

THE IMPACT OF REGULATORY FOCUS, TEMPORAL ORIENTATION, AND FIT ON CONSUMER RESPONSES TO HEALTH-RELATED ADVERTISING

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ABSTRACT: This research examines the effects of message framing of health advertisements and individual differences in temporal orientation on consumer risk perceptions, attitude, and behavioral intentions. Results from two between-subjects experiments indicate that consumers' temporal orientation moderates ad-framing effects related to goal pursuit strategies (GPS). In Study 1, a GPS manipulation in the ad message has a significant influence on consumers' attitude toward the ad; this effect is moderated by temporal orientation, however. Also, results suggest that consumer risk perceptions mediate the interaction effect. Study 2 demonstrates that a "fit" between a GPS manipulation in the ad and consumers' chronic regulatory focus increases the effectiveness of the advertisement, but the regulatory fit effect is moderated by temporal orientation. Implications are offered for theory, as well as for creators of public service advertising campaigns.

Nearly two-thirds of American adults are overweight, and the Centers for Disease Control and Prevention (CDC) reported that obesity is one of the leading causes of preventable deaths in the United States (CDC 2004; Vastag 2004). Given the severity of the national obesity epidemic, the United States Department of Agriculture (USDA) has responded by helping people become aware of preventive behaviors through educational campaigns. According to the USDA Web site, the government provides about \$500 million per year in nutrition education to help Americans of all ages improve their eating and exercising behaviors (USDA 2005). Furthermore, the USDA provides an additional \$500 million yearly to states to support nutrition education interventions and activities aimed at promoting healthy eating and related lifestyle behaviors (Food and Nutrition Services 2007). A primary objective of these funds is to provide nutrition education information in an easy-to-use, consumer-friendly form through federal and state communication campaigns (USDA 2005).

The consequences to consumers of simply being overweight (rather than obese) may also be considerable. For example, a recent study of more than 500,000 people indicates that even being moderately overweight leads to higher premature death rates for middle-aged consumers (Adams et al. 2006). The situation is worsening rather than improving, with obesity and overweight consequences resulting in greater than \$100

billion in direct and indirect health-care expenses annually. Currently, about 33% of Americans are obese, and an additional one-third are overweight (CDC 2008). Given such statistics, one of the national health objectives has been to attempt to reduce the prevalence of obesity to less than 15% by the year 2010 (CDC 2008).

To help reach this goal, a number of government Web sites now exist to encourage Americans to make better lifestyle choices (e.g., nutrition.gov, smallsteps.gov, healthier.gov, mypyramid.gov, 5aday.gov, healthierfeds.gov). Other campaigns such as the Department of Health and Human Services' (DHHS) "Be a Player Campaign" uses animated characters from the movie *Shrek* in television and Internet ads to encourage kids to reduce the time they spend indoors with the tag line "Get up and play—An hour a day." In addition, other government initiatives such as the "Eat Smart, Play Hard" media campaign exist to encourage kids and adults to eat healthy and be physically active each day.

Considering the huge expense to the federal government in direct and indirect health-care expenses associated with the obesity epidemic, combined with the monetary expenditures used by the USDA for nutrition education media campaigns, it is important to understand what types of health communication appeals will be most effective. Based on conceptual rationale drawn from regulatory focus and temporal orientation literatures, this research seeks to investigate the impact of health communication appeals on risk perceptions, attitude toward the ad (A_{ad}), and behavioral intentions in a print advertising context. Such research is important within the realm of advertising and may help inform creators of public service campaigns commissioned by the DHHS on how to persuade Americans to make better health and lifestyle decisions.

In the following sections, we review literature on health message appeals in advertising, regulatory focus theory, and temporal orientation, and present justification for our

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predictions. We then discuss two experiments in which we examine goal pursuit strategies (GPS) manipulated in advertisements, chronic regulatory focus, and individual differences in consideration of future consequences (CFC) in the context of health advertising. Finally, we offer implications for advertising theory and practice.

BACKGROUND, CONCEPTUALIZATION, AND HYPOTHESES

Health Appeals in Public Service Advertising

There are usually a number of different strategic means (or goal pursuit strategies; GPS) to achieve health-related goals. For instance, one GPS of progressing toward the goal of long-term good health is to exercise. Another is to "eat right" by not consuming more calories than are expended (Food and Drug Administration [FDA] 2004). The foundation of the recommendations from the FDA Obesity Working Group focuses on the "scientific fact that weight control is primarily a function of balance of the calories eaten and calories expended on physical and metabolic activity" (FDA 2004). Within these two major categories of strategies for controlling one's weight (e.g., calories consumed and calories expended through physical activity), there are a number of more specific recommendations that can be framed in different ways. Considering that there are many different goal pursuit strategies to achieve the goal of good health, and various ways to frame these strategies, it is important to understand which types of messages resonate with specific segments of consumers and encourage positive behavioral change.

Persuading consumers to make better health decisions is complex and there is extensive research on various framing effects in health advertising (e.g., Block and Keller 1995; Maheswaran and Meyers-Levy 1990; Meyerowitz and Chaiken 1987; Rothman and Salovey 1997). Regulatory focus theory suggests message-framing options that are particularly relevant to the health domain (Higgins 1997; Jain, Agrawal, and Maheswaran 2006; Keller 2006). For instance, Kim (2006) investigated how framing may influence the effectiveness of advertising messages aimed at preventing smoking among adolescents. Findings show that when the regulatory goal and the antismoking message frame were congruent, participants reported lower perceived benefits of smoking and lower intentions to smoke.

Based on the regulatory focus literature (e.g., Kim 2006; Lee and Aaker 2004), strategies to achieve good health can be framed in terms of trying to proactively engage in behaviors to achieve the goal (e.g., spending two hours per day at the gym) or avoiding behaviors that would prevent one from reaching the goal (e.g., limiting "television time" to 30 minutes per day). Furthermore, different consumer segments are likely to respond differently to the various types of health-related messages. For

instance, some consumers have a chronic preference toward promotion or prevention focus (Higgins 1997). Also, some consumers are effective at self-regulating their health-related behaviors, whereas others struggle with the self-discipline it takes to maintain good health, especially as it relates to managing body weight. Differences in how concerned individuals are with the longer-term potential future consequences of their behaviors, and the extent to which individuals let such potential consequences influence their decisions in the short term, may play a strong role in the decision process (Joireman, Strathman, and Balliet 2006; Strathman et al. 1994). This "temporal bias" can exert a dynamic influence on many judgments, decisions, and actions. In two studies, we examine how manipulating goal pursuit strategies (GPS) in health advertisements influences consumers' attitudes and perceptions. We also address how individual differences in temporal orientation and chronic regulatory focus may moderate these GPS effects.

Regulatory Focus

Regulatory focus has been conceptualized both as (1) a malleable attribute that can be manipulated for a particular task or goal, and (2) a stable individual difference variable (e.g., chronic regulatory focus). In terms of the former, past research has shown that there are situational factors that are capable of momentarily activating a prevention or promotion focus (Cesario, Higgins, and Scholer 2008) or activating eager or vigilant means of obtaining the goal (Cesario, Grant, and Higgins 2004). In a study of regulatory fit and persuasion, Cesario, Grant, and Higgins (2004) framed a persuasive message in either eager means (e.g., message focused on achieving success) or vigilant means (e.g., message focused on preventing failure).

Studies have also demonstrated that individuals appear to have a natural tendency to be prevention-oriented or promotion-oriented. Higgins et al. (2001) found that a history of success in using promotion-related "eager" means of goal attainment leads individuals to tend to prefer a "promotion" orientation. In contrast, individuals who historically have had success using prevention-related vigilance of goal attainment tend to gravitate more toward a "prevention" orientation. The idea that individuals have a chronic regulatory focus (CRF) was supported across four studies (Higgins et al. 2001). Further support for chronic regulatory focus has been demonstrated in various studies that have shown cultural differences in individuals' tendency to demonstrate promotion or prevention preferences (e.g., Lee, Aaker, and Gardner 2000).

Regulatory Fit

Recent research has proposed that regulatory fit can increase persuasive message effectiveness. Regulatory fit has been

conceptualized as the “increased motivational intensity that results when there is a match between the manner in which a person pursues a goal (i.e., goal pursuit strategy) and his or her goal orientation” (Aaker and Lee 2006, p. 15). The basic premise of regulatory fit is that promotion-focused consumers tend to be more sensitive to the presence or absence of positive outcomes, whereas prevention-focused consumers tend to be more sensitive to the presence and absence of negative outcomes (Lee and Aaker 2004). The result of a regulatory fit is the experience of “feeling right,” which can correspond to more favorable attitudes toward persuasive appeals and compliance with advocated behaviors (Aaker and Lee 2006).

Study 1 uses a sample of U.S. university student consumers, who historically have been shown to be more promotion focused (e.g., Elliot et al. 2001). For instance, Western consumers have been found to focus more on aspirations and to exhibit an attributional bias aimed at enhancing their self-esteem (Lockwood, Marshall, and Sadler 2005). For such samples, the regulatory fit literature suggests that chronic promotion-focused consumers should be more receptive to a message suggesting eager (versus vigilant) means to achieve a goal. Given a sample that is traditionally more promotion focused, we predict that an ad that focuses on “eager” means of obtaining a goal will be evaluated more favorably than one that suggests more “vigilant” means of obtaining a goal.

H1: Attitude toward the advertisement (A_{ad}) will be more positive when the GPS strategy in the ad is framed in eager means rather than in vigilant means.

Temporal Orientation

While U.S. consumers generally should evaluate an ad that emphasizes eager goal pursuit strategies to obtain a goal more positively than one that highlights vigilant GPS, this effect may be contingent on individuals’ predisposition to ruminate more about present versus future time periods. Specifically, individuals who are more future oriented, and who generally may be more concerned about the future and how their behaviors in the present affect their long-term health and well-being, may be less sensitive to the expected GPS effect predicted in H1.

Systematic differences have been found in the time orientation literature that distinguishes between individuals who place a greater emphasis on the immediate versus the delayed consequences of their behavior. In particular, the construct of consideration of future consequences (CFC) is a stable, reliable, and valid measure of “the extent to which people consider the potential distant outcomes of their current behaviors and the extent to which they are influenced by these potential outcomes” (Strathman et al. 1994; see Joireman, Strathman, and Balliet 2006 for a review). Although to our knowledge there

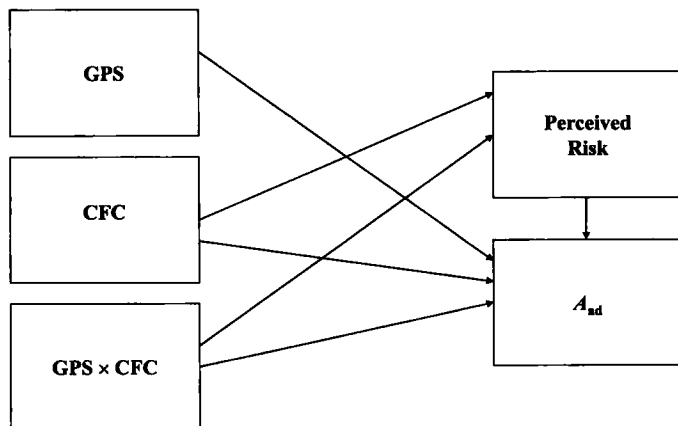
are no published studies to date in the advertising literature examining the CFC construct, various studies on CFC outside marketing and advertising have found that high-CFC or “future-oriented” individuals tend to report a stronger ability to delay gratification (Strathman et al. 1994), lower levels of impulsiveness (Joireman, Anderson, and Strathman 2003), and lower levels of temporal discounting of future monetary gains (Joireman, Sprott, and Spangenberg 2005) than low-CFC or more “present-oriented” individuals. High-CFC consumers also tend to report lower cigarette and alcohol usage and lower likelihood of participating in risky sexual practices (Dorr, Krueckeberg, and Strathman 1999; Strathman et al. 1994). Given these observed differences in individuals’ tendency to think about the future and the distant consequences associated with one’s behavior, it is expected that high-CFC consumers (e.g., those who are more “future oriented”) will evaluate advertisements advocating behaviors with temporally distant outcomes (i.e., managing body weight) more positively than low-CFC consumers (i.e., those less concerned with the future).

Similarly, those more concerned about the future consequences of their behaviors should be more concerned about future risk. Just as attitude toward the advertisement is an important advertising variable, consumer risk perception is an important and relevant variable for health communication studies (e.g., Chandran and Menon 2004; Keller 2006; Menon, Block, and Ramanathan 2002; Raghuram and Menon 1998). High-CFC individuals typically recognize and consider long-term risks (such as weight gain) and adapt their present behavior to account for the future risk or potential consequences of their behaviors (Dorr, Krueckeberg, and Strathman 1999; Orbell, Perugini, and Rakow 2004). This suggests a main effect of CFC; that is, high-CFC consumers will report (a) a more positive attitude toward the ad, and (b) higher perceptions of risk related to how eating and exercise affect their health.

H2: High CFC consumers will report (a) more positive attitudes toward the advertisement, and (b) higher perceptions of risk than low-CFC consumers.

Hypothesis 3 predicts that the GPS manipulated in the ad message (H1) will interact with temporal orientation (i.e., CFC) for A_{ad} and perceived risk. Based on the conceptualization of consideration of future consequences, high-CFC consumers should be more motivated to process a message with future consequences, such as the ad used in Study 1 that is related to weight management. This motivation should result in greater systematic (or high-elaboration) processing of the ad for high-CFC consumers (e.g., Elaboration Likelihood Model [ELM]; Petty and Cacioppo 1986). In contrast, low-CFC consumers who are less concerned with future consequences (e.g., weight gain) of their current behaviors (e.g., eating and exercise habits) should be less motivated to process an ad

FIGURE 1
Hypothesized Effects of Ad GPS and CFC
on Perceived Risk and A_{ad}



Notes: GPS = goal pursuit strategy; CFC = consideration of future consequences construct; A_{ad} = attitude toward the ad.

advocating weight management. This should result in greater use of heuristic (or low-elaboration) processing for low-CFC consumers. Based on the ELM literature (e.g., Petty and Cacioppo 1986), under low-elaboration processing, individuals tend to be more persuaded through heuristics such as message framing. Furthermore, there is evidence in the regulatory focus literature that regulatory fit effects are more likely to occur under conditions of low elaboration when consumers are not motivated to process information carefully (Briley and Aaker 2006; Wang and Lee 2006). Thus, H3 predicts that low-CFC consumers who are engaged in low-elaboration processing of the ad message should be more sensitive to the GPS manipulation and show a preference for the message emphasizing eager means (versus vigilant means) to pursue the goal. However, this effect is predicted to be substantially reduced or eliminated for high-CFC consumers who are more likely to engage in greater elaboration of the ad message.

H3: Temporal orientation (CFC) will moderate GPS effects. When the ad message is framed to focus on eager (rather than vigilant) means to achieve a goal, low-CFC consumers will report (a) more positive attitudes toward the ad, and (b) higher levels of perceived risk. In contrast, high-CFC consumers will be less sensitive to the GPS manipulation in the ad message and will report similar risk perceptions and attitudes toward the ad across the GPS conditions.

Our final predictions concern the potential mediating effect of perceived risk on the main and interaction effects discussed above. Hypothesis 4 predicts that consumers with higher perceived risk of health problems stemming from poor exercise and eating habits will report more positive evaluations

of an advertisement concerning means to effectively manage body weight. Consumers who report lower perceived risk (i.e., those who are less concerned about the long-term health risks) should find the ad less appealing. Our final hypothesis (H5) predicts that perceived risk will mediate the main and moderating effects of CFC on A_{ad} that are proposed in H2 and H3. Specifically, when the intervening variable of perceived risk is controlled for, we expect the direct effects of GPS, CFC, and the interaction term on attitude toward the ad to fall to a nonsignificant level, indicating mediation of the effects on A_{ad} (Baron and Kenny 1986). We reason that although GPS and CFC should have an effect on consumers' attitude toward the ad, it is consumers' risk perceptions related to how eating and exercising affect health that accounts for these relationships (Cohen et al. 2003). An overview of all predictions is provided in Figure 1.

H4: High levels of perceived risk will result in more positive evaluations of the advertisement (i.e., higher A_{ad}).

H5: Perceived risk will mediate the effect of (a) CFC and (b) the moderating effect of CFC on consumers' attitude toward the advertisement.

STUDY 1

Method

Our predictions for Study 1 examine the main and moderating effects of GPS and temporal orientation on the outcome variables of attitude toward the ad and perceived risk. To test these predictions, a between-subjects experiment was designed and conducted using a professionally designed mock public service advertisement concerning body weight management.

Procedure and Design

A convenience sample of 137 undergraduate business students enrolled at a major southern university was used in Study 1. Participants were given course credit for participating. The mean age of the sample was 21 years ($SD = 1.7$; range = 19 to 28) and 58% were female. The use of a student sample is consistent with much of the previous research on regulatory focus (e.g., Elliot et al. 2001; Lee and Aaker 2004; Lee, Aaker, and Gardner 2000; Theriault, Aaker, and Pennington 2008). Participants were informed that the purpose of the study was to test the effectiveness of a public service announcement directed toward college students. After being briefed on the purpose of the study and given verbal instructions, participants were exposed to the experimental stimuli and were instructed to answer the questions pertaining to the ad that followed. The stimuli for this experiment consisted of a four-color mock public service advertisement that offered suggestions on how

to manage body weight. The ad consisted of recommendations related to both eating behavior and physical activity.

The study was a between-subjects experiment addressing effects of GPS and CFC. There were two GPS conditions that were manipulated through differential framing of the recommended strategic means (i.e., eager versus vigilant) to achieve the goal of managing body weight.¹ In the "eager means" condition, the ad stressed eager means to achieve the goal such as eating healthy foods and increasing physical activity. In contrast, the "vigilant means" condition keyed on vigilant means to achieve the goal such as avoiding unhealthy foods and reducing sedentary behaviors. The GPS manipulations from the text of the ad for the current study are shown below:

Eager Means Condition

Seek Healthy Foods and Exercise to Manage Body Weight

Seek Healthy Foods. In terms of your eating behavior, you should focus on consuming healthy foods that increase metabolism. **Eat Plenty of Fruits and Veggies:** A diet loaded with fruits and vegetables can be an effective strategy for managing weight. **Choose Whole Grains:** Choose whole grain varieties of cereal and muffins over "refined" grains such as white bread.

Seek Exercise. Focus on increasing physical activity and exercise to burn calories. **Exercise Daily:** Through 30 to 60 minutes of vigorous exercise on most days of the week, you can burn calories and boost metabolism. **Walk to Class/Take the Stairs:** An important aspect of getting in shape is to build physical activity into your daily routine.

Vigilant Means Condition

Avoid Unhealthy Foods and Inactivity to Manage Body Weight

Avoid Unhealthy Foods. In terms of your eating behavior, you should focus on reducing caloric and fat intake. **Avoid Foods High in Calories and Fat:** Avoid foods containing saturated fats such as fatty red meats, butter, whole milk, cheese, and ice cream. **Avoid Added Sugars and Caloric Sweeteners:** One 20 oz. soda contains more added sugar than is recommended for an entire day.

Avoid Inactivity. Focus on reducing the amount of time you are inactive during the day. **Limit Sedentary Behaviors:** If your school and/or work schedule force you to be desk-bound, try to use your free time to get moving. **Avoid Being a "Couch Potato":** Avoid the amount of time that you spend sitting down each day—reduce activities such as watching television.

To increase credibility of the ad, a statement at the bottom of the ad reported, "this message is brought to you by the National Council on Nutrition and Exercise." After being exposed to the mock public service ad, participants were asked

to complete the questionnaire featuring dependent measures related to A_{ad} and risk. After completing the dependent measures, participants completed the 12-item consideration of future consequences scale, demographics, and manipulation check measures. Upon completion, participants were debriefed and dismissed.

Measurement

Consideration of Future Consequences (CFC). Consistent with past research (Joireman, Spratt, and Spangenberg 2005; Orbell, Perugini, and Rakow 2004; Strathman et al. 1994), CFC was a measured variable assessed with the 12-item (seven reverse-scored items) CFC scale. Instructions asked participants to indicate whether or not 12 statements were characteristic of themselves by circling a number 1 (strongly disagree) to 7 (strongly agree) for each item. Items included "I consider how things might be in the future, and try to influence those things with my day-to-day behavior" and "I am willing to sacrifice my immediate happiness or well-being in order to achieve future outcomes." Responses to the seven negatively worded items were reverse-coded and then averaged along with the remaining five CFC items. The reliability estimate for this measure was acceptable (Cronbach's $\alpha = .85$), and the mean CFC score for participants was 4.77 ($SD = .79$; range = 2.08 to 6.77).

Ad Attitude and Risk. Overall attitude toward the public service message was measured using a general attitude index that was adapted from Chandran and Menon (2004). This measure asked participants to report their attitude toward the ad across three, seven-point semantic differential items anchored with "negative/positive," "unfavorable/favorable," and "bad/good" ($\alpha = .94$). Risk perception was measured using four related two-item scales consistent with the GPS manipulation in the ad messages. These scales consisted of "failing to consume healthy foods (e.g., fruits, vegetables, and whole grains) as a regular part of my diet, will put me at risk for poor health," "failing to stay physically active (e.g., exercise) as a regular part of my lifestyle, will put me at risk for poor health," "consuming unhealthy foods (e.g., foods high in saturated fat and sugar) as a regular part of my diet will put me at risk for poor health," and "letting sedentary behaviors (e.g., watching TV or playing video games) play a very major role in my lifestyle, will put me at risk for poor health." Participants responded to each of these four statements on two, seven-point scales anchored by "strongly disagree/strongly agree" and "definitely will not/definitely will." The reliability of this risk perception scale was acceptable ($\alpha = .72$).

Manipulation Check Measure. Although the GPS manipulations were pretested, a manipulation check (adapted from Lee and Aaker 2004) was used to ensure the efficacy of the goal

TABLE I
Study I Results for Risk Perceptions and A_{ad}

Independent variables	Model 1, A_{ad}		Model 2, Perceived risk (mediator)		Model 3, A_{ad}	
	Standardized coefficient	t-values	Standardized coefficient	t-values	Standardized coefficient	t-values
GPS	-.27	-3.26*	-.01	-.13	-.26	-3.34*
CFC	.21	2.07**	.05	.55	.20	2.47*
GPS \times CFC	.16	1.93**	.16	1.86**	.12	1.46
Perceived risk	—	—	—	—	.25	3.13*

Notes: A_{ad} = attitude toward the ad; GPS = goal pursuit strategy; CFC = consideration of future consequences.

Model 1 assesses effects on attitude toward the advertisement. Model 2 assesses effects on consumer risk perceptions, the proposed mediator. Model 3 addresses effects on A_{ad} when the proposed mediator is also included as a predictor (Muller, Judd, and Yzerbyt 2005).

* $p < .01$.

** $p < .05$.

pursuit manipulation in this study. Two "eager" items and two "vigilant" items were used to form an index to ensure that the GPS manipulation worked as expected. The measure consisted of four, seven-point items anchored by "strongly disagree/strongly agree." Participants reported the degree to which the advertisement highlighted the following issues: "eating healthy foods such as fruits and vegetables," "avoiding unhealthy foods such as fat and sugars (reverse scored)," "increasing physical activity through exercise," and "avoiding inactivity like watching TV excessively (reverse scored)." Thus, the vigilant items were reverse coded so that higher scores on this index indicated an eager focus and lower scores indicated a vigilant focus. The reliability for this manipulation check was acceptable (Cronbach's $\alpha = .78$).

Finally, to ensure that higher CFC consumers were more involved with the ad message and used higher elaboration processing than those lower in CFC, a two-item message elaboration measure was used. Toward the end of the study, participants were asked, "How involved were you in the processing of the information in the advertisement?" The two items were anchored with "paid very little attention/paid a lot of attention" and "skimmed it quickly/read it very carefully" ($r = .85$).

Results

Manipulation Check

To check the efficacy of the GPS manipulation in the ad, a t -test was performed on the check measure. Results show that the manipulation was successful, as significant differences were found between the eager means condition ($M = 2.81$) and vigilant means condition ($M = 5.53$; $t = 15.46$, $p < .01$).

Participants in the eager means condition reported that the ad focused more on eager means by which to manage body weight, whereas participants exposed to the vigilant means condition reported that the ad focused more on vigilant means to achieve the goal.

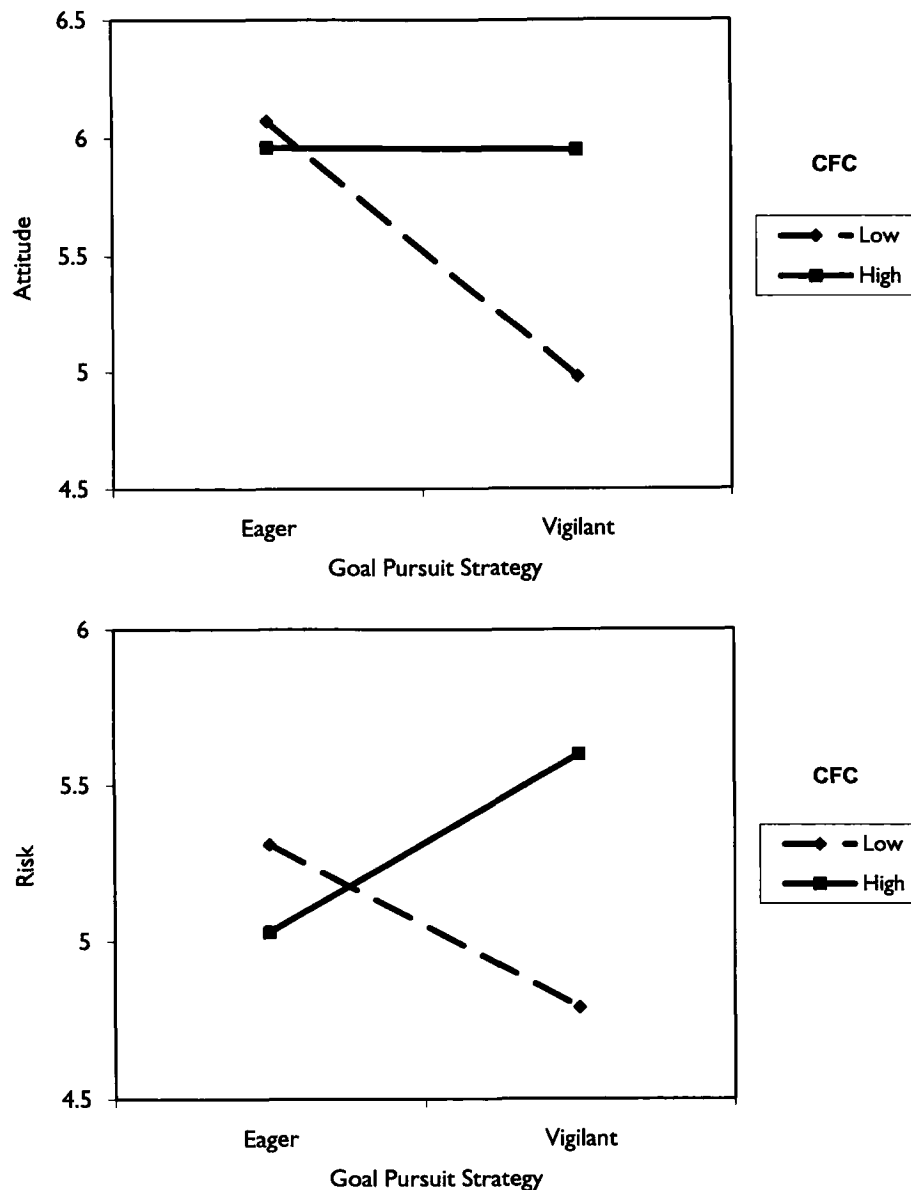
Tests of Predictions for Effects on Attitude and Risk

Given predictions concerning main, moderating, and mediating effects, hypotheses were tested using regression analysis (Baron and Kenny 1986, p. 1179). The independent variables were centered prior to creating the interaction term (Aiken and West 1991). Results are shown in Table 1.

H1, H2a, and H3a were tested by regressing A_{ad} on GPS and CFC, and results are shown in Model 1 of Table 1. The adjusted R^2 for this regression model is .11. As predicted in H1 and H2a, for the primary outcome variable of A_{ad} , there are main effects of GPS ($\beta = -.27$; $t = -3.26$, $p < .01$) and CFC ($\beta = .21$; $t = 2.07$, $p < .05$). These coefficients are consistent with predictions in H1 and H2a; participants in general reported more positive attitudes toward the eager means GPS condition than the vigilant means condition, and high-CFC participants reported more positive A_{ad} than low-CFCs.

H3a predicted a moderating influence of CFC, and as shown in Table 1, CFC does moderate the effect of GPS ($\beta = .16$; $t = 1.93$, $p < .05$) on A_{ad} .² A plot of this interaction is shown in the top portion of Figure 2.³ As shown in Figure 2, low-CFC individuals reported more positive attitudes in the eager means condition ($M = 6.07$) than in the vigilant means condition ($M = 4.98$, $t = 4.25$, $p < .01$). High-CFCs reported positive and almost identical attitudes across the GPS conditions ($M_s = 5.96$ and 5.95 ; $p = .97$). This pattern of findings offers support for the moderating effect of CFC postulated in H3a.

FIGURE 2
Study 1: The Effect of GPS and CFC on A_{ad} and Risk Perceptions



Notes: GPS = goal pursuit strategy; CFC = consideration of future consequences; A_{ad} = attitude toward the ad.

To test predictions related to risk perceptions (H2b and H3b), risk was regressed on GPS and CFC. Results are shown in Model 2 in Table 1. As predicted in H3b, the interaction between CFC and GPS is significant for consumer risk perceptions ($\beta = .16$; $t = 1.86$, $p < .05$). A plot of the cell means for this interaction is shown in the lower portion of Figure 2. As shown here and consistent with the prediction, low-CFC individuals reported higher levels of risk in the eager means condition ($M = 5.31$) versus the vigilant means condition ($M = 4.79$, $t = 1.83$, $p < .05$). For the risk dependent variable, the main effects of GPS and CFC are both nonsignificant

($p > .20$), and thus these findings provide support for H3b but fail to support H2b.

Test of the Mediating Effect of Risk

Hypotheses 4 and 5 concern the mediating effect of risk on the main and moderating effects of CFC. To determine whether the risk construct mediates these effects, four conditions must hold: (1) the predictor variable (CFC) and its interaction (CFC \times GPS) must affect the dependent variable (A_{ad}) in the predicted direction, (2) the predictor variables must affect the

mediator (risk) in the predicted direction, (3) the mediator (risk) must affect the dependent variable (A_{ad}), and (4) the impact of the predictors on the dependent variable (A_{ad}) must be nonsignificant (*full* mediation) or reduced (*partial* mediation) after controlling for the mediator (risk) (Baron and Kenny 1986; Holmbeck 1997).

In terms of the first condition, Model 1 results show that the CFC and GPS predictors and the CFC \times GPS interaction do significantly affect the outcome variable of A_{ad} . For condition 2 effects on the mediator, the CFC \times GPS interaction does significantly affect risk perceptions, but the main effect of CFC is nonsignificant (see Model 2). This finding supports condition 2 above for the interaction, but not for the CFC direct effect. Given the results for the first two conditions, A_{ad} is focused on whether the moderating effect of CFC on A_{ad} is mediated by risk perceptions.

The final conditions for mediation are tested through a comparison of two regression equations in Model 1 and Model 3. The first model consists of the CFC, GPS, and the CFC \times GPS interaction term as predictors, and A_{ad} as the dependent variable. The third model is identical to the first, but it adds the risk construct mediator as a predictor.

For the first model, there are significant effects of CFC, GPS, and the CFC \times GPS interaction ($p < .05$ or better). In Model 3, in which the proposed mediator of risk is included as an additional predictor, CFC ($\beta = .20$; $t = 2.47$, $p < .01$) and GPS ($\beta = -.26$; $t = -3.34$, $p < .01$) remain significant, the risk measure is positive and significant ($\beta = .25$; $t = 3.13$, $p < .01$), and the CFC \times GPS interaction falls to a nonsignificant level ($\beta = .12$; $t = 1.46$, $p > .10$). The adjusted R^2 for this regression model is .17. Given this difference between Models 1 and 3 (i.e., the interaction coefficient is significant in the first but not the third), this finding provides evidence of *mediated moderation*, in which the inclusion of the risk construct mediates the moderating effect of CFC on the A_{ad} dependent variable (Baron and Kenny 1986, p. 1179). This finding supports H4 and H5b.

Study 1 Discussion

Study 1 findings are consistent with literature on regulatory focus and regulatory fit. For this largely promotion-focused sample, the ad that emphasized eager GPS was evaluated more positively than the ad that offered vigilant GPS. However, results show that the GPS effects depend on the degree to which individuals are influenced by the potential future consequences of their behaviors (CFC) and consumers' perceived level of risk related to the topic discussed in the ad. As predicted, high-CFC consumers were affected less by the GPS manipulation and perceived risk mediated the interaction effect on attitude toward the ad.

Although the regulatory focus literature supports our assumption that the sample in Study 1 is predominately pro-

motion focused (e.g., Elliot et al. 2001; Lockwood, Marshall, and Sadler 2005), a stronger test of predictions related to regulatory fit would require the measurement of individuals' chronic regulatory focus (CRF). By measuring CRF and manipulating the GPS in the advertisement, the interaction suggested by the regulatory fit literature can be tested. That is, chronically promotion-focused consumers should prefer messages that feature eager means and chronically prevention-focused consumers should prefer messages that feature vigilant means. Furthermore, as suggested in Study 1, this interaction should be evident for low-CFC consumers due to their lower elaboration of the health message and greater reliance on heuristics, such as ad message framing, to evaluate the ad message. In contrast, this interaction should not be present for high-CFC consumers because they are more likely to engage in systematic, high-elaboration processing. To provide further support for explanation of the findings in Study 1, Study 2 manipulates the goal pursuit strategy presented in the ad (as in Study 1) and also measures consumers' chronic regulatory focus. Furthermore, to strengthen the generalizability of the Study 1 findings, Study 2 uses a nonstudent adult sample.

Study 2 Hypotheses

In Study 1, we found a main effect for GPS such that the sample of primarily promotion-oriented consumers evaluated an ad that presented eager means to achieve a goal more positively than an ad that offered more vigilant means. Although this finding is consistent with regulatory fit theory, we did not directly examine individual differences in consumers who vary in their CRF. Study 2 extends the findings from Study 1 and predicts an interaction between CRF and the GPS manipulated in the advertisement. Because CRF is included as a measured variable in Study 2, we test the specific prediction suggested by the literature on regulatory fit that chronically promotion-focused consumers will evaluate an ad framed with eager means more positively, whereas chronically prevention-focused consumers will evaluate an ad framed with vigilant means more positively.

H6: Chronic regulatory focus will moderate GPS effects. Chronically promotion-focused consumers will report higher (a) attitude toward the ad, (b) perceived persuasiveness, and (c) behavioral intentions when the ad message utilizes eager means (versus vigilant means). In contrast, chronically prevention-focused consumers will evaluate the ad more positively when the ad message utilizes vigilant means (versus eager means).

Similar to results from Study 1 that found consumers' temporal orientation (i.e., CFC) moderated the GPS effect, H7 predicts a three-way interaction between the manipulated GPS, consumers' CRF, and CFC. It is expected that the CRF \times GPS interaction effect predicted in H6 will be reduced or elimi-

nated under high-elaboration conditions. In other words, the interaction should not be evident for high-CFC consumers who use more systematic techniques in processing the ad related to future goals (as conceptualized in Study 1). However, low-CFC consumers, who are more likely to use low-elaboration in ad message processing, should be sensitive to the GPS of the ad and the interaction predicted in H6 should hold.

H7: Temporal orientation (i.e., CFC) will interact with chronic regulatory focus and GPS. Low-CFC consumers will report higher levels of (a) attitude toward the ad, (b) perceived persuasiveness, and (c) behavioral intentions when there is a fit between chronic regulatory focus and the GPS used in the ad. This effect will be reduced or eliminated for high-CFC consumers.

STUDY 2

Method

Procedure and Design

Similar to Study 1, Study 2 was a between-subjects experiment that used a professionally designed mock public service advertisement. The experiment examined effects of manipulated ad-based GPS, CRF, and CFC. Similar to Study 1, GPS was manipulated. CRF and CFC were both measured variables in Study 2. The GPS of the ad was manipulated through differential framing of the ad message (i.e., eager means versus vigilant means). In the eager means condition, the ad focused on *achieving* the goal of feeling great. In contrast, the vigilant means condition keyed on *avoiding* health risks. The GPS manipulations that appeared in the text of the ad for Study 2 are as follows:

Eager Means Condition

Want to Look and Feel Great?

Diet and exercise can help you achieve your goals! A balanced diet of healthy foods and regular exercise will boost your energy level and make you better able to accomplish all you want out of life.

Vigilant Means Condition

Want to Prevent Cancer and Heart Disease?

Diet and exercise can help you avoid these health risks! A balanced diet of healthy foods and regular exercise will protect your body and keep you safe.

Consistent with Study 1, to increase credibility, a statement at the bottom of the ad reported, "this message is brought to you by the National Council on Nutrition and Exercise." Study 2 participants were 160 nonstudent adults who were members

of a geographically dispersed statewide mail panel used in a southeastern state. The survey consisted of a single administration and panel participants were entered into a drawing for small prizes for participating. The modal household income for the sample was \$40,000–50,000, the modal education was some college (94% with a high school degree), the mean age of the sample was 58 years ($SD = 14.5$; range = 18 to 85), and 59% were female. The response rate was 50%. These participants were informed that the purpose of the study was to test the effectiveness of a public service announcement.

After being briefed on the purpose of the study, participants were exposed to the experimental stimuli and were instructed to answer the questions pertaining to the ad that followed. After the exposure to the mock public service ad, participants completed the dependent measures related to attitude, persuasion, and behavioral intentions. After completing the dependent measures, participants completed the CFC scale, the CRF measure, demographics, and manipulation check measures.

Measurement

As in Study 1, consumers' temporal orientation was measured with the 12-item CFC scale (Cronbach's $\alpha = .82$). CRF was measured with the regulatory focus questionnaire (Higgins et al. 2001). This scale contains items that tap participants' success in using both promotion-related eagerness means of goal attainment and prevention-related vigilance means of goal attainment. It includes items such as "compared to most people, are you typically unable to get what you want out of life" and "not being careful enough has gotten me into trouble at times." The seven reverse-coded items were recoded and the 11 total items were averaged to create a CRF index ($\alpha = .70$). A higher score on this index indicated that an individual was more promotion focused; lower scores indicated more of a prevention focus.

The attitude toward the ad and the message involvement variables used in Study 1 were again used in Study 2 ($\alpha = .96$ and $.94$). In addition, Study 2 included measures of consumers' perceived persuasiveness of the ad and behavioral intentions. The perceived persuasiveness variable was measured by asking participants to rate the information presented in the ad on six, seven-point items anchored with "not at all convincing/very convincing," "not at all effective/very effective," "not informative/very informative," "not interesting/very interesting," "not at all impactful/very impactful," and "not useful to me/very useful to me" ($\alpha = .94$). To tap potential behavioral intentions, five items were used. First, participants were asked to indicate "How likely is it that this ad will help people make better lifestyle choices?" across three, seven-point items anchored with "not at all likely/very likely," "definitely will not/definitely will," and "no chance/certain to happen." Participants were also asked, "How helpful was the information presented in

TABLE 2
Study 2 Results for A_{ad} , Perceived Persuasiveness, and Behavioral Intentions

Independent variables	A_{ad}		Perceived persuasiveness		Behavioral intentions	
	Standardized coefficient	t-values	Standardized coefficient	t-values	Standardized coefficient	t-values
GPS	.07	.73	.02	.25	-.08	-.89
CRF	-.13	1.35**	-.10	-1.08	-.18	2.09*
CFC	-.07	-.69	-.03	-.31	-.06	-.73
GPS × CRF	.20	2.04*	.19	2.11*	.20	2.27*
GPS × CFC	.09	.96	.06	.71	.13	1.55**
CRF × CFC	.18	1.87*	.11	1.30**	.06	.67
GPS × CRF × CFC	-.06	-.61	-.07	-.71	-.20	2.21*

Notes: A_{ad} = attitude toward the ad; GPS = goal pursuit strategy; CRF = chronic regulatory focus; CFC = consideration of future consequences.

* $p < .05$.

** $p < .10$.

the ad in making up your mind about eating and exercising" ("not helpful to me"/"very helpful to me") and "How useful was the information presented in the ad in making up your mind about eating and exercising" ("not useful to me"/"very useful to me"). These five items were averaged to create a behavioral intentions index ($\alpha = .94$).

A two-item manipulation check measure was used to test the efficacy of the GPS manipulation used in the ad. Participants were asked if they agreed or disagreed that the ad highlighted "achieving goals" and "avoiding disease risk" (reverse-scored) on seven-point scales anchored with "disagree/ agree" ($r = .63$).

Results

Manipulation Check

To check the efficacy of the ad-based GPS manipulation, a t -test was performed on the check measure. Results show that the manipulation was successful; there was a significant difference ($t = 4.8, p < .001$) between the eager means condition and vigilant means condition. As expected, participants in the eager means condition reported that the ad focused more on achieving goals, whereas participants exposed to the vigilant means ad reported that the ad focused more on preventing risks.

General Results

To test predictions related to regulatory fit and future orientation, each dependent variable was regressed on GPS, CRF, CFC, and the interaction terms. Independent variables were mean centered prior to creating the interaction terms (Aiken

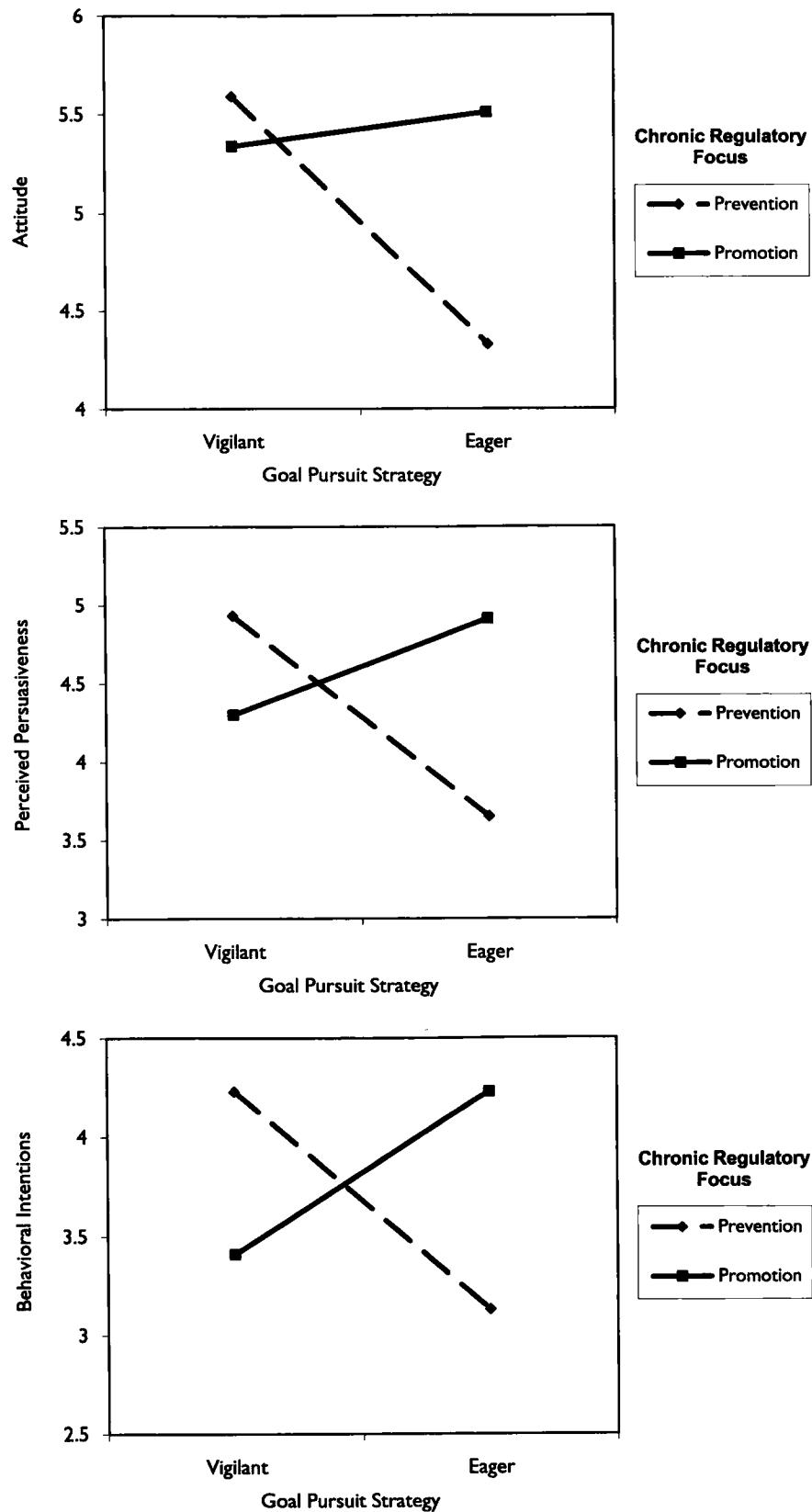
and West 1991). Results are presented in Table 2 and plots of the interactions are shown in Figures 3 and 4.

Fit Between the Goal Pursuit Strategy and Chronic Regulatory Focus

H6 predicted that the GPS of the message would interact with consumers' CRF such that: (1) chronically "promotion"-oriented consumers should evaluate eager means-framed messages more favorably than vigilant means framed-messages, and conversely, (2) chronically "prevention"-oriented consumers should evaluate vigilant means-framed messages more favorably than eager means-framed messages. As shown in Table 2, a significant GPS × CRF interaction was found for attitude toward the ad ($\beta = .20; t = 2.04, p < .05$; model adjusted $R^2 = .06$), perceived persuasiveness ($\beta = .19; t = 2.11, p < .05$; model adjusted $R^2 = .02$), and behavioral intentions ($\beta = .20; t = 2.27, p < .05$; model adjusted $R^2 = .07$).

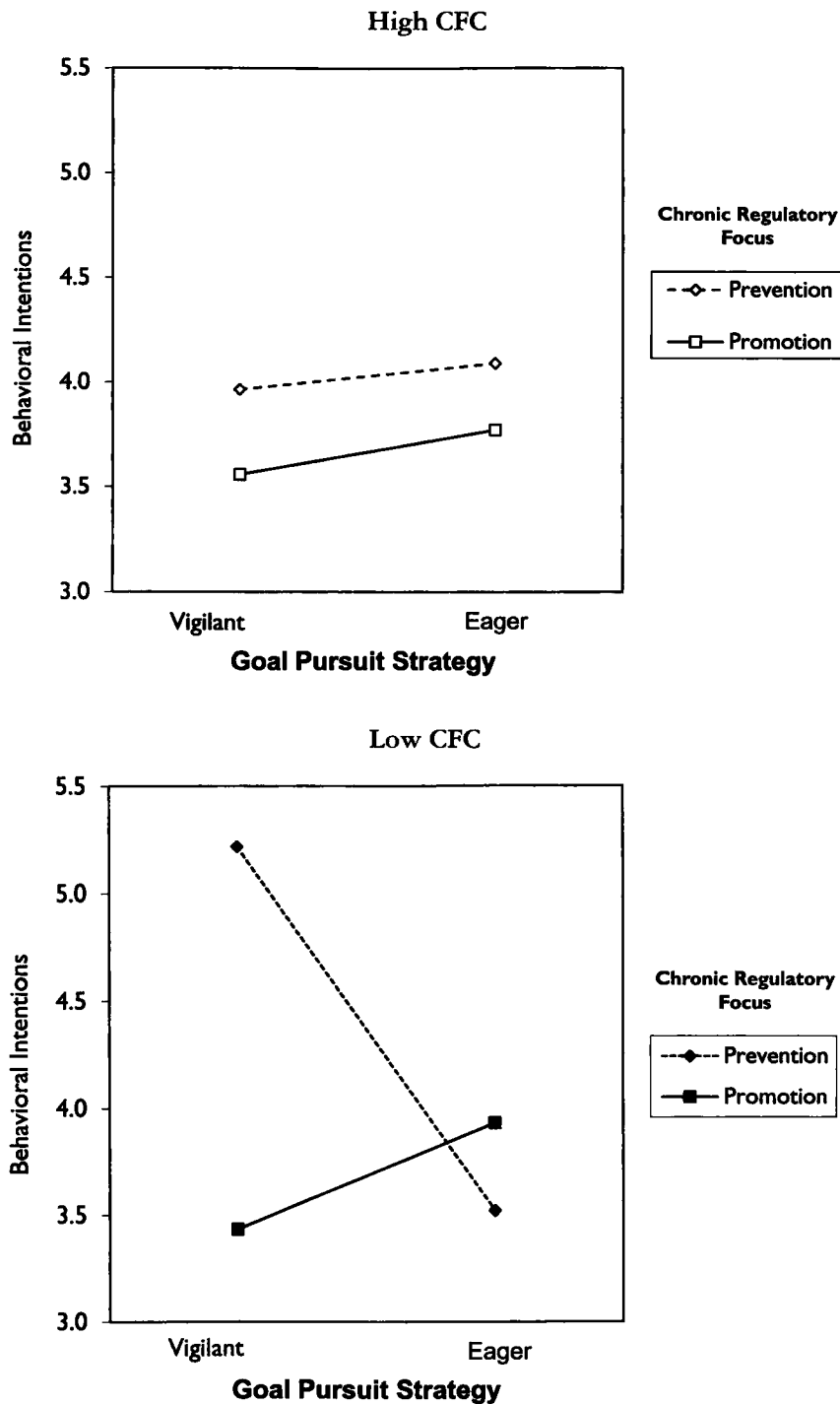
As shown in the plot in Figure 3, for the attitude toward the ad dependent variable, consumers with a "prevention" CRF reported significantly higher A_{ad} for the vigilant means condition ($M = 5.59$) versus the eager means condition ($M = 4.33, t = 2.47, p < .01$).⁴ Consumers with a "promotion" CRF reported positive A_{ad} across both ad GPS conditions ($M_s = 5.51$ and $5.34, n.s.$ [not significant]). For the perceived persuasiveness dependent variable, prevention-CRF consumers again reported higher persuasiveness perceptions for the vigilant means condition ($M = 4.93$) versus the eager means condition ($M = 3.65, t = 3.27, p < .01$), and promotion-CRF consumers reported significantly higher persuasiveness perceptions for the eager means condition ($M = 4.91$) compared to the vigilant means condition ($M = 4.30, t = 1.96, p < .05$). A similar pattern of results was found for the behavioral in-

FIGURE 3
Study 2: Effect of GPS and CRF on A_{ad} , Perceived Persuasiveness, and Behavioral Intentions



Notes: GPS = goal pursuit strategy; CRF = chronic regulatory focus; A_{ad} = attitude toward the ad.

FIGURE 4
Study 2: The Interaction of GPS, CRF, and CFC on Behavioral Intentions



Notes: GPS = goal pursuit strategy; CRF = chronic regulatory focus; CFC = consideration of future consequences.

tentions variable. Promotion-CRF consumers rated the eager means condition significantly higher than the vigilant means condition ($t = 2.93, p < .01$) and prevention-CRF consumers rated the vigilant means condition higher than the eager means

condition ($t = 3.35, p < .01$). These crossover interactions shown in Figure 3 support the predictions in H6 that a “fit” between consumers’ CRF and the GPS of the ad message results in increased evaluations of the ad and behavioral intentions.

Regulatory Fit and Future Orientation

Because future-oriented (high-CFC) consumers should be more motivated to process a message concerning future consequences related to eating and exercising behaviors (resulting in higher elaboration) than present-oriented consumers (low-CFC), the regulatory fit effects should be less pronounced for high-CFC consumers.⁵ The significant GPS \times CRF \times CFC interaction for behavioral intentions ($\beta = -.20$; $t = 2.21$, $p < .05$) supports this prediction. As shown in Figure 4, the regulatory fit effect (GPS \times CRF crossover interaction) discussed above is evident for low-CFC consumers. For low-CFC consumers, when there is a "fit" between the GPS of the ad and the chronic regulatory focus of the consumer, higher behavioral intentions result. This pattern of results does not hold for high-CFC consumers, however. While the coefficients are in the predicted direction, the three-way interaction was not significant for the A_{ad} or persuasion variables.⁶ These findings offer partial support for H7.

GENERAL DISCUSSION

The importance of communicating effective ways to manage body weight to consumers is evident given the severity of the obesity epidemic in the United States today (CDC 2008) and the millions of dollars spent at the state and federal levels to try to educate consumers (USDA 2005). The objective of this study was to examine specific types of message-framing techniques that may be effective in a health advertising context and potential mediators and moderators of these effects. Specifically, we tested consumers' evaluations of an ad when the ad message was framed using either eager or vigilant goal pursuit means. Findings from our studies offer theoretical contributions that shed light on specific conditions in which goal pursuit strategies of health messages may be more effective in influencing attitude, risk, and behavior. Specifically, findings show that the effectiveness of these framing techniques may depend on how much individuals are influenced by the potential future consequences of their behaviors (CFC), perceived risk related to the ad topic, and chronic regulatory focus. Preliminary evidence from this research suggests that advertisers should consider the goal pursuit strategies of persuasive messages as they develop public service advertisements.

There are a number of different means to achieve the goal of maintaining a healthy body weight. Findings from our two studies show that consumers with a chronic promotion focus evaluated eager means messages more positively, whereas consumers with a chronic prevention focus preferred vigilant means messages. Prior research has not examined attitude toward the ad or these specific risk perceptions, and our general findings extend results from previous research on regulatory fit (e.g., Hong and Lee 2008; Keller 2006; Spiegel, Grant-Pillow,

and Higgins 2004). Our findings, taken together with this previous research on regulatory fit, suggest that when there is a "fit" between consumers' chronic regulatory focus and the goal pursuit strategy of the advertisement, the advertisement is evaluated more positively and consumers report higher intentions for compliance with the ad message.

Another important contribution of this research is the introduction of the CFC construct into the advertising and marketing literature and its potential usefulness as a moderator of effects in advertising experiments. The finding that individual differences in CFC can influence consumer attitudes is consistent with prior CFC studies in the psychology literature (e.g., Dorr, Krueckeberg, and Strathman 1999; Orbell, Perugini, and Rakow 2004; Strathman et al. 1994). CFC can be an important construct in the marketing and advertising literature and in communication of persuasive health messages in particular. The interaction between regulatory fit and CFC contributes to the sparse existing literature that has examined the relationship between temporal distance and regulatory fit. Pennington and Roese (2003) reported that individuals indicated a stronger promotion (versus prevention) focus when a final exam period was perceived as occurring in the distant future. In contrast, when the exam period was close in time, there appeared to be more of a balance between promotion and prevention goal pursuit strategy. Mogilner, Aaker, and Pennington (2008) and Theriault, Aaker, and Pennington (2008) also find evidence that in a purchasing situation, ads emphasizing a promotion focus of product benefits may be more effective than ads featuring a prevention focus as the temporal distance from the purchase increases. The findings from our study seem to coincide with findings from previous research and suggest that regulatory fit effects can be stronger or weaker depending on consumers' temporal orientation. Specifically, our results indicate that the regulatory fit of the ad influenced present-oriented consumers' behavioral intentions, but that regulatory fit did not influence future-oriented consumers.

The Study 1 finding that consumer risk perceptions can mediate the GPS \times CFC interaction has implications for theory. Such mediated moderation is not often explored in the advertising literature, but these findings indicate that the moderating role of temporal orientation on the effects of the ad-based goal pursuit strategies for the A_{ad} dependent variable is mitigated by risk perceptions associated with the ad communication. Health risks related to diet and exercise are generally long term in nature (e.g., heart disease) and thus conceptually linked to temporal orientation and goal pursuit framing. Theory suggests that these time-related risk perceptions would intervene between the effect on A_{ad} in which an ad message framed in eager goal pursuit means led to higher levels of attitude for those *without* a long-term orientation (i.e., those low in CFC; see Figure 2). While we are not aware of

advertising research that has examined the specific nature of the relationship between risk perceptions and ad attitudes, the results suggest that further study appears warranted.

In terms of relevance for practical application, the mechanism of regulatory fit seems important to examine within the realm of advertising, especially given the money spent by the federal government on media campaigns and the challenges faced by policymakers to increase the effectiveness of their communications. Findings can potentially help inform creators of public service campaigns on how to more effectively provide information on managing body weight to Americans. Persuasion techniques, such as the framing of goal pursuit strategies, which can result in more positive consumer evaluations of health communication messages, are important as the government continues to commit large amounts of resources to educating consumers through media campaigns.

Furthermore, the CFC findings from this research may also be important for designing messages directed at specific target groups in the population. Because the CFC construct has been found to correlate with certain demographic variables (e.g., education level), the finding that this variable can influence various message-framing effects may be important for advertisers as well. It is unlikely that campaigns or public service ads can be targeted to individuals based on the degree to which they consider the future consequences of their behaviors, but these messages can possibly be targeted to specific populations based on income or education level. Additional research may examine whether it is possible to prime temporal orientation in the context of advertising.

LIMITATIONS

Although attitude toward the ad, risk, and intentions are important advertising variables, further research that examines actual lifestyle changes based on the ad appeals studied in this research would be meaningful. In terms of practical implications of this research, it is important to study whether persuasive messages viewed over time as part of a specific campaign can actually change eating and/or exercising behavior (beyond measuring how positively or negatively consumers evaluate the ad or how the ad affects persuasion or intentions). Future research may use methodologies that capture consumer ad responses over longer periods of time and/or attempt to capture actual behavioral change that may result from ad-based exposures. Although this controlled context and environment provide experimental control and minimize alternative explanations for effects, findings may not be generalizable to a more natural environment.

Despite these limitations, we believe this research has important potential implications for both theory and public policy. Considering that obesity and inactivity are strongly linked to the top three causes of death for Americans (heart

disease, cancer, and cerebrovascular ailments), a better understanding of how to persuade consumers to make better decisions that take into account distant future health outcomes would clearly be beneficial to society at large (CDC 2008). While findings from this study may not directly result in improvements in public health, they may indirectly improve health outcomes through helping to increase the efficacy of health communications via a better understanding of effects on risk, A_{ad} , and behavioral intentions.

NOTES

1. To test the proposed GPS manipulation for this study, an initial pilot study was carried out with 60 undergraduate business students. The pilot test indicated that the GPS manipulation worked as planned. Participants in the "eager means" condition reported that the ad highlighted eager means (versus vigilant means) ($F = 56.87, p < .01$) and participants in the "vigilant means" condition reported that the ad highlighted vigilant means (versus eager means) ($F = 107.6, p < .01$).

2. It was argued that low (high) CFC consumers should be less (more) involved with the ad message, and thus be more (less) sensitive to the GPS manipulation. As expected, there was a significant positive correlation between CFC and the message involvement measure ($r = .19, p < .01$).

3. The plot in Figure 2 illustrates the differences between "high" and "low" CFC participants based on a median split.

4. A median split of chronic regulatory focus was used to create the plot in Figure 3 and to assess differences between "high" and "low" CRF participants.

5. Consistent with Study 1, CFC was positively correlated with message involvement ($r = .34, p < .01$).

6. As in Study 1, consumer risk perception was tested as a mediator for the two- and three-way interaction effects discussed here. When risk was included as a predictor in the model, the coefficient for the GPS \times CRF interaction fell from .13 to .06, but the Sobel test was not significant ($p > .05$). For the three-way interaction, the β coefficient fell from $-.20$ to $-.18$, but was also not significant based on the Sobel test.

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