The Influence of Prevention Focus of Self-Regulatory on Risk Perception and Response under Fear Appeals

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Abstract

A social marketing campaign influences or changes people’s behavior by using advertising and promotional activities. Fear appeals can successfully improve the persuasion effectiveness of social marketing. This study focuses on social marketing activities and uses cervical cancer vaccination promotion as a research object. The research aims to investigate the relationship among prevention self-regulatory focus, involvement, and perceived risk and response behavioral intention. Prevention focus of individuals’ information processing model is an antecedent that influences risk response behavioral intention. A questionnaire survey of 216 female subjects was conducted, and the results show that (1) prevention focus of self-regulation will positively affect perceived risk; (2) perceived risk will positively affect risk response behavioral intention; (3) perceived risk will positively affect involvement; and (4) involvement will positively affect risk response behavioral intention. Based on these findings, several suggestions for social marketing practice and future academic research are proposed.

Keywords: Self-Regulatory Focus, Prevention Focus, Risk Perception, Social Marketing

1. Introduction

The purpose of social marketing is to change society (Williams 2011). Many social marketing campaigns use advertising and promotion activities to influence and change people’s daily behavior. There are a variety of advertising appeals, which can be divided into two categories: positive and negative emotional appeals (Main, Argo, and Huhmann 2004). Positive emotions include warmth, happiness, humor, nostalgia, and sexual innuendo. Negative emotions include fear, guilt, shame, regret, sadness, and anger.

Advertisers may consider using fear appeals in advertising when other emotional appeals cannot obtain the persuasion effect they want. (Terblanche-Smit and Terblanche 2010). Fear appeals are widely used in commercial communication, which is usually used to increase audiences’ involvement in the message (Williams 2011). Previous literatures also revealed that fear appeals can help to increase consumers’ interesting in and recall of the advertising and can increase the persuasion effect of advertise-ments. However, previous studies did not reach a consistent conclusion regarding the persuasion effect of fear appeals in advertising (Terblanche-Smit and Terblanche 2013). Also, previous studies provide no comprehensive understanding or consistent conclusion concerning the psychological persuasion mechanism within the audience’s mind in response to the fear appeal (Williams 2011).

Fear is a mechanism to protect individuals from the threat of risky and dangerous situations (Williams 2011). The fear appeal is used to persuade audiences by arousing their feelings of fear toward a threat to their welfare and thus inspiring them to obey the suggested behavior.

As Witte (1992) mentioned, “fear appeals are persuasive messages designed to scare people by describing the terrible things that will happen to them if they do not do what the message recommends.” The severity of the threat, perceived risk, efficiency of adopting the avoidance action, and ability to perform the suggested action are factors that will influence the persuasiveness of fear appeals (Johnston and Warkentin 2010).

Previous literature has focus on the influence of fear appeals on avoidance of risky behaviors, such as in the case of anti-smoking (Adams, Faseur, and Geuens 2011), safety promotion (Cauberghe et al. 2009), cancer prevention behavior (Luszczynska and Schwarzer 2003), AIDS prevention (Witte and Morrison 2000), and related appeals. These studies adopted the Extended Parallel Processing Model (EPPM) and Self-Regulatory Focus Theory to forecast risk response behavior. The EPPM predicts how individuals will react when confronted with fear stimuli. Self-
Regulatory Focus Theory examines the relationship between a person's motivation and the way in which they go about achieving their goal, which posits two separate and independent self-regulatory orientations: prevention and promotion (Higgins 1997). Previous research revealed that when individuals face fear appeals regarding a threat to live, they tend to hold a prevention self-regulatory focus (Yen 2009). Nevertheless, it is still unclear how the risk prevention self-regulatory focus induces risk response behavior when individuals face risk appeals. Thus, this study focuses on the influence of prevention self-regulatory focus on risk perception and risk response behavior.

There are some antecedents that will promote or prevent health-related behaviors. These antecedents include (1) risk perception of negative target, (2) benefit of prevention action, and (3) obstruction to adoption of prevention action (Gerrard, Gibbons, and Bushman 1996). Risk perception is a frequently mentioned antecedent in the risk prevention research. The literature reveals that risk perception is an important predictor of risk prevention actions when people face diseases or negative events (Lopez-Quintero and Neumark 2010; Rimal and Juon 2010; Sibthorpe 1992). Thus, the current study also focuses on the influence of risk perception on risk prevention behavior.

The current study uses social marketing as a research target to discuss the use of fear appeals in social marketing activities. The discussed antecedents of the persuasion effect of fear appeals in the current study are the prevention self-regulatory focus, risk perception, and involvement. The current study proposes the following research questions: (1) Is the prevention focus self-regulatory an antecedent to risk perception and involvement in a risky activity; and (2) Would risk perception aroused by fear appeals influence individuals’ risk response behavior? To answer the research questions mentioned above, this study adopted a questionnaire survey to investigate individuals’ risk perception and risk response behavior when they face fear appeals.

2. Literature Review

2.1 Self-Regulatory Focus Theory

Self-Regulatory Focus Theory examines the relationship between people’s motivation and the way in which they go about achieving their goal (Brockner, Higgins, and Low 2004). According to Self-Regulatory Focus Theory, goal-oriented behaviors are motivated by two different motivation systems: promotion focus and prevention focus (Higgins 1997). People will choose which tactic to use to pursue their goal based on their self-regulatory focus.

Higgins (1997) argued that promotion-focused individuals tend to pursue a positive outcome, while prevention-focused individuals seek to avoid a negative outcome. Promotion-focused people concentrate on the existence of positive outcome when successful, and the nonexistence of a positive outcome when unsuccessful, in achieving goals related to progress and achievement. On the other hand, prevention-focused people focus on the avoidance of a negative outcome when successful, and the existence of a negative outcome when unsuccessful, in achieving goals related to safety and protection. Based on the inference of Self-Regulatory Focus Theory, promotion focus will increase the awareness of the existence or nonexistence of a positive outcome, while prevention focus will enhance the awareness of the existence or nonexistence of a negative outcome (Higgins 1997).

Adams, Faseur, and Geuens (2011) used the Self-Regulatory Focus Theory to propose two principles for the value of an external stimulus: (1) regulatory fit, which depends on whether individuals evaluate the stimulus in a way that sustains their goal orientation, (Higgins 1997) and (2) regulatory relevance, which depends on whether the stimulus’s benefits or outcomes are congruent with people’s regulatory concerns.

Avnet and Higgins (2006) argued that the key to the regulatory fit principle is in the means of information processing, which refers to the congruence of external stimuli and their regulatory focus (Higgins et al. 2001). If the information received is consistent with people’s self-regulatory focus, regulatory fit exists and people will consider the product to be valuable. For example, regulatory fit exists when promotion-focused individuals think the benefit of buying a product and when prevention-focused individuals think about the loss of not buying a product. Updegraff et al. (2007) manipulate the benefits of getting a vaccine or flossing teeth vs. the losses of not getting the vaccine or not flossing. According to the example provided by Updegraff et al. (2007), the outcome of taking or not taking action is framed differently in terms of gains (obtaining heart fitness) vs. non-losses (avoiding heart disease by eating more fruits and vegetables), or in terms of non-gains (forgoing heart fitness) vs. losses (incurring heart disease by not eating more fruits and vegetables). The congruence between external stimuli and the self-regulatory focus is the key concept for the regulatory fit principle.

The Regulatory relevancy principle argues that the value of a stimulus depends on whether the outcomes are congruent with individuals’ regulatory focus. Latimer et al. (2005) show that a promotion message led to more behavioral change for promotion-focused individuals, whereas a prevention message resulted in change for prevention-focused people (Latimer et al. 2005). Studies have advocated the influence on persuasion effect of the congruence between advertising appeals and regulatory focus. Evans and Petty (2003) find that the frame of advertising for
a breakfast product should match the audience’s self-regulatory focus to obtain the persuasion effect. Aaker and Lee (2001) argued that a persuasive message for a fruit juice brand obtained a greater persuasion effect when a promotion focus was primed and when the advertising message advocated energy creation. The Regulatory relevancy principle discusses whether individuals care about the benefits or negative outcome mentioned in the message. The regulatory fit principle discusses how individuals process the messages. The Regulatory relevancy principle can be used to discuss whether the advertising is relevant with audiences. The regulatory fit principle can be used to discuss whether the framing of the persuasion message in the advertising is congruent with individuals’ regulatory focus. The current study focuses on the regulatory relevancy between subjects and advertising.

According to Higgins et al. (2001), individuals with different self-regulatory will adopt different strategies to approach their goals. Promotion-focused individuals tend to adopt an eagerness strategy to obtain their goals, since such a strategy can ensure the generation of positive outcome (obtain successful). Conversely, prevention-focused individuals tend to adopt an avoidance strategy or vigilance to avoid loss, since vigilance can help to ensure that a negative outcome does not occur (avoid failure) (Crowe and Higgins 1997; Higgins 1997).

Based on the discussion above, prevention-focused individuals will increase their risk perception when viewing advertising with fear appeals, which would lead them to adopt vigilance to avoid risk. Thus, fear appeals may persuade prevention-focused individuals to adopt risk-response behavior.

2.2 Risk Perception

Risk perception is an important antecedent of behavioral intention. Previous studies focus on the influence of risk perception on consumer behavior (Chang et al. 2011; Lee and Chen 2013; Liu and Huang 2014). Lopez-Quintero and Neumark (2010) indicated that perceived risk is a subject’s judgment of the characteristics and severity of risk. De Zwart et al. (2009) considered perceived risk to be perceived vulnerability, which refers to the possibility of a negative outcome such as disease and other health threats. The literature reveals that risk perception is a useful predictor of risk-prevention actions when people face diseases or negative events (Lopez-Quintero and Neumark 2010; Rimal and Juon 2010; Sibthorpe 1992). Risk perception of health threats motivates people to adopt response behavior to prevent the occurrence of the threatened risk (Luszczynska and Schwarzer 2003).

People usually judge risk according to their own intuition (perceived risk). The meaning of the risk concept is twofold: it includes the possibility of damage or loss and the threat of risk factors. Risk can be considered an outcome of individuals’ behavior or external forces. It can be a result of individuals’ risky behavior (not from external forces) or an outcome of external forces (Sibthorpe 1992). For example, the risk of cervical cancer can be a result of external forces. However, it can also be a result of not adopting HPV vaccination. Thus, both internal forces and individuals’ risk behavior can lead to the occurrence of risk.

Risk perception is an antecedent for the adoption of risk response behavior (Gerrard, Gibbons, and Bushman 1996). Previous literature reveals the connection between risk perception and health behavior. Some studies revealed the positive relationship between risk perception and prevention behavior (Lopez-Quintero and Neumark 2010; Rimal and Juon 2010). Halpern-Felsher et al. (2004) advocated that individuals’ risk perception of risky behavior plays a critical role in changing that behavior.

2.3 Involvement

In the field of marketing research, a significant amount of previous literature has focused on the influence of involvement on purchase intention (Gutiérrez, Izquierdo, and Cabezudo 2010; Lai and Chen 2011). In research on health issues, many previous studies focused on the involvement of advertising messages (Cauberghe et al. 2009), but few previous studies focused on the influence of individuals’ involvement on the health issues.

The term involvement in marketing refers to a person’s subjective concern, motivation, and sense of personal relevance with regard to an object or activity (Lai and Chen 2011). Studies propose a variety of definitions for involvement. Greenwald and Leavitt (1984) considered involvement to refer to individuals’ concern for their own demands, values, and interests. Celsi and Olson (1988) revealed that involvement could refer to individuals’ values, objectives, identity, and relevance perception. Finney Rutten and Iannotti (2003) considered involvement to be concern for an issue (health issues, in their study). In sum, the fundamental meaning of involvement is individuals’ perception of the relevance of a target or event to themselves (Lin 2008).

There are individual differences in risk perception as well as in involvement. Involvement is a factor reflecting individual difference. Marketing managers can forecast customers’ behavior based on their involvement with the product. Purchase decision, information processing, and information search behavior are influenced by individuals’ involvement with the product. High involvement individuals will consider the product information to be an important cue to evaluate the product (Gutiérrez, Izquierdo, and Cabezudo 2010; Laurent and Kapferer 1985; Lin 2008).

Some previous studies considered risk perception as an important antecedent for involvement (Laurent and Kapferer 1985; Sridhar 2007; Van Kenhove, Wijnen, and De Wulf 2002). Risk perception induces personal interest (i.e., involvement). Some previous
studies also revealed that involvement is an important antecedent for the adoption of risk response behavior (Gutiérrez, Izquierdo, and Cabezudo 2010; Lai and Chen 2011; Van Kenhove, Wijnen, and De Wulf 2002). Involvement motivates individuals’ behavior and action (Mittal 1989).

### 3. METHODOLOGY

This section introduces the research design and data analysis procedure of the current study. The first part of this section concerns hypotheses development and introduces the proposed hypotheses one by one. The second part reveals the research target selection and introduces the research target of the current study. The third part reveals the measurement items and questionnaire design. The fourth part reveals the research manip-ulation. The fifth part tests the research manipulation. The final part of the section reveals the sample and data collection.

#### 3.1 Hypotheses Development

Regulatory Focus Theory advocates that individuals will evaluate a message based on their self-regulatory focus. People make decisions about what actions to take based on the congruency between the regulatory focus in the message and their self-regulatory focus (Adams, Faseur, and Geuens 2011). They choose tactics according to their self-regulatory focus (Crowe and Higgins 1997; Higgins 1997).

According to Regulatory Focus Theory, prevention focus leads people to be aware of the appearance of negative outcomes (Higgins 1997). The prevention self-regulatory focus leads individuals to adopt vigilance means to avoid loss (Higgins et al. 2001). The current study advocates that prevention focus will result in the goal of protection and safety. People with a prevention self-regulatory focus will evaluate risk and then adopt actions to protect themselves. Based on the discussion mentioned above, the current study proposed the hypothesis 1:

**Hypothesis 1: The prevention self-regulatory focus will positively influence risk perception.**

Regulatory relevancy refers to the congruency between a persuasive message in an external stimulus (such as advertising) and self-regulatory focus (Higgins et al. 2001). Involvement refers to individuals’ personal concern for the issue. When discussing individual health behavior, personal involvement is an important antecedent.

Previous studies revealed that prevention focus positively influences individuals’ involvement in risk-prevention behavior. Park, Hinsz, and Nickell (2015) used questionnaires to study poultry workers’ prevention behavior to ensure food safety. They found that prevention-focused workers also had higher levels of involvement. Adams, Faseur, and Geuens (2011) explored the relationship between adolescents’ self-regulatory focus and the effect of an anti-smoking promotion. They found that fear appeals were more persuasive to prevention-focused individuals than to pro-motion-focused individuals. Prevention focus is positively related to involvement. That is, involvement is a mediator for the relationship between fear appeals and the persuasion effect. Based on the discussion mentioned above, the current study proposes the following hypothesis 2:

**Hypothesis 2: The prevention self-regulatory focus will positively influence involvement.**

The relationship between perceived risk and involvement is a frequently discussed issue in consumer research. Literature revealed that perceived risk is an important antecedent for buying behavior (Laurent and Kapferer 1985; Sibthorpe 1992; Van Kenhove, Wijnen, and De Wulf 2002). However, few studies in the health management and social marketing field focus on this issue. Nonetheless, it is a reasonable inference that people who perceive a health threat will get involved in the health message. Thus, the current study proposes the following hypothesis 3:

**Hypothesis 3: Perceived risk will positively influence involvement.**

Previous literature on health management research revealed that people who are aware of threat and risk are easily persuaded by messages that rely on fear appeals. The current study focuses on individuals’ subjective judgments (or perceived risk) regarding the possibility and severity of the threat of negative events. The literature reveals that risk perception is an antecedent of the adoption of prevention behavior ( Gerrard, Gibbons, and Bushman 1996; Lopez-Quintero and Neumark 2010; Rimal and Juon 2010; Sibthorpe 1992). Thus, this study advocates that risk perception leads individuals to follow fear appeals to adopt actions to avoid the threatened negative event. Based on the above discussion, the current study proposes the following hypothesis 4:

**Hypothesis 4: Risk perception will positively influence the intention to adopt risk response behavior.**

Involvement is an important factor for individual differences. We have to recognize customers’ involvement to predict their behavior (Gutiérrez, Izquierdo, and Cabezudo 2010; Lai and Chen 2011; Laurent and Kapferer 1985). Studies have argued that involvement is an important antecedent for risk response behavior (Gutiérrez, Izquierdo, and Cabezudo 2010; Lai and Chen 2011; Van Kenhove, Wijnen, and De Wulf 2002). Involvement is a motivation that will foster individuals’ behavior and action (Mittal 1989). We argue that individuals who have high involvement in the health issue will also adopt the risk response behavior suggested in the fear-appealing persuasive message. Thus, the current study proposes the following hypothesis 5:

**Hypothesis 5: Involvement will positively influence risk response behavior.**

Figure 1 summarizes the research concepts, relationship among research concepts, and the five hypotheses mentioned above.
3.2 Research Target

As noted above, risk is brought about by external factors as well as individual behavior (Sibthorpe 1992). To confirm the research hypotheses, we identified a risky scenario in which the risk is brought about by external factors while individuals can take risk response behavior to reduce the risk. The selected target behavior in the current study was human papillomavirus (HPV) vaccination (cervical cancer vaccination). For females, cervical cancer is a risk brought about by external factors. However, HPV vaccination can help reduce the risk by preventing infection with certain types of HPV, which is the major cause of cervical cancer (World Health Organization 2014).

HPV vaccines can reduce the risk of cancerous or precancerous changes to the cervix and perineum (Medeiros et al. 2009). HPV vaccines are typically given to women aged 9 to 26, as the vaccine is only effective if given before infection occurs. However, the high cost of the HPV vaccine has been a cause for concern. Promotion of the HPV vaccination is the social marketing issue on which the current study focuses.

3.3 Measurement

3.3.1 Self-Regulatory Focus

The current study used an eight-item self-regulatory focus measurement scale, which was revised from the scale developed by Lockwood, Jordan, and Kunda (2002). The scale was composed of two part: promotion focus and prevention focus, as shown in the Appendix.

3.3.2 Involvement

Involvement refers to individuals’ perception of the relevance of health issues (Lin, 2008). The current study used the ten-item Revised Personal involvement Inventory (RPII) developed by Zaichkowsky (1994) to measure subjects’ involvement with HPV vaccination ads.

3.3.3 Risk Perception

Risk perception refers to individuals’ subjective judgment of the possibility and severity of risk when facing a threatening or negative event (Lopez-Quintero and Neumark 2010). To measure subjects’ risk perception of cervical cancer, the current study developed a four-item risk perception measurement scale based on the scale developed by Witte and Morrison (2000).

3.3.4 Risk Response Behavior Intention

The current study developed a five-item scale to measure risk response behavior intention, based on the scale developed by Witte and Morrison (2000) and Cauberghe et al. (2009). The current study measured subjects’ intention to use the HPV vaccine to reduce the risk of suffering from cervical cancer after viewing a commercial firm with a fear appeal regarding the risk of cervical cancer.

Seven point Likert scales and semantic difference scales were used in the study.

3.4 Research Design

The study used a video composed of one micro firm called Beauti4 Life (https://www.youtube.com/watch?v=nhNieJcCIGE) and two commercial firms (https://www.youtube.com/watch?v=3laZ31Lfsf4 and https://www.youtube.com/watch?v=2j0cFDJQk4), all of which focused on the importance of preventing cervical cancer. The original length of the micro firm Beauti4 was 9 minutes, which was too long to maintain the subjects’ attention; thus, it was spliced into a short version of 3 minutes and 30 seconds. The two commercial firms were 1 minute long and 30 seconds long, respectively. The three firms promote the idea of cervical cancer prevention from different viewpoints.

After viewing the videos, subjects were asked to fill out the questionnaire to report their self-regulatory focus, involvement, risk perception, and their intention to pursue HPV vaccination.

3.5 Testing of Fear Appeal

In the pretest stage, an experimental design was used to confirm the risk perception arousal induced by the video using a fear appeal for cervical cancer. A total of 150 female college students were recruited as subjects. These subjects were assigned into two groups:
Table 1 Reliability Analysis

<table>
<thead>
<tr>
<th>Aspects</th>
<th>Cronbach’s α</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevention Focus</td>
<td>.77</td>
</tr>
<tr>
<td>Promotion Focus</td>
<td>.87</td>
</tr>
<tr>
<td>Risk Perception</td>
<td>.84</td>
</tr>
<tr>
<td>Involvement</td>
<td>.92</td>
</tr>
<tr>
<td>Risk Response Behavior</td>
<td>.94</td>
</tr>
</tbody>
</table>

Table 2 Convergent Validity

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Factor Loading</th>
<th>Eigenvalues</th>
<th>Variance Explained (%)</th>
<th>CR</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevention Focus</td>
<td>.80~.86</td>
<td>2.04</td>
<td>.68.12%</td>
<td>.87</td>
<td>.68</td>
</tr>
<tr>
<td>Promotion Focus</td>
<td>.77~.86</td>
<td>3.28</td>
<td>65.63%</td>
<td>.91</td>
<td>.66</td>
</tr>
<tr>
<td>Risk Perception</td>
<td>.57~.94</td>
<td>2.88</td>
<td>71.99%</td>
<td>.91</td>
<td>.72</td>
</tr>
<tr>
<td>Involvement</td>
<td>.68~.86</td>
<td>5.54</td>
<td>61.50%</td>
<td>.94</td>
<td>.62</td>
</tr>
<tr>
<td>Risk Response Behavior</td>
<td>.86~.93</td>
<td>4.06</td>
<td>81.13%</td>
<td>.96</td>
<td>.81</td>
</tr>
</tbody>
</table>

Table 3 Discriminant Validity of Model Fitness Indicator

<table>
<thead>
<tr>
<th>Variables</th>
<th>Prevention Focus</th>
<th>Promotion Focus</th>
<th>Risk Perception</th>
<th>Involvement</th>
<th>Coping Behavior Intention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevention Focus</td>
<td>.82**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Promotion Focus</td>
<td>.44**</td>
<td>.81</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk Perception</td>
<td>.19**</td>
<td>.12</td>
<td>.85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Involvement</td>
<td>.24**</td>
<td>.17*</td>
<td>.24**</td>
<td>.79</td>
<td></td>
</tr>
<tr>
<td>Risk Response Behavior</td>
<td>.17*</td>
<td>.15*</td>
<td>.17*</td>
<td>.43**</td>
<td>.90</td>
</tr>
</tbody>
</table>

Note: 1. Diagonal is the root value of AVE of each variable.
2. The values below the diagonal are the correlation coefficients among variable aspects.
3. In general, there is a significant correlation among various aspects (p < 0.05).

3.6 Subjects and Sampling

The current study focuses on the risk perception of cervical cancer and behavior intention regarding cervical cancer vaccination. Cervical cancer is one of the most common cancers in women, and HPV vaccination is recommended for young females to help prevent cervical cancer. Thus, the current study chose female college students as subjects, recruiting them in a university located in northern Taiwan. Questionnaires were delivered in the classrooms. All subjects were informed that they had the right not to participate in the study. To avoid the moderation influence of subjects’ background knowledge of cervical cancer vaccination, it was ensured that no subjects were from the medical, nursing, or health-related areas.

The study recruited 221 female subjects. Among them, 5 responses were not included in the data analysis due to missing data. All subjects were females aged between 16 and 22 years. The current study adopted SPSS 17.0 and LISREL 8.54 Structural Equation Modeling software for data analysis.
Table 4  Groups of Self-Regulatory and Analysis on ANOVA

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>Promotion focus</th>
<th>prevention focus</th>
<th>Risk Perception</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promotion focus</td>
<td>75</td>
<td>5.75(0.69)</td>
<td>4.37(1.0)</td>
<td>3.45(1.02)</td>
</tr>
<tr>
<td>Do not distinguish</td>
<td>62</td>
<td>5.20(0.84)</td>
<td>4.99(0.84)</td>
<td>3.92(1.02)</td>
</tr>
<tr>
<td>prevention focus</td>
<td>79</td>
<td>4.90(0.84)</td>
<td>5.53(0.79)</td>
<td>3.78(0.95)</td>
</tr>
<tr>
<td>F-values</td>
<td></td>
<td>22.62</td>
<td>33.07</td>
<td>4.05</td>
</tr>
<tr>
<td>Significant</td>
<td></td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
<td>0.02</td>
</tr>
</tbody>
</table>

4. Results

4.1 Reliability and Validity

The current study used Cronbach’s alpha to assess the reliability of the measurement scales. As table 1 reveals, all Cronbach’s alpha coefficients exceeded the recommended threshold of 0.7 (Guilford 1965), which indicated acceptable reliability.

Convergent validity was assessed by examining the average variance extracted (AVE) of each construct. As shown in Table 2, all AVE values in the study were larger than 0.50, which indicates acceptable validity (Fornell and Larcker 1981).

In terms of the discriminant validity of the measurement model, the root extract values for the average variance extracted are larger than the factor loading value of each variable. Thus, this study had good discriminant validity, as shown in Table 3.

4.2 Common Method Variance

Because all data are self-reported and collected through the same questionnaire in the current study, common method variance was a potential issue. Thus, Harman’s single factor test for common method variance was conducted (Peng, Kao, and Lin 2006). Based on exploratory factor analysis results, there were four factors rather than one factor for the data in the current study. The explained variance of the first factor was only 29.60%, which was lower than the threshold of 50% (Liao and Chang 2010). Thus, common method variance is not a serious issue for the study.

4.3 Hypotheses Testing

Two approaches are frequently used when conducting self-regulatory focus studies: experimental manipulation and measurement. Experimental manipulation uses stimulation to manipulate subjects’ self-regulatory focus of prevention or promotion. The measurement approach consider self-regulatory as a kind of personality trait and uses a questionnaire to measure it. The current study used the latter approach.

When using the measurement approach, Higgins et al. (2001) used the score difference between prevention- and promotion-focused self-regulatory to divide the subjects into a prevention-oriented group and a promotion-oriented group. Lockwood, Jordan, and Kunda (2002) considers prevention and promotion focus to be two separate concepts. The current study used the ideas of both Higgins et al. (2001) and Lockwood, Jordan, and Kunda (2002) for data analysis.

Before testing the hypotheses, the current study divided subjects based on their self-regulatory focus. The score difference of promotion focus and prevention focus self-regulatory was used as a criterion. Sub-
Table 5 Analysis on the Internet Goodness of Fit of Variables and Overall Goodness Fit

<table>
<thead>
<tr>
<th>Assessment indicators</th>
<th>Criteria for determining parameters</th>
<th>Theoretical Model</th>
<th>Test Result</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Parameter Estimates</td>
<td>t-Values</td>
</tr>
<tr>
<td>Internet goodness of fit</td>
<td>H1: prevention focus → Risk Perception</td>
<td>0.15</td>
<td>1.97</td>
</tr>
<tr>
<td></td>
<td>H2: prevention focus → Involvement</td>
<td>0.26</td>
<td>2.94</td>
</tr>
<tr>
<td></td>
<td>H3: Risk Perception → Involvement</td>
<td>0.15</td>
<td>2.58</td>
</tr>
<tr>
<td></td>
<td>H4: Risk Perception → Risk Response Behavior</td>
<td>0.17</td>
<td>2.02</td>
</tr>
<tr>
<td></td>
<td>H5: Involvement → Risk Response Behavior</td>
<td>0.43</td>
<td>4.66</td>
</tr>
<tr>
<td>Overall goodness fit</td>
<td>Chi-square=247.89, df=189, RMSEA=0.039, NFI=.92, NNFI=.97, CFI=.97, GFI=.90, AGFI=.87, PNFI=.75, PGFI=.67</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on the ANOVA analysis results (Table 4), there were significant differences in the scores of promotion-focused and prevention-focused self-regulatory among the three groups. The promotion-oriented group had lower scores on risk perception and higher scores on self-efficiency when compared with the prevention-oriented group.

The original idea proposed by Higgins et al. (2001) advocated that individuals should be considered as either promotion- or prevention-focused. However, the frequency distribution (Figure 3) revealed that most of the current study’s subjects were in the central area rather than at the two poles of prevention and promotion. The frequency distribution of self-regulatory thus looks like a reverse U shape (normal distribution sharp).

Prevention and promotion self-regulatory focus could be also considered to be two separate concepts (variables), although Higgins et al. (2001) advocated that individuals can be divided into promotion- and prevention-oriented based on their self-regulatory scores. Individuals may have high scores or low scores in both prevention and promotion focus. However, they may also own have both types of self-regulatory focus. In some situations, individuals may have a low level of both prevention and promotion focus; in other words, they may be careless about risk. Thus, the current study considers promotion and prevention focus as two concepts (variables) rather than two poles of self-regulatory focus. Since the current study focus on disease prevention by HPV vaccination, only prevention focus was considered in the hypothesis testing.
The current study uses Structural Equation Modeling (SEM) to explore the relationship among self-regulatory focus, involvement, risk perception, and risk response behavior intention. Before reporting the hypotheses testing results, we report the model fitness indicators in Table 5. Based on these indicators, the SEM model has acceptable fit.

Figure 4 reveals the SEM path coefficients. Coefficients of all hypotheses proposed in the current study are significant (absolute t-value greater than 1.96). The relationship among variables in the SEM model is discussed as below. First, the relationship coefficient between prevention focus and risk perception is significant. Thus, hypothesis 1 is confirmed. Second, the prevention self-regulatory focus is positively related with involvement, which supports the argument for the relationship between involvement and prevention focus self-regulatory proposed by Adams, Faseur, and Geuens (2011) and Park, Hinsz, and Nickell (2015). The results indicate that prevention self-regulatory focus will lead to individuals’ concern regarding the health issue of cervical cancer. The results thus support hypothesis 2.

Third, the current study found that risk perception would lead to individuals’ involvement with the HPV vaccination. Thus, hypothesis 3 is confirmed. Fourth, the study also found that both risk perception and involvement are positively related with intention to adopt risk response behavior. Both hypotheses 4 and 5 are thus confirmed. Finally, the SEM results reveal that both risk perception and involvement are mediators for the influence of prevention focus self-regulatory on risk response behavior intention.

5. Discussion and Conclusion

5.1 Discussion

The current study discusses the influence of prevention focus self-regulatory, involvement, and risk perception on risk response behavior intention under the fear appeal arousal. Based on the empirical survey, the study confirms the argument that prevention-focused self-regulatory will positively influence both risk perception and involvement, which will further influence risk response behavior intention. Moreover, individuals’ risk perception will positively influence their involvement.

Based on the empirical survey results, prevention-focused self-regulatory will determine individuals’ risk response behavior when facing risk brought about by fear appeal arousal. When individuals are prevention-oriented, they are sensitive to risk perception. Thus, they will adopt prevention behavior provided in the fear appeal messages. Based on Regulatory relevance, people will consider cervical cancer to be related to themselves. Thus, prevention-focused self-regulatory individuals will be involved in the health issue. The results confirm the argument advocated by self-regulatory theory (Higgins 1997) that prevention focus will increase individuals’ concern regarding the negative outcome of risk.

The empirical study results reveal that involvement and risk perception will positively influence risk response behavior intention. Individuals tend to take action to prevent risk when they perceive risk. The results support the argument by Lopez-Quintero and Neumark (2010). People will consider the information to be important when they are involved with the information (Gutiérrez, Izquierdo, and Cabezudo 2010; Lai and Chen 2011; Laurent and Kapferer 1985). People will adopt risk prevention behavior when they perceive the importance of risk. Under the fear appeal arousal, both risk perception and involvement will influence individuals’ risk response behavior to prevent risk.

The empirical survey results also indicate the moderating role of involvement. When individuals perceive the risk of cervical cancer to themselves, they will become involved in it. The involvement will lead individuals to engage in risk response behavior (Mittal 1989).

5.2 Theoretical Contribution

This study examines the influence of prevention self-regulatory focus, involvement, and perceived risk on risk response behavior intentions under fear
appeals. In the authors’ opinion, the findings of this research contribute to extend the theory of self-regulatory focus. First, we verify the relationship among prevention focus, involvement, perceived risk, and risk response behavior intention. Risk perception is particularly noteworthy in this study. Previous studies on consumer behavior suggest that risk perception will reduce consumers’ purchase intention. Nevertheless, we provide another perspective on the role of risk perception; that is, risk perception has a positive influence on risk response behavior intention.

Second, the empirical survey results reveal the way that prevention-focused individual generate behavioral intentions under the fear appeal. The results provide a considerable contribution for self-regulatory focus theory, which illustrate that the prevention-focused individual tends to avoid negative outcome. However, the self-regulatory theory does not provide the detailed process from prevention focus to behavioral intention. Our research outcomes can help to fill this gap.

Third, most prior studies used a “framing” approach to investigate the influence of self-regulatory focus on health issues. These prior studies manipulate the content as self-regulatory focus content. The current study adopted a different approach of measurement by investigating the individual’s orientation in self-regulatory focus. We believe that the outcome of this study extends our understanding of the influence of self-regulatory focus on behavioral intention to take action to respond to risk.

Finally, some previous health studies incorporate “involvement” in the. However, most of them are based on “stimulated involvement,” which refers to individuals’ involvement in manipulated stimulations. Only some previous studies discussed involvement in the topic rather than in response to the manipulated stimulation. In this study, we discuss individuals’ self-reported involvement in response to the manipulated stimulation, which will provide another viewpoint on the self-regulatory research.

5.3 Practical Contribution

Most of the topics related to health risk response behavior discuss quitting smoking and avoiding AIDS. However, little research in this area has focused on cervical cancer vaccination. One of the contributions of this research is to identify the influence on people’s risk perception, risk response behavior intention and prevention self-regulatory focus on the cervical cancer vaccination. is the study results can help social marketers to know how to promote and popularize this vaccine.

This study shows that under the fear stimulus, those individuals with high prevention focus tend show increased risk perception, involvement, and eventually, risk response behavior intention. This study shows that as the marketers identify how prevention-focused individuals face fear stimulus, they will engage in different marketing procedures. Having this information will enable them to match individuals’ needs more and thus increase the effectiveness of the advertisement. This study suggests that if the community can negotiate with the individuals by using promotional ads, the community should use ads that increase individuals’ sense of risk perception rather than individuals’ fear. Johnston and Warkentin (2010) also mentioned that if a message cannot arouse fear in individuals, the individuals will not pay attention to this message; however, an advertisement filled with excessive fear cannot persuade individuals to accept the message (Tanner, Hunt, and Epplrecht 1991).

The results of this study can help enterprises to know that there are at least two factors, involvement and risk perception, what can affect individuals’ behavior intention. The study suggests that in order to increase individuals’ acknowledge of the message (regarding, for example, a product or a disease), it is better to give information in multiple ways. By boosting the risk perception and involvement, individuals can be helped to understand the importance and impact on themselves more easily and also increase the desire of taking risk response behavior.

5.4 Research Limitations and Future Research Suggestion

The current study has some limitations. This section presents some issues and suggestions for future research. First, individual difference are not considered in the current study. Social cognitive research reveals that different people will provide different explanations when facing the same issue. Individuals have their own social knowledge schema pertaining to the risk. Their attitudes and responses to risk appeals are also different (Witte and Morrison 2000). Future studies should consider adding individuals differences in their research models.

Second, the current study did not consider individual differences in the acceptance toward the video for cervical cancer prevention. The subjects’ attitude toward HPV vaccination before viewing the video was not recorded. The video was five minutes in length. The current study did not check whether the video was too long. Distraction is an important issue for the persuasive effect of a video. However, the current study did not consider whether individuals’ distraction was an important issue to the study.

Third, the study only considered individuals’ message processing procedure under the fear stimulus and did not examine the message without fear stimulus. It would be worthwhile to study the difference in risk message processing for the messages of with and without fear stimulus.

Fourth, risk response behavior is a complex behavior with a number of antecedents. Based on empri-
rical survey results of the current study, prevention focus self-regulatory is indeed an antecedent of risk response behavior. However, prevention focus can only explain a small proportion of the variance of risk response behavior. Future studies may focus on the influence of other antecedents of risk response behavior.

Fifth, the current study used a convenience sample recruited in a university located in northern Taiwan. This sample does not represent the whole population of young females in Taiwan. To increase the sample representation, future studies should recruit sample of high school students as well as college graduates. Future studies may also focus on the moderation effect of age on the influence of self-regulatory on risk response behavior.

Finally, knowledge is also an antecedent to individuals’ attitudes toward health threats such as cancer. Knowledge is a key to behavior change. Previous studies revealed that knowledge of cancer is critical to form the desire to adopt prevention behavior for cancer. A previous study by McCaffrey, Wardle, and Waller (2003) and McPartland et al. (2005) noted that most female subjects in their study had little knowledge about cervical cancer and knew nothing about HPV. The current study did not consider the influence of objective knowledge on risk response behavior. Future studies might focus on the influence of self-efficacy, subjective knowledge, and objective knowledge on HPV vaccination behavior intention.
REFERENCE


Finney Rutten, Lila and Ronald J. Iannotti (2003), “Health Beliefs, Salience of Breast Cancer Fam-


Appendix: Major survey items

Self-regulatory focus
The current study adopted eight items modified from the measurement of Lockwood, Jordan, and Kunda (2002).
The scale was composed of two parts: promotion focus (No. 1 to No. 5) and prevention focus (No. 6 to No. 8).

Promotion Focus
1. I frequently imagine how I will achieve my hopes and aspirations.
2. I often think about the person I would ideally like to be in the future.
3. I typically focus on the success I hope to achieve in the future.
4. I often think about how I will achieve academic success.
5. I see myself as someone who is primarily striving to reach my “ideal self”—to fulfill my hopes, wishes, and aspirations.

Prevention Focus
6. I am anxious that I will fall short of my responsibilities and obligations.
7. I often think about the person I am afraid I might become in the future.
8. I frequently think about how I can prevent failures in my life.

Involvement
The current study used the ten-item Revised Personal Involvement Inventory (RPII) developed by Zaichkowsky (1994) to measure subjects’ involvement to HPV vaccination ads.
To me the information about HPV is….
1. important/unimportant
2. boring/interesting
3. relevant/irrelevant
4. exciting/unexciting
5. means nothing/means a lot to me
6. appealing/unappealing
7. fascinating/mundane
8. worthless/valuable
9. involving/uninvolving
10. not needed/needed

Risk perception
The current study developed a four-item risk perception measurement scale based on the scale developed by Witte and Morrison (2000).
1. How possible is it for you or your family to get HPV?
2. How likely is it for you or your family to get HPV?
3. How susceptible are you or your family to getting HPV?
4. How worried are you that you or your family could get HPV?

Risk Response behavior intention
The current study developed a five-item scale to measure risk response behavior intention based on scale developed by Witte and Morrison (2000) and Cauberghe et al. (2009).
1. I intend to adopt the HPV vaccination since I read this Ad in order to avoid contracting HPV (or suggest my family to adopt HPV vaccination).
2. I will urge my friends to adopt the HPV vaccination since I read this Ad in order to prevent HPV.
3. I would like to know more information about the HPV vaccine since I read this Ad.
4. I intend to adopt the Pap smear test since I read this Ad in order to prevent HPV (or suggest my family adopt the Pap smear test).
5. I will urge my friends to adopt the Pap smear test since I read this Ad in order to prevent HPV.