

Fear advertisements: influencing consumers to make better health decisions

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From a goal-theoretic framework, this paper proposes that fear-based framing of health messages can lead to positive decision intentions, thus helping consumers make better future health-related choices. Across two experiments, findings demonstrate that the type of advertisement (fear versus hope) and food prime (indulgent versus non-indulgent) interact to determine goal-related choice focus – such as subsequent indulgence intention or intention to implement an exercise health goal. Research implications include the suggestion that if marketers properly execute fear-primed promotional messages with non-indulgent food offerings, they can satisfy the notion that ‘One good health decision can lead to another.’

Keywords: fear appeal advertising; health promotions; consumer decision-making processes

1. Introduction

Currently, more than 35.7% of US adults are considered obese, according to the Centers for Disease Control and Prevention (CDC 2012). Even though a considerable amount of resources continue to be committed to reducing overweight and obesity statistics (United States Department of Agriculture, USDA 2012), its prevalence throughout affluent countries in the world continues to rise – with obesity medical-related costs estimated in the billions each year. Despite intensified efforts by the government and consumer welfare advocate organizations to provide ongoing social marketing health campaigns and national weight-management programs, along with other obesity reduction intervention initiatives, the problem persists rather than improves over time. Speaking to the critical nature of the obesity epidemic, academics in multiple disciplines also conduct ongoing research in the area (Dooley, Deshpande and Adair 2010; McDermott et al. 2006). Given the immense costs associated with the advertisement expenditures of fighting obesity in the United States, it is important to understand how health advertisements impact consumer lifestyle choices. Therefore, the purpose of this research is to examine the effectiveness of various message frames of health advertisements on attitudes towards the advertisement and health behavioural intentions.

Message framing is a well-recognized mechanism for increasing the effectiveness of marketing communications. In fact, previous research has examined the influence of priming through goal frames, wherein the message framing provides evidence of the linkage between behaviour and goal attainment. However, extensions of priming and goals

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research, particularly with reference to the advertising and health-related context, are sparse. Interestingly, more recent research highlights the adverse effects of food advertising as primes on health behaviours (Kemp, Bui, and Chapa 2012). Continual efforts in developing a better understanding of how to alleviate social health issues due to poor health-related decisions derived from the marketing industry and consumer marketing initiatives are encouraged (Choi, Pack, and King 2012; Howlett et al. 2012; Kemp, Bui, and Grier 2012; Liu, Bui, and Leach 2013; Roberts and Pettigrew 2007). To date, some literatures within marketing and advertising discuss the effects of fear and hope primes (LaTour and Tanner 2006); however, there is a dearth of research examining the moderating influences regarding how fear- and hope-inducing primes impact consumer health behavioural responses to health-related advertisements.

In essence, this gap in the current literature can be addressed by priming varying message frames, such as fear and hope advertisements, and examining consumer responses such as attitude towards the advertisement (A_{ad}), subsequent indulgence intentions, and exercise intentions. Hence, the present research utilizes a goal theoretic framework to understand how different fear/hope-induced advertisements interact with opposing food types (i.e., indulgent versus non-indulgent) to influence attitudinal responses to the advertisement, and subsequent health decision intentions. More specifically, individuals are presented with hope versus fear primes in advertisements, thereby activating positive versus negative (or approach versus avoidance) goal mindsets (Sobh 2011), and depicting goal-to-consequence imagery to highlight potential outcomes. Whereas existing research in this realm tends to focus on avoidance goals and how activation of the goal can often lessen possible future failure, this research aims to combine such goals with varying food types to show how they can benefit consumers and help them make good future choices and commitments. The present framework posits that the type of advertisement and food prime interact to determine goal-related choice focus – whether the focus is on deliberating over a subsequent indulgence intention or on the intention to implement the health goal via exercise. Specifically, the advertisement of the food primes causes individuals to depict the imagery of goal-related choice focus. In turn, this goal-related choice focus influences responses such as attitude towards the advertisement and type of food viewed in an advertisement.

Thus, hope versus fear framing of health messages can create a ‘one good health decision leads to another’ effect and help consumers make healthier future food choices. First, a review of existing research is provided, along with a conceptual framework which combines the two domains of goal-related mindsets and fear arousal. Next, two non-student experimental studies are detailed, which manipulate fear versus hope advertisement messages for indulgent versus non-indulgent food scenarios, to test the framework. Study 1 begins by showing that when primed with non-indulgent food, subjects are more likely to make subsequent non-indulgent food choices. In Study 2, further experimentation with goal framing shows that with non-indulgent food primes, subjects are more likely to make healthier selections and report a higher likelihood of exercise intentions. Finally, conclusions, implications, limitations, and future research directions are presented.

2. Literature and conceptual framework

2.1 *Activating goal-related mind-sets*

Often individuals deliberate over health-related consumption decisions – particularly when exposed to food and nutrition advertisements. Such considerations include, but are not limited to, whether or not to act upon consumption decisions which are consistent

with health goals. This pre-decisional phase is a deliberative process during which weighing of the pros and cons of the action helps in the evaluation of the desirability of the goal. Research demonstrates that goal commitment is activated when this deliberative process transforms into an implemental task, thereby increasing goal attainment (Koestner et al. 2002) – with such effects carrying over to subsequent behaviours. However, self-control dilemmas occur when individuals have a goal conflict, or when a higher priority goal (e.g., often longer term) conflicts with a lower priority goal (e.g., often short term; Fishbach and Shah 2006). Additionally, research findings indicate that negatively goal-framed messages, compared to positively framed ones, are more persuasive (Putrevu 2010). As such, negativity bias indicates that negative information may be more pronounced and recalled in comparison to positive information. Specifically, Putrevu (2010) empirically demonstrates that negatively framed messages elicit more favourable attitudes and behavioural intentions than positively framed messages. Further, research shows that products have associated identities, such that healthy food choices are associated with a healthy person; and stereotype activation of overweight visual primes is linked with the choice of unhealthy foods (Campbell and Mohr 2011). Accordingly, the same linkage rule applies whether the (food) product is an advertising message or is imbedded in a situational scenario – (non-) indulgent foods activate (positive) negative associated health consequences.

2.2 *Fear versus hope primes and selves*

Both hope and fear primes have been omnipresent in marketing and advertising contexts. Although the use of hope messaging is very common, sparse research has addressed the role of hope messaging in consumer behaviour (MacInnis and de Mello 2005). Specifically, hope messages induce positive valence and appraisal of an outcome. The valence-based approach of hope primes maintains that the positive or negative outcome guides attitude and subsequent behaviour (Phillips and Baumgartner 2002). To distinguish between action tendencies of hope primes, examining specific emotions is required as hope is associated with the attainment of a goal (Lazarus 1991). As such, products and services are purposefully advertised as a means to achieve respective individual goal states. Further, research shows that hope primes differ in terms of prevention and promotion orientations – i.e., prevention hope engendering more goal-directed behaviour compared to promotion hope (Poels and Dewitte 2007). Synder (2002) contends that hope messaging can also contribute to goal-oriented behaviours geared towards enhancing already-satisfactory states rather than unsatisfactory states alone. Irrespective of whether one attains the goal, consumers often purchase products and services ‘hoping’ to attain certain goals (de Mello, MacInnis, and Stewart 2007).

The use of fear and threat arousals in advertisements pervades many social marketing domains, for example food marketing to adolescents (Charry and Demoulin 2012), transportation (Krishen, Raschke and Mejza 2010), tobacco use (Devlin et al. 2007; Dickinson and Holmes 2008; Michaelidou, Dibb, and Ali 2008), and HIV prevention (Turk, Ewing, and Newton 2006), among others. Early research shows that fear appeals can trigger arousal in terms of both tension and energy, which can eventually lead to changes in behavioural intention (LaTour, Snipes and Bliss 1996).

A fear-based advertisement essentially attempts to persuade consumers to avoid a feared-self, and, with regards to this, Chang (2007) suggests that negative framing (fear) is more effective for people who perceive product choice to be high risk (e.g., unhealthy food). Prior research also indicates that negatively framed messages result in more thorough processing of the information presented (Kuvaas and Selart 2004). Further, Sobh and

Martin (2011) show that when avoiding a negative outcome, the risk of failure is more motivating than any possible success. For example, Sobh (2011) finds that when trying to avoid feared selves, women are willing to undergo more invasive skin treatments versus when they try to attain hoped-for selves. Not only must the optimal level of fear be induced to generate the appropriate affective state, but also Ruiters, Abraham, and Kok (2001) suggest that the information behind the message is also important, and personal relevance (i.e., what can happen to the person themselves) increases the impact of a fear message.

In addition to the importance of the textual message of a fear arousal, Gallopel-Morvan et al. (2011) find that the visual imagery is also a very important component. In essence, if the imagery is very compelling when fear appeals are given, the impact is greater and thus the advertisement is more effective. Based on these findings, the present research utilizes an image depicting an over-sized model with the accompanied feared/hoped-for self in the form of a text message – both as a tagline and specific goal-to-consequence association on the model. Thus, given previous advertising research findings which demonstrate the strength of fear compared to hope advertisement messages, as well as existing literature which identifies key associations between healthiness perception and food type (i.e., healthy = non-indulgent foods and unhealthy = indulgent foods), we make the following predictions:

- H1:** When subjects view a non-indulgent food advertisement, they will report (a) more favourable A_{ad} , (b) lower intentions of engaging in subsequent indulgence following the entrée than those viewing the indulgent advertisement, and (c) greater exercise intentions than when they view an indulgent advertisement campaign.
- H2a:** When subjects view a fear advertisement, they will be more likely to reduce subsequent indulgent intentions than when they view a hope advertisement message.
- H2b:** When subjects view a non-indulgent advertisement campaign, fear messages will more effectively cause them to reduce subsequent indulgence intentions compared to hope messages.
- H3a:** When subjects view a fear advertisement, they will be more likely to report greater exercise intentions than when they view a hope advertisement message.
- H3b:** When subjects view a non-indulgent advertisement campaign, fear messages will more likely cause them to report greater exercise intentions compared to hope messages.

Overall, this body of literature suggests that food type can impact future intentions to indulge (Study 1), especially with regards to fear priming (Study 2). Thus, Study 1 tests hypothesis H1 (a and b) and, building on those findings, Study 2 tests hypotheses H1c, H2 (a and b) and H3 (a and b).

3. Study 1

3.1 Overview, stimulus development, and measures

Marketing graduate students who were trained in data collection procedures served as data collectors for the quota convenience sample of non-students. This method has been utilized in previous research articles (Bitner, Booms and Tetreault 1990; Bui, Krishen and LaTour 2012; Close, Krishen, and LaTour 2009). At local retailing outlets (i.e., shopping malls including food courts, restaurants, and movie theaters) data collectors

randomly asked customers to voluntarily participate in a survey without any incentive. Subjects were randomly assigned to one of two scenario conditions (see Appendix 1 for stimuli) using a projective technique (Page and Colby 2003). A one-factor (food type: indulgent vs. non-indulgent) between-subjects experimental design was used to test the hypothesis. Participants were instructed to imagine themselves as Pat in the following scenario given in a television advertising campaign which pertains to the obesity epidemic among college students:

The weekend is finally here and a group of college students decide to go to a favourite restaurant nearby for dinner. After everyone looks at the menu and decides to place their order, the waitress comes by to take it. One of the group members, Pat, who is particularly overweight, is the first to place an order. 'May I have the fried chicken platter with French fries on the side please?' ['May I have the grilled chicken platter with a side salad please?'].

After thoroughly going over the scenario, subjects were asked complete the questionnaire based upon the scenario.

A total of 122 subjects from the southwestern part of the United States participated in the study. The population consisted of 40.2% male and 59.8% female. Ages ranged from 20 to 76 years, with a mean age of 35. This study tested the predictions concerning the effects of food type on (H1a) A_{ad} and (H1b) subsequent indulgence intentions.

The A_{ad} construct consisted of a 9-point, four-item adapted and validated scale with endpoints of 'I dislike the ad/I like the ad,' 'I react negatively towards the ad/I feel positively towards the ad,' 'I react unfavourably towards the ad/I react favourably towards the ad,' and 'The ad is bad/The ad is good' (Forehand and Deshpande 2001). Reliability was appropriate with $\alpha = 0.97$. The subsequent indulgence intentions measure asked subjects to: 'Please indicate the likelihood that Pat would choose an indulgent dessert following the entrée in the advertisement scenario,' with responses including a validated 9-point, multi-item scale with bipolar endpoints consisting of 'unlikely/likely,' 'improbable/probable,' and 'impossible/possible' (Goldsmith, Lafferty, and Newell 2001). Reliability was appropriate at $\alpha = 0.95$.

3.2 Results: Study 1

Analysis of variance (ANOVA) was conducted to examine the effects of food type on A_{ad} and subsequent indulgence intentions. The results are presented in Table 1.

3.2.1. Attitude towards the advertisement (A_{ad})

Supporting H1a, findings show a main effect for food type on A_{ad} ($F(1, 120) = 15.62$, $p < 0.001$), with means indicating that subjects in the non-indulgent condition report more favourable attitudes towards the advertisement than those in the indulgent condition ($M = 5.18$ vs. $M = 3.64$).

Table 1. Means for A_{ad} and subsequent indulgence intentions (study 1).

Independent variable	Attitude towards advertisement	Subsequent indulgence intentions
<i>Non-indulgent</i>	5.18	4.96
<i>Indulgent</i>	3.64	7.49

Note: A_{ad} = attitude towards the advertisement.

3.2.2. *Subsequent indulgence intentions*

Analysis reveals an overall main effect for food type on subsequent indulgence intentions ($F(1, 120) = 49.21, p < 0.001$); specifically, subjects in the non-indulgent condition reported lower intentions of engaging in subsequent indulgence following the entrée than those in the indulgent condition ($M = 4.96$ vs. $M = 7.49$), supporting H1b.

Thus, Study 1 shows that non-indulgent food advertisements impact overall A_{ad} and subsequent indulgence intentions. Moreover, individuals who view such advertisements have more favourable attitudes towards the advertisement and have significantly lower indulgence intentions after a meal. Interestingly, indulgent food advertisements induce negative A_{ad} , and proceed to induce greater intentions of indulgence after the meal. Therefore, future research should seek to identify how advertising message campaigns can influence health behaviours. Study 2 builds on Study 1 results by examining the effects of both food type and goal-framed promotional messages through an advertising campaign to better understand the impacts on A_{ad} , subsequent behavioural intentions to indulge, and intentions to exercise.

4. Study 2

4.1 *Overview, stimulus development and measures*

Following the same quota convenience sampling procedure conducted in Study 1, trained data collectors randomly asked customers to voluntarily participate in a survey at local retailing locations (i.e., shopping malls including food courts, restaurants, and movie theatres) in the southwestern part of the United States. Subjects were randomly assigned to one of four conditions (see Appendix 2 for examples of stimuli) using a projective technique. A 2 (advertising message: fear vs. hope) \times 2 (food type: indulgent vs. non-indulgent) between-subjects factorial design was conducted to test the predictions. A total of 139 subjects participated in the study. The population consisted of 53% male and 47% female. Ages ranged from 19 to 61 years, with a mean age of 32. This study tests the predictions concerning the effects of food type on A_{ad} (H2), subsequent indulgence intentions (H3a, b, and c), and exercise increasing intentions (H4 a, b, and c).

The A_{ad} construct was identical to the measure used in Study 1 ($\alpha = 0.95$). The subsequent indulgence intentions measure was also identical to the measure used in Study 1 ($\alpha = 0.93$). The exercise intentions construct consisted of a 9-point, multi-item scale with bipolar endpoints consisting of 'unlikely/likely,' 'improbable/probable,' and 'impossible/possible' in response to the statement: 'Please indicate whether Pat would increase the amount of exercise above the typical amount for that day?' for this adapted, validated measure (Goldsmith, Lafferty, and Newell 2001). Reliability was appropriate with $\alpha = 0.90$.

4.2 *Results: Study 2*

ANOVA and analysis of covariance (ANCOVA) were conducted to examine the effects of food type and advertising message on A_{ad} , subsequent indulgence intentions, and exercise intentions. Based on previous research in health-related advertising (Kemp, Bui, and Chapa 2012), factors such as gender, diet, exercise, and weight satisfaction serve as covariates in the analyses to eliminate confounds in the results. Results are presented in Tables 2 and 3.

Table 2. Food type by advertising message on A_{ad} , subsequent indulgence intentions, and exercise intentions (study 2).

Independent variables	F-values		
	Attitude towards advertisement	Subsequent indulgence intentions	Exercise intentions
<i>Main effects</i>			
Food type (F)	4.16 ^b	37.94 ^a	20.71 ^a
Advertisement message (A)	0.01	4.06 ^b	0.94
<i>Interaction effects</i>			
F × A	2.13	4.56 ^b	1.05

Note: ^a $p < 0.001$, ^b $p < 0.05$. A_{ad} = attitude towards the advertisement.

Table 3. Means for A_{ad} , subsequent indulgence intentions, and exercise intentions (study 2).

Independent variable	Attitude towards advertisement	Subsequent indulgence intentions	Exercise intentions
<i>Ad message</i>			
<i>Non-indulgent</i>			
Hope	6.15	5.13	6.30
Fear	5.49	3.81	5.60
<i>Indulgent</i>			
Hope	4.88	6.75	4.33
Fear	5.37	6.79	4.35

Note: A_{ad} = attitude towards the advertisement.

4.2.1. Manipulation check for food type

Respondents rated the food type on a bipolar anchored scale with ‘fried chicken platter with a side of French fries’ = 9 and ‘grilled chicken platter with side salad’ = 1 as endpoints responding to the statement: ‘The scenario you read claims that Pat is eating a...’ Higher numbers indicate non-indulgent food type while lower numbers indicate indulgent food type. An ANOVA was performed to ensure that the manipulation of food type was successful. Results showed a significant difference between the indulgent ($M = 8.67$) and the non-indulgent conditions ($M = 1.12$; $F(1, 137) = 3,646$, $p < 0.001$), with means in the appropriate direction.

4.2.2. Manipulation check for advertising message

Respondents rated the advertisement message on a bipolar anchored scale with ‘fear about changes in your weight for the future’ and ‘hope for changes in your weight for the future’ as endpoints responding to the statement: ‘The advertisement message referenced what you would...’ Higher numbers indicate the hope advertisement message while lower numbers indicate the fear advertisement message. An ANOVA was performed to ensure that the manipulation of the advertisement message was successful. As expected, there was a significant difference ($F(1, 137) = 35.81$, $p < 0.001$) between the hope ($M = 6.62$) and the fear conditions ($M = 3.85$) with means in the appropriate direction.

4.2.3. Attitude towards the advertisement (A_{ad})

ANCOVA was conducted to test the effects of food type and advertising message on A_{ad} , where gender served as the covariate. There is no overall main effect of advertising message on A_{ad} ($F < 1$). However, results show a main effect for food type on A_{ad} ($F(1, 134) = 4.16, p < 0.05$), with means demonstrating that subjects in the non-indulgent condition report more favourable attitudes towards the advertisement than those in the indulgent condition ($M = 5.82$ vs. $M = 5.14$). No two-way interaction exists for advertisement by food type on A_{ad} ($F(1, 134) = 2.12, p > 0.05$).

4.2.4. Subsequent indulgence intentions

ANCOVA was conducted to test the effects of food type and advertising message on subsequent indulgence intentions, where gender, diet, exercise, and weight satisfaction serve as covariates. Supporting H2a, findings demonstrate an overall main effect of advertising message on subsequent indulgence intentions ($F(1, 129) = 4.06, p < 0.05$), with means indicating that fear advertisement messages ($M = 5.30$) are more effective at causing subjects to reduce subsequent indulgence intentions than hope advertisement messages ($M = 5.96$), as seen in Figure 1. Additionally, the results demonstrate a main effect for food type on subsequent indulgence intentions ($F(1, 129) = 37.94, p < 0.001$), such that subjects in the non-indulgent condition report a decrease in subsequent indulgence intentions versus those in the indulgent condition ($M = 4.46$ vs. $M = 6.77$). Further, results indicate a two-way interaction for advertisement by food type on subsequent indulgence intentions ($F(1, 129) = 4.56, p < 0.05$). Supporting H2b, follow-up contrasts show that when

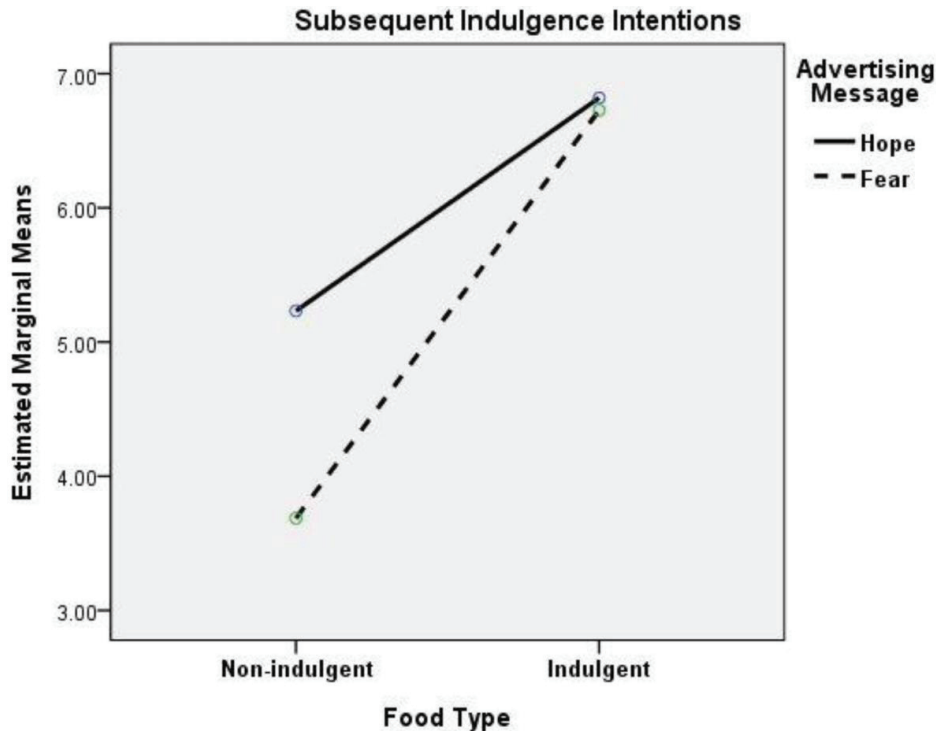


Figure 1. Advertisement by food type on subsequent indulgence intentions (study 2).

subjects view non-indulgent advertisements, fear advertisement messages are significantly ($p < .05$) more effective at causing subjects to reduce subsequent indulgence intentions compared to hope advertisement messages ($M = 3.82$ vs. $M = 5.13$).

4.2.5. Exercise intentions

Supporting H1c, results show a main effect for food type on exercise intentions ($F(1, 134) = 20.71, p < 0.05$), with means indicating that subjects in the non-indulgent condition report greater intentions to exercise than those in the indulgent condition ($M = 5.95$ vs. $M = 4.34$). Disconfirming H3a, there is no overall main effect of advertisement message on exercise intentions ($F < 1$). Since no two-way interaction exists for advertisement by food type on exercise intentions ($F(1, 134) = 1.05, p > 0.05$), H3b is not supported.

Hence, the results of Study 2 further confirm that non-indulgent food advertisements impact overall A_{ad} and subsequent indulgence intentions. Study 2 further demonstrates that this result is also extended to the intention to exercise. When viewing non-indulgent foods in a health advertising campaign, subjects report greater exercise intentions. Results of both studies show the effects of differing food types in advertisements, suggesting adaptive consequences for consumers when viewing non-indulgent food advertisements. Thus, seeing a healthy/non-indulgent food advertisement can elicit good behaviour, while seeing an unhealthy/indulgent food advertisement can elicit bad behaviour – in the form of both indulgence and exercise intentions. Extending this, Study 2 findings demonstrate that fear advertisement message appeals are more effective than hope advertisement message appeals in encouraging a reduction in subsequent indulgence intentions, in particular for those who see a non-indulgent advertisement.

5. General discussion

The key question of this research centres on whether framing messages with fear versus hope primes can impact consumer responses, particularly for advertisements including varying food types. Extant research findings are mixed regarding the effectiveness of negative and positive message frames on persuasion (Putrevu 2010). Answering a call by Maule and Villejoubert (2007) for additional research, this research furthers the understanding of the effects of framed messages on consumer responses; also, Do Vale, Pieters, and Zeelenberg (2008) mention that additional research in the areas of improving consumer welfare through understanding effects of indulgent and non-indulgent foods on health behaviour is warranted. By providing subjects with a projective, goal-to-consequence image in the advertisements and executing this inquiry with experiments, goal commitment is activated as a deliberative process (Koestner et al. 2002). The results depict that through this goal activation theory base, properly designed projective advertisements can channel individuals to make better future health decisions. Thus, this paper focuses on the understanding of fear versus hope goal-framed messages in food and health contexts. Although both of these topics are commonly observed independently in marketing and advertising research, this study contributes to such research by examining their intersection.

The objective of this research was to explore consumer responses to goal-framed appeals via the use of fear versus hope primes and examine whether interactive effects were impacted by food type and advertisement (campaign). Across two non-student studies, the findings suggest that when individuals view non-indulgent foods in an advertisement, they experience more favourable attitudes towards the advertisement and decreased subsequent indulgence intentions, while encouraging exercise intentions. More specifically, when viewing

non-indulgent food in advertisements accompanied with fear appeals, the effect of reducing subsequent indulgence intentions is particularly strong relative to hope appeals. Moreover, fear advertisement messages display much more pronounced effects of reducing subsequent indulgence in general. However, our predictions of fear advertisements and non-indulgent advertisement campaigns on exercise intentions could not be confirmed. We suspect that exercise may not necessarily be as concrete of a strategy for weight loss compared to refraining from eating unhealthy and indulgent foods. Further, as exercise requires more time, attention, and effort relative to simply refraining from indulgent intentions, this may explain why the predicted interactions could not be substantiated.

Additionally, numerous fear messaging versus hope studies demonstrate that fear appeals are quite effective in convincing consumers to act against questionable and/or unhealthy behaviours, as the negative valence produced by fear appeals encourages more thorough processing of the propositions (Chang 2007; Kuvaas and Selart 2004; Sobh 2011). On the other hand, hope-framed messages generally produce a positive valence residual overall, which reduces more thorough processing of the information – thus lowering the impact of the overall message compared to fear framed messages on persuasion. Further, consumer health and welfare research has shown that not only do consumers estimate non-indulgent healthy foods as being lower in caloric content relative to indulgent, healthy food options, but, also, they underestimate the calorie content of unhealthy food options advertised as healthy compared to other unhealthy alternatives (Chandon and Wansink 2007). Khan and Dhar (2006) as well as Wilcox et al. (2009) also demonstrate that virtuous healthy decisions can lead to increased indulgence intentions as this ‘good behaviour’ gives license to misbehaviour given the previous virtuous actions. Together, when consumers are provided hope-framed messages along with foods that are perceived to be healthy and non-indulgent, this can indeed lead to higher indulgence intentions. Based on the directionality of the means, the results essentially suggest that the ‘what-the-hell’ effect is exacerbated after seeing unhealthy/indulgent advertisements. Polivy and Herman (1985) coined the ‘what-the-hell’ effect to describe eaters’ overindulgence when they have exceeded their daily goal of caloric intake for the day; specifically, eaters succumb to further overindulgence temptations. However, in this case, not only does the ‘what-the-hell’ effect translate to unhealthy subsequent food consumption intentions, but also it translates into poor subsequent exercise intentions.

Consistent with findings reported in prior priming research, fear advertisement messages induce healthier subsequent consumption intentions (Sobh and Martin 2011); however, contrary to some findings (Chang 2007), viewing high-risk products such as unhealthy foods does not result in decreases in subsequent indulgence intentions. However, as discussed previously, the provision of healthy/non-indulgent food in advertisements leads to more adaptive health behaviours.

5.1 Limitations, implications, and research directions

The series of studies conducted in the present research is limited in scope and size (e.g., a few types of stimuli, a single media type, and a specific regional area of the US). Rather than providing subjects with projective scenarios, we could also fabricate actual advertisement viewing situations and test with additional media formats, along with the synergistic effects of multiple advertising formats and complexity levels (Krishen and Homer 2012). Whereas data show that non-indulgent advertisements lead to healthier subsequent consumption intentions as well as exercise intentions, future research can extend these findings to also measure subsequent eating behaviours in a lab or field setting.

There are many avenues for future research based on our findings. In particular, since obesity and inactivity are growing concerns, in particular for younger generations, and they have direct impact on body image dissatisfaction and self-esteem (Krishen and Worthen 2011), if fear appeals do not have ethical issues for younger generations, fear framing can be an effective tool going forward. Future research can include affective measures to determine their impact on subsequent intentions to indulge and exercise – particularly among those at greater risk of becoming overweight and/or obese. More recently, Kemp, Bui, and Grier (2011) and Kemp, Bui and Chapa (2012) examined the influences of emotional eating and overconsumption among at-risk Americans as well as emotional responses due to food advertisements, respectively; however, limited research shows the impacts of fear emotional appeals on health behaviours among overweight and/or obese consumers. The need to explore fear appeals among this particular demographic deserves attention as this social issue continues to dominate obesity-related conditions and deaths associated with obesity in the US, according to the CDC (2012).

Another area that warrants attention is the impact of self-control as either a state or trait measure on subsequent health decisions. Researchers continue to identify ways in which loss of self-control can lead to avoidable behaviours, but the combination of this loss with, for example, fear versus hope appeals would be an interesting topic for further consideration. Finally, we suggest that future research should examine the interplay of post-consumption feelings such as guilt and regret with food choice decision-making. Regarding post-consumption regret, extant research shows that regret triggers negative emotion levels and subsequent lowered satisfaction (Bui, Krishen, and Bates 2011); to what extent can post-consumption regret impact subsequent indulgence intentions when individuals make an unhealthy food choice, if at all? Such questions present additional challenges for future research.

Since the prevalence of obesity is not limited to the US, cross-cultural testing of fear-priming health advertisements would be a fruitful and beneficial area of future research. For example, research finds that cultural self-concept plays a large role in advertisement diagnosticity and eventually brand evaluations (Chang 2010). In addition, as the present research did not seek to explore gender differences as they pertain to the findings, future research can focus on female role portrayals and gender theory implications of the findings as they relate to health advertising (Krishen, LaTour, and Alishah 2014). Likewise, we would suggest that future research should examine our findings with respect to new research regarding health and nutrient claims (Choi et al. 2013), and multiple forms of media in addition to print advertisements, such as television commercials (Dianoux, Petrovici, and Minondo 2013).

Our research has implications for both theory and practice. Pertaining to theory development, we introduce a goal theoretic framework to understand how consumers respond to fear- and hope-primed messages in health advertisements. Additionally, this research provides a framework to understand consumer health patterns via the influence of advertising primes. From a practitioner's perspective, our results suggest that if the government and consumer welfare organizations as well as the marketers who are interested in creating effective health promotions targeting obesity will properly execute fear-inducing promotional messages coupled with non-indulgent food offerings, they can indeed satisfy the notion that 'One good health decision can lead to another.'

Disclosure statement

No potential conflict of interest was reported by the authors.

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Appendix 1. Manipulations (Study 1).

Indulgent advertisement scenario	<p>Instructions: The following scenario is given in a television advertising campaign which pertains to the obesity epidemic among college students. Please read the scenario and answer the questions following it.</p> <p>The weekend is finally here and a group of college students decide to go to a favorite restaurant nearby for dinner. After everyone looks at the menu and decides to place their order, the waitress comes by to take it. One of the group members, Pat, who is particularly overweight, is the first to place an order. 'May I have the <i>fried chicken platter with french fries on the side</i> please?'</p>
Non-indulgent advertisement scenario	<p>Instructions: The following scenario is given in a television advertising campaign which pertains to the obesity epidemic among college students. Please read the scenario and answer the questions following it.</p> <p>The weekend is finally here and a group of college students decide to go to a favorite restaurant nearby for dinner. After everyone looks at the menu and decides to place their order, the waitress comes by to take it. One of the group members, Pat, who is particularly overweight, is the first to place an order. 'May I have the <i>grilled chicken platter with a side salad</i> please?'</p>

Appendix 2. Examples of manipulations (Study 2).

CONDITION: Non-indulgent X fear advertising message

Instructions: The following scenario is given in a television *advertising campaign* which pertains to the *obesity* epidemic among college students. Please read the scenario and answer the questions following it.

'The weekend is finally here and a group of college students decide to go to a favorite restaurant nearby for dinner. After everyone looks at the menu and decides to place their order, the waitress comes by to take it. One of the group members, Pat, who is particularly overweight, is the first to place an order. "May I have the grilled chicken platter with a side salad please?"'

[Following this previous television advertising campaign, **you then view** the following *Public Service Advertising Campaign*]



APPENDIX 2 (cont.)

CONDITION: Indulgent X hope advertising message

Instructions: The following scenario is given in a television *advertising campaign* which pertains to the *obesity* epidemic among college students. Please read the scenario and answer the questions following it.

‘The weekend is finally here and a group of college students decide to go to a favorite restaurant nearby for dinner. After everyone looks at the menu and decides to place their order, the waitress comes by to take it. One of the group members, Pat, who is particularly overweight, is the first to place an order. “May I have the fried chicken platter with french fries on the side please?”’

[Following this previous television advertising campaign, **you then view** the following *Public Service Advertising Campaign*]

