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The Effects of Fear Appeal Message Repetition on Perceived Threat, Perceived Efficacy, and
Behavioral Intention in the Extended Parallel Process Model

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Abstract

This study examined the effect of moderately repeated exposure (three times) to a fear appeal message on the Extended Parallel Processing Model (EPPM) variables of threat, efficacy, and behavioral intentions for the recommended behaviors in the message, as well as the proportions of systematic and message related thoughts generated after each message exposure. The results showed that after repeated exposure to a fear appeal message about preventing melanoma, perceived threat in terms of susceptibility and perceived efficacy in terms of response-efficacy significantly increased. The behavioral intentions of all recommended behaviors did not change after repeated exposure to the message. However, after the second exposure the proportions of both systematic and all message related thoughts (relative to total thoughts) significantly decreased while the proportion of heuristic thoughts significantly increased, and this pattern held after the third exposure. The findings demonstrated that the predictions in the EPPM are likely to be operative after three exposures to a persuasive message.

Keywords: Health communication, EPPM, fear appeal, repeated exposure, melanoma, sun safety

The Effects of Fear Appeal Message Repetition on Perceived Threat, Perceived Efficacy, and Behavioral Intention in the Extended Parallel Process Model

During a sustained health campaign, it is likely that some receivers are repeatedly exposed to the same health campaign messages. Although repetition is a commonly recommended message strategy in advertising, very little health communication research has examined issues related to repetition, especially with regard to the ideal levels of redundancy.

While a large amount of literature in advertising has investigated the effects of repetition, the effects of one emotion, fear, have seldom been examined in detail. However, the use of fear appeals has been a well-known strategy to design effective health campaigns since the 1960s (Beck & Frankel, 1981; Janis, 1967; Leventhal, 1970; McGuire, 1968; 1969; Rogers, 1975, 1983; Sutton, 1982; Witte, 1992; 1994).

The most recent theoretical framework of fear appeal messages is the Extended Parallel Process Model (EPPM) (Witte, 1992; 1994), and it has been widely employed in health campaigns (e.g., Kotowski, Johnstone, Smith, & Pritt, 2011; Witte, 1997; Wolburg, 2001). In accordance with the EPPM, effective fear appeal messages should induce perceived threat which includes perceived susceptibility and perceived severity, and perceived efficacy which includes perceived self-efficacy and perceived response efficacy. The result of provision of a fear appeal message may be either a danger or a fear control process. While the message does not change during repeated exposure, message receivers' perceptions of threat and efficacy may not be stable across exposures.

The purpose of this study is to investigate the impact of repeated exposure to the same fear appeal message about melanoma on perceived threat, perceived efficacy, and intent to perform recommended behaviors. As the heuristic systematic model (HSM) (Chaiken, 1980;

1987; Eagly & Chaiken, 1993) suggests, people can process messages both heuristically and systematically. The impact of repetition on fear appeal messages, if any, might be due to a change in the proportion of systematic and heuristic thoughts generated during repetition.

To provide the background for the study, the literature about message repetition and the EPPM, respectively, are reviewed, and the health problem of melanoma for college students and related PSAs are presented. From the literature review, the research questions are derived and presented. Finally, the method, results, and discussion follow.

Message Repetition

In the 1960's, Zajonc (1968) found that mere repeated exposure to a stimulus object enhanced individuals' attitudes toward it. The stimuli in the research, however, were words, Chinese characters, or pictures which might differ from cognitive processing of messages. Subsequently, scholars have investigated the effects and effectiveness of message repetition, particularly in the fields of advertising and persuasion.

Advertising Research on Repetition

Berlyne's (1970; 1971) two-factor theory has often been applied to explain advertising repetition effects. This theory proposes an inverted-U curve for repetition effects. During the first few exposures, the wear-in stage occurs during which an ad has a significantly positive effect on the viewers. Wear-out is the stage in which the ad has no further significant effects or even has a significantly negative effect (Pechman & Stewart, 1988). Stang (1973; 1975) expanded Berlyne's (1970; 1971) theory by illustrating that repeated exposure offers the audience more time to learn about the stimulus, which is rewarding, and can lead to positive emotions. Further exposures beyond initial learning (i.e., a threshold), however, can be boring and will ultimately cause negative emotions toward the stimulus.

Although support for this theory has been documented in a large number of studies (e.g., Batra & Ray, 1986; Calder & Sternthal, 1980; McCullough & Ostrom, 1974), many studies have found that some outcome variables, like message effectiveness and attitudes, were not associated with the number of repeated exposures (e.g., Mitchell & Olson, 1977; Rethans, Swasy, & Marks, 1986). This ambiguity in advertisement repetition effects has been explained as the result of various research designs and measurement (Pechman & Stewart, 1988). Pechman and Stewart (1988) noted that both experiments and field studies had differing results. Due to this and the fact that the present study is an experiment, only experimental studies are further reviewed in this paper.

In general, experiments require participants to view an advertisement and then measure the outcome variables immediately after the exposure. Belch (1982) found that the advertisement's wear-out begins after the fourth exposure when negative thoughts increasingly outnumber positive thoughts. Some subsequent experiments (e.g. Campbell & Keller, 2003; Schuman, Petty, & Clemons, 1990) have investigated the independent and combined effects of different features of advertisements (e.g. brands and ad variation) and repeated exposure on the advertisement's effectiveness. Their results consistently have shown that advertisement wear-in took place during the first three exposures, but positive effects began to decrease after the fourth repetition. These findings are in line with the conclusion of Pechman and Stewart's (1988) systematic review on advertising repetition, which indicates that three exposures are ideal in advertising experiments, and that significant wear-out begins after the fourth repetition.

Persuasion Research

The effect of message repetition has also been a focus of scholars in the field of per-

suasion since 1970s. The findings in this area, however, are inconsistent.

Cacioppo and Petty (1979) first investigated the repetition effect of messages which differed in the position advocated. One was consistent with audience's attitude (i.e., pro-attitudinal), and the other was opposite to it (i.e., counter-attitudinal). They found a curvilinear effect of message repetition on audience agreement, counter-arguments, and favorable thoughts. From one exposure to three exposures, the level of agreement and the number of favorable thoughts increased, but the number of counter-arguments decreased. Alternatively, from three exposures to five exposures, the agreement level and the number of favorable thoughts decreased, but the number of counter-arguments increased. Message position of the advocacy did not affect the message repetition effect. As such, Cacioppo and Petty's (1979) findings are consistent with Berlyne's (1970; 1971) two-factor theory in advertising.

Subsequently researchers (Cacioppo & Petty, 1989; Garcia-Marques & Macie, 2001) examined the repetition effects of strong versus weak arguments. Strong messages are defined as messages which are persuasive enough to produce attitude changes, but weak messages are not (Cacioppo & Petty, 1989).

Cacioppo and Petty (1989) posited that repeated exposure increased the opportunity to scrutinize the arguments, which enhanced message elaboration. As a result, they found that strong arguments caused more favorable attitudes and agreement than did weak arguments after three exposures. On the contrary, Garcia-Marques and Mackie (2001) found that unfamiliar situations induced analytic (systematic) processing, but that familiar situations led to non-analytic (heuristic) processing of the information. They found that even one repeated exposure of a strong message can lead to more non-analytic processing and decrease favorable attitude toward the argument.

In sum, message repetition research in persuasion literature has had mixed results. While some researchers (Cacioppo & Petty, 1979; 1989) have found that a moderate level of repetition increased favorable attitudes toward the message, especially the strong message, a more recent study (Garcia-Marques & Mackie, 2001) indicated that a decline in favorable attitudes occurred after one repetition. However, research in advertising and persuasion has not explored the repetition effect of messages containing threat. One promising way to explore this area is by using the most recent theoretical framework on fear appeal messages, the EPPM.

The Extended Parallel Process Model

According to the EPPM, fear appeal messages should induce perceived threat (susceptibility and severity) and perceived efficacy (self-efficacy and response efficacy). Susceptibility refers to one's belief or perception that the threat affects them personally (e.g., a college student who engages in sun exposure or tanning beds believes that this can harm them), whereas severity refers to the perception of the seriousness or significance of the threat (e.g., sun or UV light exposure is bad for my health and may even cause death). Response efficacy is the perceived effectiveness of the recommended response, which can reduce the threat (e.g., staying away from UV light exposure or less sun exposure will lessen harm), whereas perceived self-efficacy concerns a person's ability to perform that recommended response (e.g., I can reduce the number of times I use tanning beds) (Witte, 1992; 1994).

The processing of fear appeal messages may result in either a danger or fear control process. When both perceived threat and perceived efficacy are high, message receivers are predicted to cognitively manage the threat and employ recommended responses to avert the threat in a danger control process. Alternatively, when perceived threat is high but perceived

efficacy is low, fear control processes are predicted to dominate. During fear control, individuals emotionally react to the threat and do not perform the recommended responses. They might exhibit maladaptive behaviors and avoid information about the threat. However, when perceived threat is not high enough, no message processing will occur (Witte, 1992). Hence, if the repetition of fear appeal messages reduces perceived threat to a relatively low level, people might not process the message after the exposure to it.

While the level of perceived efficacy decides the nature of the reaction, the level of perceived threat indicates the degree of reaction to the fear appeal messages (Witte, 1992). The threat level of the message exposure can result in defensive avoidance and message minimization (Witte, 1994), which means the individuals are likely to resist the message, try to deny, or minimize the threat, and thus have little intention to engage in the recommended behavior.

Witte and Allen's (2000) meta-analysis of fear appeals indicated that perceptions of both threat and efficacy as a result of the provision of a message had positive relationships with attitude, intention, and behavior changes across studies. There were interactions between threat and efficacy due to fear appeal messages as well. The possible combinations of threat and efficacy were 2×2 (Threat [high, low] $\times$ Efficacy [high, low]). The high threat – high efficacy (HTHE) messages had the highest persuasive effect compared to the high threat – low efficacy (HTLE) and the low threat – high efficacy (LTHE) messages. Additionally, HTLE and LTLE messages were not significantly different from each other. The low threat – low efficacy (LTLE) messages had the lowest persuasive effect among the four groups.

The effectiveness of HTLE messages and high efficacy – no threat messages was also examined by Gore and Bracken (2005). They found that when individuals, who initially en-

gaged in danger control processes, received a high-threat and no-efficacy message, they shifted to fear control processes. This result was consistent with the prediction made by the EPPM, which suggests that when perceived threat starts to outweigh perceived efficacy, receivers will shift from danger control to fear control (Witte, 1992). Alternatively, they also found that if the individuals receive a no-threat and high-efficacy message, the message did not influence them, which is not predicted by the EPPM. Thus, there is clear evidence to indicate that different levels of perceived threat and perceived efficacy influence the effectiveness of fear appeal messages.

After one exposure to a fear appeal message, an individual may perceive high levels of both threat and efficacy. Nevertheless, repeated exposure may alter the former perceptions, because the cognitive processes the receiver employs during the subsequent repeated exposures may be different from the processes he or she engages in during the first exposure.

Generally, the EPPM is widely employed in health message designs and health campaigns. The topics include HIV/AIDS prevention (Murray-Johnson et al., 2001), hearing protection (Kotowski, Johnstone, Smith, & Pritt, 2011; Smith et al., 2008), teen pregnancy prevention (Witte, 1997), and reduction of alcohol usage (Wolburg, 2001; Moscato et al., 2001; Zisserson, Palfai, & Saitz, 2007), among other topics. Many campaigns produce TV or radio advertisements, which repeatedly play through mass media. Hence, there is a high likelihood that individuals will be repeatedly exposed to the same fear appeal message in a health campaign. For example, Biener, Ji, Gilpin, and Albers (2004) studied eight anti-smoking advertisements, and they found that, “on average, each ad reached 91% of the television audience 12.7 times” (p. 262).

Fear Appeal Message Repetition

Only three studies (Horowitz, 1969; Kirscht & Heafner, 1973; Skilbeck, Tulips & Ley, 1977) have investigated fear appeal message repetition and have had mixed results. Skilbeck, Tulips, and Ley (1977) found that a single exposure was more effective in behavioral compliance than multiple exposures. Horowitz (1969) found that increasing the number of exposures did not affect attitudes. Kirscht and Heafner (1973) examined repetition effects of fear appeal messages with varying threat levels. Their findings were that the effectiveness in changing behavior in response to a high threat film was better than a low threat film when only shown once. The low threat film was more effective in producing behavioral changes when shown twice; and there was no difference in effectiveness between the high and low threat films when shown three times. The number of exposures, however, did not affect on intentions.

Overall, reviewing repetition advertising and persuasion literature leads to different predictions. On one hand, the wear-out of advertisements has been documented to begin with the fourth repetition in experiments. Persuasion research in general and on fear appeals in specific have mixed findings. In addition, the components of the EPPM, like perceived threat and perceived efficacy, have not been conceptualized and examined in previous repetition research. Based on these inconsistent findings, the following research questions were proposed.

RQ1: How will increasing exposure to a fear appeal message affect perceived threat?

RQ1a: How will increasing exposure to a fear appeal message affect perceived susceptibility?

RQ1b: How will increasing exposure to a fear appeal message affect perceived severity?

RQ2: How will increasing exposure to a fear appeal message affect perceived efficacy?

RQ2a: How will increasing exposure to a fear appeal message affect perceived self-efficacy?

RQ2b: How will increasing exposure to a fear appeal message affect perceived response efficacy?

RQ3: How will increasing exposure to a fear appeal message affect the behavioral intention to engage in the recommended behavior?

The Heuristic-Systematic Model (HSM)

In an effort to explain the underlying mechanism of message repetition effects, some scholars have employed the HSM. According to the HSM (Chaiken, 1980; 1987; Eagly & Chaiken, 1993), people process messages heuristically and systematically. Systematic processing refers to an analytic and comprehensive analysis of a message and requires both cognitive ability and capacity; however, heuristic processing is mainly based on heuristic cues (e.g., the source of message, message length) and has minimal cognitive demands. Both of them can lead to attitude changes (Chen & Chaiken, 1999).

The above-mentioned, persuasion studies which involve dual process models to explain processing of message repetition have mixed results. Cacioppo and Petty (1989) argued that repetition offered an audience more opportunities to scrutinize arguments and engage in systematic processing. Nevertheless, Garcia-Marques and Mackie (2001) found that any message repetition caused heuristic processing due to familiarity. As these previous studies have offered inconsistent explanations for message repetition effects using the HSM, the following research questions were derived.

RQ4: What is the relationship between increasing exposure to a fear appeal message and the proportion of systematic thoughts?

RQ5: What is the relationship between increasing exposure to a fear appeal message and the proportion of message related thoughts?

Skin Cancer and College Students

The current study tests the repetition of fear appeal messages in a context of skin cancer. Melanoma and non-melanoma skin cancer are the most common types of cancer in Caucasian populations (Diepgen & Mahler, 2002). Although most types of skin cancer are curable, melanoma is the deadliest form. It can be fatal if not treated early. Since 2004, its incidence rate among Caucasian Americans has increased by almost 3% per year. In 2012, about 76,250 persons in the United States will be diagnosed with melanoma, and 9,180 persons will die from this disease (American Cancer Society (ACS), 2012). Melanoma is the most common cancer among females aged 20 to 29 in the United States and second most common cancer among young people aged 20 to 29 (Howlader et al., 2011). Hence, college students have a high risk of developing melanoma.

Getting sunburns and using tanning booths are the main causes for developing melanoma, but family history and personal sun sensitivity also contribute to contracting the cancer (ACS, 2012). Using sunlamps and tanning booths increases the risk of skin cancer especially for young people under age 30 (National Cancer Institute, 2011). Thus, college students should decrease sun exposure and UV light exposure to prevent melanoma. These recommendations are often delivered in the form of PSAs.

Online PSAs

“Public service announcements (PSAs) are designed to inform or induce certain behaviors in specific audiences, generally for noncommercial profit using mass media-approaches” (Bator & Cialdini, 2000, p. 527). Although newspapers, magazines, radio, and

television have usually been used as channels for PSAs, the Internet has become a newer channel for them in this new media age.

In the United States, the number of Internet users reached 245 million in 2011. That means 80% of Americans are Internet users (World Bank, 2012). A typical college student uses the Internet 100 minutes per day (Anderson, 2001). College students spend a lot of time on social networking websites, like Facebook, MySpace, and LinkedIn. For example, in 2006, Facebook was used at over 2,000 United States colleges (Cassidy, 2006). As a result, online PSAs have a strong likelihood to reach college students and are easily shared among them via social networking websites. Thus, an online PSA about melanoma will be used as the stimulus message in the current study.

Method

Participants and Procedure

The experiment was a post-test only control group design. Approval for the questionnaire was obtained from the Institutional Research Board. Two hundred seventeen participants enrolled in a Communication Participation Pool were randomly assigned into two groups. One group (the control group) of 63 participants answered the questionnaire only at one point in time without seeing the stimulus message, and the other group that began with 154 participants was exposed to the same video about Melanoma three times in one week. During the experiment, 154 participants completed Exposure 1; 121 participants completed both Exposure 1 and 2; and 98 participants completed all three exposures. The time interval between each exposure was 3 days. Outcome-relevant involvement which can influence individuals' information processing (Chen & Chaiken, 1999; Cho & Boster, 2005; Petty & Cacioppo, 1986) was evaluated prior to message exposure. The outcome-relevant involvement scale for the category of melanoma included five

items and was adapted Cho and Boster (2005). After each exposure, the participants in the experimental group were asked to list the thoughts they had during message exposure, and fill out a questionnaire based on The Risk Behavior Diagnosis Scale (The RDBS) (Witte, Meyer, & Martell, 2001), about perceived susceptibility, perceived severity, perceived self-efficacy, perceived response efficacy, behavioral intention, previous behaviors and demographic information. In order to reduce possible order effects, the order of questions was altered after each exposure.

In the control group, the 63 participants (51 women and 12 men) had a mean age of 19.81 years ($SD = 1.45$). The ethnic categories were 82.5% Caucasian ($n = 52$), 6.3% African American ($n = 4$), 4.8% Asian/Pacific Islander ($n = 3$), 1.6% Latino ($n = 1$), and 1.6% other ($n = 1$) while 3.2% of the participants ($n = 2$) chose not to reveal their ethnicity. Their mean involvement with melanoma was 4.65 ($SD = 1.15$). In the experiment group, 98 participants (61 women and 37 men) with a mean age of 20.14 years ($SD = 1.39$) completed all 3 exposures. The ethnic categories were 76.5% Caucasian ($n = 75$), 8.2% African American ($n = 8$), 5.1% Asian/Pacific Islander ($n = 5$), 1.6% Multiracial ($n = 1$) and 2.0% other ($n = 2$) while 7.1% of the participants ($n = 7$) chose not to reveal their ethnicity. Of the 98 participants, 82 of them reported that they had never seen this video before. However, the results of the statistical analyses for both sample sizes ($n = 82$ and $n = 98$) had the same patterns, so in order to have a larger sample size, the total 98 participants' data were employed in this study. Their mean involvement with melanoma was 4.57 ($SD = 1.11$). The independent-sample t-test revealed that there was no significant difference between the control group and the experiment group on age and outcome involvement with melanoma.

Stimulus Message

The video clip shown in the experiment is titled “Dear 16-year-old Me.” It was made by the David Cornfield Melanoma Fund (DCMF), which was established in 2007 in Canada and is devoted to saving lives from melanoma (<http://dcmf.ca/us>). This video has received more than five million hits and 31 thousand “likes.” This 5-minute PSA delineates the symptoms of melanoma and advocates various actions including refraining from tanning beds, using sunscreen, checking skin regularly, and forwarding the video to viewers’ friends and family members.

Measures

All measures used a 7-point Likert scale (1 = *strongly disagree* and 7 = *strongly agree*). The *outcome-relevant involvement scale* employed prior to message exposure examined the participants’ outcome involvement with melanoma. This scale included five items and was adapted Cho and Boster (2005).

The EPPM questionnaire based on the RDBS measured *perceived threat* of melanoma (i.e., susceptibility and severity), *perceived efficacy* of using sunscreen and staying away from tanning beds (i.e., self-efficacy and response efficacy), *behavioral intention* to enact the recommended behaviors (i.e., using sunscreen, staying away from tanning beds, checking skin regularly, and forwarding this messages to others), previous behaviors and demographic information.

Threat. Susceptibility and severity were measured by three items each. Susceptibility items included: I am at risk for developing melanoma; It is possible that I will develop melanoma; and I am susceptible to developing melanoma. Cronbach’s Alpha of this scale ranged from .81 to .95 across exposures. Susceptibility was calculated as the average of the three responses. The items in severity scale were: melanoma is a serious skin cancer; melanoma is harmful; and melanoma is a severe threat. The Cronbach’s Alpha of this scale ranged from .76 to .83 across exposures. Severity was calculated as the average of the three responses. The general threat was

calculated as the average of the six responses from both susceptibility and severity scales. The Cronbach's Alpha of this measurement was equal or higher to .77 across exposures.

Efficacy. The response efficacy and self-efficacy scale each included six items, which were about both using sunscreen and staying away from tanning beds. Response efficacy was assessed by six items, which included: Using sunscreen/staying away from tanning beds prevents Melanoma; Using sunscreen/staying away from tanning beds works in deterring Melanoma; and Using sunscreen/staying away from tanning beds is an effective way to avoid Melanoma. Cronbach's Alpha of this scale ranged from .79 to .91 across exposures. Response efficacy was calculated as the average of the six responses. Similarly, the self-efficacy scale included six items: I am able to use sunscreen/stay away from tanning beds to prevent Melanoma; It is easy to use sunscreen/stay away from tanning beds to prevent Melanoma; and I can use sunscreen/stay away from tanning beds to prevent Melanoma. The Cronbach's Alpha of this scale ranged from .80 to .88 across exposures. Self-efficacy was calculated as the average of the six responses. The general efficacy was calculated as the average of the twelve responses from both response- and self-efficacy scales. Cronbach's Alpha of the general perceived efficacy was equal or higher than .86 across exposures. Table 1 presents Cronbach's Alpha for each scale by exposure.

Behavioral Intentions. The behavioral intentions items asked about whether or not the participants intended to employ the recommended behaviors (i.e., using sunscreen, staying away from tanning beds, checking skin regularly, and forwarding the message) in the future. Each behavioral intention was evaluated by a single item; for example, I intend to use sunscreen when I am exposed to sun.

Questions about previous behaviors included a history of sunburns, using sunscreen, using tanning beds, and checking skin regularly. The demographic information consisted of the participant's age, sex, and ethnicity.

Confirmatory Factor Analysis (CFA). CFA was conducted for the EPPM measurement model, using the data from three repeated measures after listwise deletion ($n = 270$). In the questionnaire, response efficacy and self-efficacy for using sunscreen and staying away from tanning beds were measured separately. Thus, the second-order CFA was conducted twice for the EPPM model of using sunscreen (including threat and efficacy for using sunscreen) and the EPPM model of staying away from tanning beds (including threat and efficacy for staying away from tanning beds). The CFA showed that the EPPM model of using sunscreen was acceptable ($\chi^2(49) = 135.58$, Normed Fit Index (NFI) = .93, Comparative Fit Index (CFI) = .96, Incremental Fit Index (IFI) = .96, Root Mean Square Error of Approximation (RMSEA) = .081, 90% confidence interval of RMSEA = .065 - .097). The CFA also revealed that the EPPM model of staying away from tanning beds was acceptable ($\chi^2(49) = 89.44$, NFI = .96, CFI = .98, IFI = .98, RMSEA = .055, 90% CI of RMSEA = .037 - .073) (Hu & Bentler, 1990).

Coding Open-Ended Data

Two independently trained coders coded all listed thoughts as systematic, heuristic, negative emotion, positive emotion, or other message irrelevant thoughts. Systematic thoughts were about the content of the message in the video clip; heuristic thoughts were about non-content aspects of the message such as source perceptions and production quality of the video, among others. A large number of emotions were reported, thus both positive and negative emotions were coded. Previous research (Slovic, Finucane, Peters, & MacGregor, 2004, 2006) found that people employ both cognitive and affective information processing, which provided support for cod-

ing emotions. Negative emotions recorded by participants included fear, and nervousness, among others. Positive emotions included happiness, and relief, among others. All other thoughts were coded as irrelevant thoughts. The unit of measurement was a single thought the participants generated. Two coders independently coded 37% ($n = 750$, Total $n = 2,002$) of the participants' listed thoughts using the coding scheme to establish reliability. Cohen's Kappa (Cohen, 1960) for this round of coding was 0.70. Then, the same two coders resolved the inconsistencies and coded another 20 % ($n = 410$) listed thoughts. The Cohen's Kappa for this round of coding increased to 0.80. Later, these same two coders coded the remainder of the 43% of the listed thoughts independently.

Pilot Test

In order to check that the experimental message was perceived as high-threat and high-efficacy, a pilot test was conducted.

Thirty undergraduates (18 men and 12 women) with a mean age of 22.4 years ($SD = 2.04$) participated in the pilot test. The ethnic categories were 66.7% Caucasian ($n = 20$), 13.3% Asian ($n = 4$), 10% African American ($n = 3$), and 6.6% Multiracial ($n = 2$) (one answer was missing). Prior to viewing the video, the participants were asked to fill out the outcome involvement scale (Cho & Boster, 2005) for the category of melanoma. After watching the video, they were asked to list the thoughts they had during message exposure and to fill out an EPPM questionnaire about melanoma adapted from the Risk Behavior Diagnosis Scale (RDBS) (Witte, Meyer, & Martell, 2001).

The results showed that the participants had a moderate level of outcome involvement ($\alpha = .83$, $M = 4.25$, $SD = 1.25$), which was not significantly above 4, the midpoint of the scale ($t(29) = 1.11$, $p = .28$). Three persons indicated that they had watched this video once before and

one person indicated that he had watched it twice before. For the 26 participants who watched the video for the first time, perceived threat was significantly higher than the midpoint of the scale ($\alpha = .85$, $M = 6.26$, $SD = 0.76$ for perceived severity, $\alpha = .89$, $M = 4.37$, $SD = 1.43$ for perceived susceptibility, and $M = 5.31$ for total perceived threat, $SD = 0.87$, $t(25) = 7.69$, $p < .001$). Perceived efficacy was significantly higher than the midpoint of the scale as well ($\alpha = .84$, $M = 5.58$, $SD = 0.98$ for response efficacy, $\alpha = .87$, $M = 5.92$, $SD = 0.87$ for self-efficacy, and $M = 5.75$ for total efficacy, $SD = 0.85$, $t(25) = 10.53$, $p < .001$). Thus, the pilot test indicated that for this population, the video is perceived to be a high threat and high efficacy fear appeal message.

Results

Threat

Research question 1 asked how increasing exposure to a fear appeal message affected perceived threat, which included susceptibility (RQ1a) and severity (RQ1b).

In order to determine whether the video had an effect on the threat variables, a series of independent sample t-tests were run on the differences between threat variables rated by the control group versus the experimental group after Exposure 1. The results showed that participants in Exposure 1 perceived significantly higher severity ($\alpha = .78$, $M = 6.26$, $SD = 0.83$) than those in the control group ($\alpha = .76$, $M = 5.81$, $SD = 0.99$), $t(110.25) = -3.21$, $p = .001$ (one-tailed), $\eta^2 = .09$. Threat in Exposure 1 ($\alpha = .77$, $M = 5.59$, $SD = 0.95$) was also significantly higher than in the control group ($\alpha = .79$, $M = 5.28$, $SD = 1.03$), $t(154) = -1.89$, $p = .03$ (one-tailed), $\eta^2 = .02$. However, the stimulus message had no significant effect on perceived susceptibility between the control group and Exposure 1 ratings (see Table 2). Therefore the threat component of severity is the causal agent in the difference in threat between the control group and those in Exposure 1.

A repeated measures MANOVA was used to examine the effect of number of exposures on perceived susceptibility, perceived severity, and perceived threat for the 98 participants who completed all three exposures. The results revealed a significant effect for repeated exposure on susceptibility, $F(1.76, 135.22) = 3.63, p = .035$, partial $\eta^2 = .045$, and overall threat, $F(1.80, 138.60) = 4.30, p = .019$, partial $\eta^2 = .053$, but not on severity, $F(2, 154) = 1.98, p = .141$, partial $\eta^2 = .025$. However, the means increased for all three variables as exposures increased, which was in opposition to the predictions (See Table 3 for all means and standard deviations).

Pairwise comparisons were employed to compare the perceptions over 3 exposures of susceptibility and threat. The results demonstrated that Exposure 3 had higher susceptibility ($\alpha = .95, M = 5.10, SD = 1.65$) than both Exposure 1 ($\alpha = .92, M = 4.84, SD = 1.60$) and Exposure 2 ($\alpha = .93, M = 4.93, SD = 1.52$), which were not significantly different from each other. Threat had the same pattern as susceptibility over the three exposures. Threat in Exposure 3 ($\alpha = .79, M = 5.81, SD = 0.96$) was significantly higher than in both Exposure 1 ($\alpha = .77, M = 5.59, SD = 0.95$) and Exposure 2 ($\alpha = .80, M = 5.66, SD = 0.94$), which were not significantly different from one another. Therefore, increasing exposure to the fear appeal message significantly increased both overall perceived threat and perceived susceptibility. This shows that susceptibility is the causal agent in the threat component here. Although perceived severity did not change significantly during the three exposures, there was an increasing trend from Exposure 1 ($\alpha = .78, M = 6.26, SD = 0.83$) to Exposure 3 ($\alpha = .83, M = 6.42, SD = 0.82$) showing that severity remained high throughout.

Efficacy

Research question 2 asked about the effect of moderately repeated exposure to a fear appeal message on perceived efficacy including self-efficacy (RQ2a) and response efficacy

(RQ2b). The results of an independent-sample t-test (one-tailed) showed that, compared to the control group, the video significantly increased all three perceived efficacy variables (i.e. response efficacy, self-efficacy, and efficacy) in Exposure 1 (see Table 2).

The same repeated measures MANOVA was used to examine the effect of the number of exposures on perceived response efficacy, perceived self-efficacy, and perceived efficacy ($n = 98$). The results revealed a significant effect for repeated exposure on response efficacy, $F(1.77, 136.53) = 10.08, p < .001$, partial $\eta^2 = .116$, and overall efficacy, $F(2, 154) = 8.03, p < .001$, partial $\eta^2 = .094$, but not on self-efficacy, $F(1.68, 129.45) = 2.22, p = .122$, partial $\eta^2 = .028$. The results show that response efficacy is the causal agent in the efficacy component here.

Pairwise comparisons were employed to compare the effects of the three exposures on response efficacy and efficacy. Response efficacy significantly increased in each exposure (Exp. 1: $\alpha = .79, M = 5.87, SD = 0.87$; Exp. 2: $\alpha = .86, M = 6.05, SD = 0.87$; and Exp. 3: $\alpha = .91, M = 6.20, SD = 0.87$). Meanwhile, perceived efficacy levels in Exposure 2 ($\alpha = .92, M = 6.12, SD = 0.79$) and Exposure 3 ($\alpha = .91, M = 6.20, SD = 0.79$) did not differ from each other, but were significantly higher than in Exposure 1 ($\alpha = .86, M = 5.96, SD = 0.78$) (See Table 3). Hence, the results indicated that moderately repeated exposure (three times) to the fear appeal message significantly increased perceived response efficacy and perceived efficacy, but not perceived self-efficacy although it remained fairly high throughout.

Behavioral Intention

Research question 3 inquired about how moderate repeated exposure to a fear appeal message would affect behavioral intention to engage in the recommended behavior. An independent-sample t-test (one-tailed) was used to examine the effect of the stimulus message on behavioral intentions from the control group to Exposure 1. The results demonstrated that, com-

pared to the control group, the video significantly increased behavioral intentions to use sunscreen ($t(158) = -3.28, p < .001$), avoid tanning beds ($t(157) = -2.86, p < .01$), and check skin regularly ($t(159) = -2.32, p = .01$) (see Table 2).

The results of the same repeated measures MANOVA ($n = 98$) revealed that repeated exposure had no significant effect on behavioral intentions: using sunscreen ($F(1.53, 117.91) = 2.62, p = .091$, partial $\eta^2 = .033$), staying away from tanning beds ($F(1.03, 79.32) = 1.19, p = .280$, partial $\eta^2 = .015$), checking skin regularly ($F(1.02, 78.67) = 1.02, p = .317$, partial $\eta^2 = .013$), and forwarding message to friends and family ($F(1.85, 142.53) = 0.95, p = .383$, partial $\eta^2 = .012$). Thus, repeated exposure to the message did not significantly affect the behavioral intentions, however, intentions on all variables increased significantly in Exposure 1 over the control group.

Cognitive Responses

In the experimental group, participants reported a total of 2,002 thoughts across three exposures, 66.7% ($n = 1,335$) of them were coded as systematic, 18% ($n = 361$) were heuristic, 10.6% ($n = 212$) were negative emotions, 1.4% ($n = 28$) were positive emotions, and 3.3% ($n = 66$) were irrelevant. The message relevant thoughts included all thoughts except the irrelevant thoughts ($n = 1,936, 96.7\%$).

Research question 4 asked about the relationship between increasing exposure to a fear appeal message and the proportion of systematic thoughts generated by watching the video. The results of the same repeated measure MANOVA revealed that the proportion of systematic thoughts was significantly different across three exposures, $F(1.86, 142.87) = 7.52, p = .001$, partial $\eta^2 = .089$. Results of the pairwise comparisons revealed that the proportion of systematic thoughts in Exposure 1 ($M = .66, SD = .30$) was significantly higher than in Exposure 2 ($M = .56$,

$SD = .35$) and Exposure 3 ($M = .53$, $SD = .37$), which did not differ from each other (see Table 3). Thus, systematic thoughts decreased with repeated exposure to the video.

Research question 5 asked about the relationship between repeated exposure and the proportion of message related thoughts. As with the proportion of systematic thoughts, the proportion of message related thoughts had the same pattern during three exposures. Results of statistical analyses demonstrated that three exposures significantly affected the proportion of message related thoughts, $F(1.80, 138.42) = 5.72$, $p = .006$, partial $\eta^2 = .069$. Exposure 1 had a significantly higher proportion of message related thoughts ($M = .97$, $SD = .06$) than Exposure 2 ($M = .88$, $SD = .30$) and Exposure 3 ($M = .88$, $SD = .30$), which were not significantly different from each other (see Table 3). Therefore, moderate repeated exposure to the fear appeal message decreased message related thoughts.

Discussion

Major Findings and Implications

The analyses revealed that moderate repeated exposure to the fear appeal video about melanoma increased perceived threat in terms of susceptibility, but not severity, and perceived efficacy in terms of response efficacy, but not self-efficacy. It should be noted that severity and self-efficacy ratings remained high throughout the exposures.

Close examination of threat reveals that the different exposures had differential effects on perceived susceptibility and perceived severity. When exposure was repeated three times, susceptibility significantly increased, although the first exposure did not have a significantly higher score than the control group. On the other hand, the first exposure significantly increased severity, but the three repeated exposures did not significantly improve it any further. This might be because the level of severity after Exposure 1 was 6.26 ($SD = 0.83$) on a 7-point scale, indicating

a potential ceiling effect. Compared to the control group, Exposure 1 threat significantly increased due to severity, but after three exposures threat significantly increased due to the increase in susceptibility. Thus, the results showed that it was necessary to examine susceptibility and severity separately and that each was operative after a different exposure.

All three efficacy variables increased significantly at Exposure 1 compared to the control group. During the three repeated exposures, response efficacy and overall efficacy rose significantly, but self-efficacy did not. Thus, response efficacy was the causal agent here showing it might be more difficult to improve the level of self-efficacy than response efficacy in the context of sun safety.

For behavioral intentions, although the first exposure from control to Exposure 1 significantly improved the intent to use sunscreen, to avoid using tanning beds, and to check skin regularly in the future, repeated exposure did not affect these three intentions further. While there was no significant effect, the increasing trend from Exposure 1 to Exposure 3 showed that the effect on behavioral intention was not diminished by moderately repeated exposure of the message.

The statistical analyses on the listed thoughts indicated that there was a decrease in the proportion of both systematic thoughts and message related thoughts during three exposures. A question that arises, then, is why did the participants who generated a lower proportion of systematic and message related thoughts during repeated exposures, indicate an increasing level of perceived susceptibility? One reason could be that the participants might have similar thoughts in the second and third exposure as they did after the first one, but they did not report them after subsequent exposures. Another reason could be that even though repeated exposure to the same

fear appeal message decreased systematic and message related thoughts, it might have reinforced the original thoughts the participants had after exposure one.

On the other hand, the increasing level of threat can be explained by the increasing proportion of heuristic thoughts relative to total thoughts over three exposures. In fact, a post-hoc MANOVA test revealed that the proportion of heuristic thoughts significantly increased across exposures $F(1.76, 121.32) = 3.41, p = .042$, partial $\eta^2 = .047$. The pairwise comparison showed that the proportion of heuristic thoughts in Exp. 1 ($M = 0.176, SD = 0.030$) was significantly lower than it in Exp. 2 ($M = .255, SD = .034$) and Exp. 3 ($M = .261, SD = .037$), which did not significantly differ from each other. These results were consistent with Garcia-Marques and Mackie (2001), who found that only one repeated exposure of a strong message could lead to more non-analytic (heuristic) processing. In accordance with the HSM (Chaiken, 1980; 1987; Eagly & Chaiken, 1993), in addition to making a judgment based on comprehensive elaboration of messages, individuals can form or change their attitudes or judgments through heuristic processing as well. Further, the “attenuation assumption” in the HSM posits that systematic processing will attenuate the impact of heuristic cues when these two modes yield incongruent information; alternatively, when these two processes generate congruent information, the attitude judgments can be affected by both heuristic and systematic processes, which is termed the “additivity assumption” in the model (Chaiken, Liberman, & Eagly, 1989; Maheswaran & Chaiken, 1991; Maheswaran, Mackie, & Chaiken, 1992). In the present study, there is no contradictory information (for example, strong arguments with a low credit message source) in the stimulus message. Additionally, during the second and third exposures, participants had the same message to process and generated a lower proportion of systematic thoughts. Therefore, it is likely that the

higher level of susceptibility and general threat the participants perceived accounted for the increasing percentage of heuristic thoughts during repeated exposures.

Further, the increasing percentage of heuristic thoughts might also explain why response efficacy, rather than self-efficacy, increased over exposures. According to Bandura (1997), self-efficacy pertains to an individual's beliefs in his or her ability to complete tasks and achieve goals; and, these beliefs are often formed based on his or her past performances (Bandura, 1993). As a result, the increasing heuristic thoughts might have little ability to influence the memories of past experiences, the main source of perceived self-efficacy. On the contrary, individuals can easily rely on heuristic cues in the message, instead of comprehensive analyses, to make their judgments about the effectiveness of recommended behaviors (response efficacy). This decision making process is much like what customers usually do when they facing various choices. For example, they often evaluate and choose a product only according to its brand name (Maheswaran, Mackie, & Chaiken, 1992). Moreover, in addition to the heuristic cues in the message such as message source and length, the repetition itself could serve as a heuristic cue for the message recipients as well ("it must be an important issue, because it was repeated several times"). Thus, the increasing proportion of heuristic cues could also be a major reason of why perceived response efficacy, rather than perceived self-efficacy, significantly increased during the repeated exposures.

The EPPM predicts that people will engage in danger control processes when they perceive both high threat and efficacy and when efficacy is higher than threat. The results of a Post Hoc test revealed that, for those in the control group, perceived threat and perceived efficacy did not significantly differ from each other. This means that people in the control group had little motivation to engage in danger control processes. In contrast, in the experiment perceived efficacy

was significantly higher than perceived threat after all three exposures and both variables were higher than the mid-point of the scale, which the EPPM predicts will lead to danger control processes (see all means, standard deviations, and t-test results in Table 4). Thus, the EPPM is likely to be operative after three exposures to a health persuasion message that is similar to this one.

This study also offers some implications for message development. According to the different results for message outcomes by exposure (see Table 5) and the results of a t-test on the control group and Exposure 1 (see Table 2), this message had a more significant effect on intentions to use sunscreen than on staying away from tanning beds and checking skin after the first exposure. Another Post Hoc test separated the response efficacy and self-efficacy into two referents: using sunscreen and using tanning beds (see means and standard deviations in Table 6, and see Alpha for each scale in Table 7). The results of a t-test on the control group and Exposure 1 revealed that the stimulus message significantly increased response efficacy ($t(159) = 2.80, p = .006$) and self-efficacy ($t(159) = 2.83, p = .005$) for using sunscreen, and self-efficacy ($t(159) = 3.91, p = .002$), but not response efficacy, for staying away from tanning beds' ($t(159) = 0.78, p = .44$). This could be due to high response efficacy for staying away from tanning beds already present in the control group ($M = 5.73, SD = 1.13$). Further, the statistical analyses also demonstrated that response efficacy after Exposure 2 still was not significantly different from the control group ($t(159) = 2.20, p = .03$), but after Exposure 3, it was significantly improved compared to the control group ($t(159) = 2.72, p = .007$). These results indicate that three repeated exposures to a fear appeal message can increase a variable which had a relatively high baseline. When designing messages, a fear appeal message can emphasize variables that had a high baseline in the formative research, up to a certain point, to increase message effectiveness.

Limitations

There are five main areas of improvement for future examination of repeated exposure to a fear appeal message. First, the time interval between each exposure in this study was three days. People have a low likelihood of engaging in the recommended behavior in the message or the maladaptive behavior within three days. Thus, in this study personal experience likely had little effect on the changes to perceived threat, efficacy, and behavioral intentions after the second and third message exposure. Also, in the current study, the outcome variables in the control group were measured once and not multiple times as in the experimental group. Future studies should lengthen the time interval between each exposure to test whether engaging in a recommended behavior or a maladaptive behavior has an impact on EPPM variables and behavioral intentions during the repeated exposure period. The control group should complete the measures multiple times as the experimental group does. Second, future studies should increase the numbers of exposures and investigate their effects on the EPPM variables. As documented in the advertising literature, significant wear out of an advertisement starts at the fourth repetition (Pechman & Stewart, 1988), and fear appeal messages may show the same outcomes at the fourth repetition. Therefore, it would be beneficial if future studies examine the changing patterns of responses to the EPPM variables to more than three exposures to a fear appeal message. Third, outcome involvement with melanoma was only measured once in the experiment prior to the first exposure. However, the participants' involvement might have changed across exposures. Outcome involvement can influence information processing and could be one influence on the changes in the EPPM variables and the behavioral intentions across exposures. Thus, testing the changing pattern of outcome involvement is another factor which is worth considering in future studies. Fourth, only one fear appeal message was tested in this study, so there is a limit on the generali-

zability of the results. Future studies should employ more than one fear appeal message as stimuli in the experiment to enhance the generalizability. Last, although participants in the control group answered the questionnaire without seeing the stimuli message, it would be beneficial to ask them if they ever seen this video before, since the PSA is accessible online.

Practical Applications

This research effort provides a considerable body of knowledge on the application of the EPPM in public health campaigns. Since the EPPM has been widely used in health message designs and health campaigns, the target audience of the health campaign has a high likelihood to receive a fear appeal message repeatedly. The results of this study showed that the EPPM should still work well after moderately repeated exposures. After three exposures in one week, people felt more susceptible to melanoma, and had more efficacy about engaging in the recommended behavior. The present study also shows that if susceptibility does not significantly increase after the initial exposure, health communication practitioners could increase the number of exposures to raise the recipients' perceived level of susceptibility.

Conclusion

The EPPM predicts that fear appeal messages result in either danger control or fear control processes, which depends on perceived levels of threat and efficacy. This study shows that perceived threat and efficacy have different changing patterns after moderate repeated exposure. However, a high threat and high efficacy fear appeal message is still effective in that it should lead to danger control after repeated exposures.

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Table 1

Alpha Reliabilities for Each Scale by Exposure

Variable	Exp. 0	Exp. 1	Exp. 2	Exp. 3
Susceptibility	.81	.92	.93	.95
Severity	.76	.78	.81	.83
Threat	.79	.77	.80	.79
Response Efficacy	.87	.79	.86	.91
Self Efficacy	.88	.80	.85	.83
Efficacy	.92	.86	.92	.91

Note. $N = 98$; Exp. 0 = Control Group; Exp. 1 = Exposure 1; Exp. 2 = Exposure 2; Exp. 3 = Exposure 3.

Table 2

Independent T-tests on Control Group and Exposure 1 Differences

Variable	Exp. 0	Exp. 1	<i>t</i>	<i>p</i>	η^2
Susceptibility	4.76 (1.43)	4.84 (1.60)	- 0.28	.39	.00
Severity	5.81 (0.99)	6.26 (0.83)	-3.21	.001	.09
Threat	5.28 (1.03)	5.59 (0.95)	-1.89	.03	.02
Response Efficacy	5.55 (1.03)	5.87 (0.87)	-1.98	.03	.02
Self-Efficacy	5.27 (1.31)	5.99 (0.94)	-3.47	< .001	.11
Efficacy	5.38 (1.10)	5.96 (0.78)	-3.29	< .001	.10
Using Sunscreen	4.89 (1.65)	5.69 (1.42)	-3.28	< .001	.06
Avoid Tanning Beds	4.94 (2.00)	5.78 (1.74)	-2.86	< .01	.05
Checking Skin	4.68 (1.58)	5.28 (1.54)	-2.32	.01	.03

Note. *N* = 63 in the control group; *N* = 98 in Exp. 1; Exp. 0 = Control Group; Exp. 1 = Exposure 1.

Table 3

Repeated Measures MANOVA across Three Exposures

Variable	Exp. 1	Exp. 2	Exp. 3	<i>F</i>	<i>p</i>	Partial η^2
Susceptibility	4.84 _a (1.60)	4.93 _a (1.52)	5.10 _b (1.65)	3.63	.035	.045
Severity	6.26 _a (0.83)	6.34 _a (0.93)	6.42 _a (0.82)	1.98	.141	.025
Threat	5.59 _a (0.95)	5.66 _a (0.94)	5.81 _b (0.96)	4.30	.019	.053
Response Efficacy	5.87 _a (0.87)	6.05 _b (0.87)	6.20 _c (0.87)	10.08	< .001	.116
Self-Efficacy	5.99 _a (0.94)	6.11 _a (0.89)	6.16 _a (0.89)	2.22	.122	.028
Efficacy	5.96 _a (0.78)	6.12 _b (0.79)	6.20 _b (0.79)	8.03	< .001	.094
Using Sunscreen	5.69 _a (1.42)	5.93 _a (1.22)	5.93 _a (1.24)	2.62	.091	.033
Avoid Tanning Beds	5.78 _a (1.74)	6.05 _a (1.49)	6.05 _a (1.41)	1.19	.280	.015
Checking Skin	5.28 _a (1.54)	5.41 _a (1.34)	5.67 _a (1.21)	1.02	.317	.013
Forwarding Message	5.08 _a (1.80)	5.27 _a (1.57)	5.24 _a (1.77)	0.95	.383	.012

Table 3 - (Continued)

Variable	Exp. 1	Exp. 2	Exp. 3	<i>F</i>	<i>p</i>	Partial η^2
Proportion of Systemat-	0.66 _a	0.56 _b	0.53 _b	7.52	.001	.089
ic Thoughts	(0.30)	(0.35)	(0.37)			
Proportion of Message	0.97 _a	0.88 _b	0.88 _b	5.72	.006	.069
Related Thoughts	(0.06)	(0.30)	(0.30)			

Note. $N = 98$; Exp. 0 = Control Group; Exp. 1 = Exposure 1; Exp. 2 = Exposure 2; Exp. 3 = Exposure 3. Subscript a, b, and c indicate significant differences between groups across exposures. Standard deviations are in parentheses.

Table 4

Post Hoc Tests of Differences on Threat and Efficacy by Exposure

	Threat	Efficacy	<i>t</i>	<i>p</i>
Exp. 0	5.28 (1.03)	5.38 (1.10)	0.53	0.60
Exp. 1	5.59 (0.95)	5.96 (0.78)	2.98	0.003
Exp. 2	5.66 (0.94)	6.12 (0.79)	3.71	< .001
Exp. 3	5.81 (0.96)	6.20 (0.79)	3.11	0.002

Table 5

Behavioral Intentions by Exposure

	SUN	BED	SKIN	FORWARD
Exp. 0	4.89 (1.65)	4.94 (2.00)	4.68 (1.58)	-
Exp. 1	5.69 (1.42)	5.78 (1.74)	5.28 (1.54)	5.08 (1.80)
Exp. 2	5.93 (1.22)	6.05 (1.49)	5.41 (1.34)	5.27 (1.57)
Exp. 3	5.93 (1.24)	6.05 (1.41)	5.67 (1.21)	5.24 (1.77)

Note. Exp. 0 = Control Group; Exp. 1 = Exposure 1; Exp. 2 = Exposure 2; Exp. 3 = Exposure 3. SUN is the intent for using sunscreen. BED is the intent to staying away from tanning beds. SKIN is the intent to checking skin regularly. FORWARD is the intent to forwarding this message to friends and family; and this one is not applicable for the control group. Standard deviations are in parentheses.

Table 6

Response Efficacy and Self-Efficacy for Using Sunscreen and Staying away from Tanning Beds by Exposure

	SUN		BED	
	RE	SE	RE	SE
Exp. 0	5.39 (1.13)	5.46 (1.20)	5.73 (1.13)	5.17 (1.68)
Exp. 1	5.84 (0.90)	5.95 (0.98)	5.87 (1.10)	5.95 (1.40)
Exp. 2	5.97 (0.98)	6.01 (0.96)	6.09 (0.93)	6.11 (1.22)
Exp. 3	6.17 (0.96)	6.18 (1.00)	6.18 (0.95)	6.09 (1.25)

Note. Exp. 0 = Control Group; Exp. 1 = Exposure 1; Exp. 2 = Exposure 2; Exp. 3 = Exposure 3. SUN is the intent for using sunscreen. BED is the intent to staying away from tanning beds. RE is response efficacy. SE is self-efficacy. Standard deviations are in parentheses.

Table 7

Alpha for Using Sunscreen and Staying away from Tanning Beds' Response Efficacy and Self-Efficacy by Exposure

	SUN		BED	
	RE	SE	RE	SE
Exp. 0	.81	.85	.80	.84
Exp. 1	.64	.76	.69	.89
Exp. 2	.80	.79	.82	.93
Exp. 3	.89	.82	.85	.94

Note. Exp. 0 = Control Group; Exp. 1 = Exposure 1; Exp. 2 = Exposure 2; Exp. 3 = Exposure 3. SUN is the intent for using sunscreen. BED is the intent to staying away from tanning beds. RE is response efficacy. SE is self-efficacy.