologist*, *46*(8), 819-834.

Lazarus, R. S. (1999). Hope: An emotion and a vital coping resource against despair. *Social Research, 66*, 653-678.

Lazarus, R. S. (2001). Relational meaning and discrete emotions. In K. R. Scherer, A. Schorr, T. Johnstone. (Eds.), *Appraisal processes in emotion: Theory, methods, research* (pp. 121-140). New York, NY: Oxford University Press.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York, NY: Springer.

Lin, C. C., & Tsay, H. F. (2005). Relationships among perceived diagnostic

disclosure, health locus of control, and levels of hope in Taiwanese cancer patients. *Psycho Oncology: Journal of the Psychological, Social and Behavioral Dimensions of Cancer*, *14*(5), 376-385.

Loewenstein, G. F., Weber, E. U., Hsee, C. K., & Welch, N. (2001). Risk as feelings. *Psychological Bulletin*, *127*(2), 267-286.

Izard, C. E. (1977). *Human emotions*. New York, NY: Plenum Press.

Magaletta, P. R., & Oliver, J. M. (1999). The hope construct, will, and ways: Their relations with self efficacy, optimism, and general well being. *Journal of Clinical Psychology*, *55*(5), 539-551.

Meczkowski, E. J., Dillard, J. P., & Shen, L. (2016). Threat appeals and persuasion: Seeking and finding the elusive curvilinear effect. *Communication Monographs*, *83*(3), 373-395.

Nabi, R. L. (2015). Emotional flow in persuasive health messages. *Health Communication*, *30*(2), 114-124.

Nabi, R. L., & Myrick, J. G. (2019). Uplifting fear appeals: Considering the role of hope in fear-based persuasive messages. *Health communication*, *34*(4), 463-474.

Popova, L. (2012). The extended parallel process model: Illuminating the gaps in research. *Health Education & Behavior*, *39*(4), 455-473.

Powe, B. D. (1995). Cancer fatalism among elderly Caucasians and African Americans. *Oncology Nursing Forum*, *22*(9), 1355-1359.

Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research*, *42*(1), 185-227.

Quick, B. L., LaVoie, N. R., Reynolds-Tylus, T., Martinez-Gonzalez, A., & Skurka, C. (2018). Examining Mechanisms Underlying Fear-Control in the Extended Parallel Process Model. *Health Communication*, *33*(4),

379-391.

Rippetoe, P. A., & Rogers, R. W. (1987). Effects of components of protection-motivation theory on adaptive and maladaptive coping with a health threat. *Journal of personality and social psychology, 52*(3), 596.

Roberto, A. J., & Goodall, C. E. (2009). Using the extended parallel process model to explain physicians' decisions to test their patients for kidney disease. *Journal of Health Communication*, *14*(4), 400-412.

Rogers, R. W. (1975). A protection motivation theory of fear appeals and attitude change. *Journal of Psychology*, *91*(3), 93-114.

Rogers, R. W. (1983). Cognitive and physiological processes in fear appeals and attitude change: A revised theory of protection motivation. In J. Cacioppo & R. E. Petty (Eds.), *Social psychophysiology* (pp. 153-176). New York, NY: Guilford.

Roseman, I. J. (1984). Cognitive determinants of emotion: A structural theory. *Review of Personality & Social Psychology, 5*, 11-36.

Ruiter, R. A., Verplanken, B., Kok, G., & Werrij, M. Q. (2003). The role of coping appraisal in reactions to fear appeals: Do we need threat information?. *Journal of Health Psychology*, *8*(4), 465-474.

Shen, L. (2017). Putting the fear back again (and within individuals): Revisiting the role of fear in persuasion. *Health communication*, *32*(11), 1331-1341.

Smith, C., & Lazarus, R. (1990). Emotion and adaptation. In L. Pervin (Ed.), *Handbook of personality: Theory and research*. New York: Guilford Press.

Snyder, C. R. (1995). Conceptualizing, measuring, and nurturing hope. *Journal of Counseling & Development*, *73*(3), 355-360.

Volkman, J. E., & Parrott, R. L. (2012). Expressing emotions as evidence in

osteoporosis narratives: Effects on message processing and intentions. *Human Communication Research*, *38*(4), 429-458.

Weinstein, N. D. (1989). Optimistic biases about personal risks. *Science*, *246*(4935), 1232-1234.

Weinstein, N. D., & Klein, W. M. (1996). Unrealistic optimism: Present and future. Journal of *Social and Clinical Psychology*, *15*(1), 1-8.

Williams, W. W., Lu, P. J., O'Halloran, A., Kim, D. K., Grohskopf, L. A., Pilishvili, T., ⋯ Rodriguez-Lainz, A. (2017). Surveillance of vaccination coverage among adult populations-United States, 2015. *Morbidity and Mortality Weekly Report. Surveillance summaries*. *66*(11), 1-28.

Witte, K. (1992). Putting the fear back into fear appeals: The extended parallel process model. *Communications Monographs*, *59*(4), 329-349.

Witte, K. (1998). Fear as motivator, fear as inhibitor: Using the extended parallel process model to explain fear appeal successes and failures. In P. A. Andersen & L. K. Guerrero (Eds.), *Handbook of communication and emotion: Research, theory, applications, and contexts* (pp. 423-450). San Diego, CA: Academic Press.

Witte, K., Cameron, K. A., McKeon, J. K., & Berkowitz, J. M. (1996). Predicting risk behaviors: Development and validation of a diagnostic scale. *Journal of Health Communication*, *1*(4), 317-341.

Witte, K. (2013). Introduction: Pathways. *Health communication*, *28*(1), 3-4.

Witte, K., & Allen, M. (2000). A meta-analysis of fear appeals: Implications for effective public health campaigns. *Health Education & Behavior*, *27*(5), 591-615.

Yzer, M. C., Southwell, B. G., & Stephenson, M. T. (2012). Inducing fear as a public communication campaign strategy. In R. E. Rice, & C. K.

Atkin (Eds.), *Public communication campaigns* (pp. 163-176). Thousand Oaks, CA: Sage Publication.

최초 투고일: 2021년 05월 28일
논문 수정일: 2021년 07월 09일
게재 확정일: 2021년 07월 13일

절망 속에서 희망을 찾다: 공포 소구 맥락에서 희망의 이론화

김한영[*]
(휴스턴 대학교 커뮤니케이션학과 조교수)
한정엽[**]
(조지아 대학교 광고홍보학과 부교수)

본 연구는 병행 과정 확장 모델 (Extended Parallel Process Model) (Witte, 1992)의 구성 요소들과 명제를 고려하여 공포 소구 메시지를 읽는 동안 긍정적 감정인 희망은 어떤 조건에서 일어나며, 그 결과는 무엇인지 탐구하였다. 이 연구는 희망 유발의 메커니즘을 실증적으로 알아보기 위해 생식기 혹과 HPV 예방접종에 관한 온라인 실험 연구를 진행하였다. 참가자들은 먼저 HPV 감염 및 생식기 혹의 위험에 관련된 정보에 노출된 다음, HPV 예방 접종의 효과에 대한 정보를 접하였다. 실험 결과, 지각된 효능감(perceived efficacy)의 희망에 대한 긍정적 효과는 지각된 위협(perceived threat) 수준이 높을수록 더 크게 나타났다. 또한 유발된 희망은 참가자들의 자기 보호적 행동 의도를 긍정적으로 예측하였다. 지각된 효능감이 자기 보호적 행동 의도에 미치는 영향은 희망에 의해 매개되었으며, 이러한 매개 효과는 지각된 위협의 수준이 높을수록 더 컸다. 본 논문의 결과는 공포 호소 설득 과정의 메커니즘을 설명하는 중요한 정서적 구성 요소로 희망을 고려할 필요성을 제시한다.

주제어 : 감정의 인지적 평가 이론, 병행 과정 확장 모델, 공포 소구, 기능적 감정 이론, 희망