Are Your Eyes Really Bigger Than Your Stomach? An Investigation of the Importance of Selective Exposure to Weight Management Articles Featuring Exemplification and Conveying Efficacy for Potential Weight Management Belief and Behavior Change

Dissertation

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of The Ohio State University

By

Melanie Ann Sarge, M.A.

Graduate Program in Communication

The Ohio State University

2012

Dissertation Committee:

Silvia Knobloch-Westerwick, Advisor

Michael D. Slater

Emily Moyer-Gusé

Daniel G. McDonald
Copyright by

Melanie Ann Sarge

2012
Abstract

One of public health message designers’ greatest struggles is to gain sufficient exposure needed for desired message effects (Hornick, 2002). Public health messages face a vast amount of competing, attention-grabbing advertisements and have a target audience that is often defensive and resistant to information attempts to change their unhealthy behaviors (Norcross & Goldfried, 1992; Slater & Flora, 1991). Furthermore, a limited amount of research on message exposure is available to guide designers on how to overcome such barriers. Seeing as America faces a major obesity epidemic that contributes to an estimated 300,000 preventable deaths per year, the present work examines health messages in the context of weight loss and management. Specifically, message characteristics are evaluated to determine whether they foster exposure to recommendations on healthful weight management. Drawing on five theoretical frameworks, the present three-session 2x2 experiment examined impacts of efficacy and exemplification, as characteristics of online weight management message, on selective exposure and change in weight related beliefs and recommended behaviors. Exposure impacts varied depending on interactions with person characteristics of at-risk individuals. Change in recommended behavior was positive and significantly higher in efficacy message groups than for any other combinations.
Dedicated to my family, friends, boyfriend and fish (Wilbur).
Acknowledgements

I would like to acknowledge the following individuals for their involvement in the completion of this academic challenge.

- My advisor, who provided continuous assistance and partial funding to make this project possible.
- My committee members, who gave guidance, feedback and patience at every step of this process.
- Dr. Lance Holbert, who was always there for me (and the rest of the graduate students) and never failed to give the most encouraging advice and support.
- Dr. Janice Krieger and Dr. John Dimmick, who kept me sane by involving me in additional research projects other than my never-ending dissertation.
- The graduate students who preceded my time at OSU, particularly my dear friends: Dr. Hmielowski, Dr. Hutchens, Dr. Myers, Dr. Cicchirillo, Dr. Elias and Dr. Geidner. Thanks for showing me the way.
- My 2007 cohort, particularly those who stuck it out with me (Jennifer Moreland and Alyssa Morey) and those I still keep in touch with (Julie Lather, Stephanie Soduk, Dana Eisenberg, and Angela Poe Dossett). Thanks for the good times.
- My brothers and my sister-in-laws, who have always told me how proud they are of me.
- Bonnie, Liz and Andrea, who remain my best friends despite all my adventures.
- My boyfriend, John Velez, who never left my side through the craziness, made me laugh during the tough times, and continuously kept life fun.
- Most of all I want to acknowledge my parents, Maureen and Carmen Sarge, who have given me unconditional love and support throughout my entire life. Thank you for making me the person I am today and for always showing encouragement and support for all that I do. I could not have accomplished this without you.
Vita

May 2005……………………………….B.S. Communication, University of Kentucky
June 2009………………………………M.A. Communication, The Ohio State University
September 2009 to present…………….Graduate Teaching Assistant, School of
Communication, The Ohio State University

Publications

coverage of cervical cancer and the HPV vaccine: Implications for geographic
health inequities. Health Expectations

Sarge, M. A. & Knobloch-Westerwick, S. (in press). Impacts of efficacy and
exemplification in an online message about weight loss on weight management
self-efficacy, satisfaction and personal importance. Journal of Health
Communication

Fields of Study

Major Field: Communication
List of Tables

Table 1. Number of Magazine Articles by Issue……………………………………….146

Table 2. Construct Means of Article Leads Chosen for the Main Study…………….....147

Table 3. Texts of Article Headlines and Leads…………………………………………148
List of Figures

Figure 1. Changes in Weight Management Behavior as a Function of Efficacy as a Message Element………………………………………………………………………………150
Chapter 1: Overview

The current dissertation has three objectives. The first objective is to contribute to the limited selective exposure research in health communication. Selective exposure patterns affected by the presence of theoretically relevant message elements, implemented in weight management articles, are identified. The second objective is to examine belief and behavioral impacts after selective exposure to weight management articles that contain various combinations of message elements. The final objective is to investigate the influence of person characteristics (psychological and biological) associated with at-risk individuals, on selective exposure patterns and behavior change. These three overarching objectives ultimately serve as steps in a procedure that can be followed to determine what message elements for at risk individuals can increase exposure and decrease avoidance to important health messages in an effort to enhance the likelihood of desired belief and behavioral outcomes. The current application and execution of this procedure is detailed in the following seven sections of this dissertation.

The seven sections of the current dissertation include: (1) an introduction to the barriers that public health messages face while trying to reach their target audiences and a description of a solution to overcome these barriers; an overview of the selective exposure perspective and its role in increasing recipients’ selection of public health
messages (2) a discussion of the important health issue of overweight and obesity in America; a literature review of theories identifying exemplification and efficacy as concepts related to the health context and that are crucial components of message exposure and the behavior change process; a review of current research examining these concepts as message elements; predictions for impacts of the theoretically relevant message elements on selective exposure to weight management messages, perceived self-efficacy, character connection, state reactance, and the adoption of recommended weight management behaviors (3) a description of person characteristics associated with individuals struggling with weight management and who are at high risk for health issues due to overweight or obesity; predictions of how these person characteristics impact selective exposure and subsequent behavior change (4) the presentation of two studies serving as preliminary research that assists with the construction of stimuli for the main experiment (5) an explanation of the main study’s methods and measures that are used to examine the predictions proposed in section two (6) a presentation of the results from analyses testing the predications (7) a summary and discussion of the findings; conclusions that reflect on this work and suggest directions for future research.
Chapter 2: Introduction to Issue

Public Health Messages’ Struggle To Gain Exposure

We receive around 600 opportunities to be exposed to media messages per day (Media Matters, 2007). These messages we encounter encompass various themes, including money, success, love, sports, politics, and health. Given the ubiquitous nature and boundless topics available to individuals at any given moment in their day, advertisers and communication experts creating messages must continuously compete for the attention of their target audience (Randolph & Viswanath, 2004). In the field of advertising, message designers are constantly aware of their competition and billions of dollars are invested in research determining how to break through the clutter of competing messages that exist in the media environment (Rotfeld, 2008). Conversely, message strategists in the field of communication science have spent the majority of their time and money testing what external and internal circumstances achieves the ultimate goal of message acceptance (e.g., producing desired attitudes and behaviors promoted by the message) (Maibach & Parrott, 1995). While both aims are necessary for effective messages, the latter focus on message acceptance is inconsequential if exposure to the message does not occur (McGuire, 1989).
Communication message designers have for years acknowledged that target audiences must attend to messages before effects can be produced (i.e., McGuire, 1989) yet empirical research on this step in the behavior change process has largely been neglected. Behavior change, for the most part, is an ultimate goal shared by both advertisers and communication message designers (Maibach & Parrott, 1995; Nan & Faber, 2009; Rosenstock, 1960). Research efforts determining how to gain audience exposure and attention give advertisers’ messages an advantage over most communication and education campaign messages. Advertisers’ messages have been designed to attract attention so that target audiences are more likely to be exposed to the message, regardless of the effectiveness of the message or the success of the solutions presented in the message (Hornik & Kelly, 2007). However, effective communication and education campaign messages presenting successful solutions may not even be reaching their target audience due to the lack of research examining exposure and attention to messages (Hornik, 2002).

Public health messages found in information pamphlets and communication campaigns are consistently being evaluated based on how well they attain the desired outcome (Maibach & Parrott, 1995), whether it is encouraging individuals to talk to their doctor or actually persuading individuals to make healthier lifestyle choices (U.S. DHHS, 2005). These evaluations are either conducted after forced exposure encounters to the
message or get evaluated without experimental research. Hence, these evaluations typically neglect exposure and are not sufficient for answering the question as to whether individuals will select such useful messages when they are presented among various competing messages (Morris, Rooney, Wray, & Kreuter, 2009). For instance, competing messages that include advertisements for health products or services that claim to solve the public health issue of interest. It is important that these public health messages promoting daily health maintenance and effective solutions to health issues are not overshadowed by less effective or even harmful solutions suggested by commercially motivated communication efforts that do not have the best interest of the public as their primary goal (Hornik & Kelly, 2007). Research identifying theories and message elements that assist in determining how these important public health messages can better reach target audiences is much needed.

An additional barrier, besides the lack of research available to guide message designers aiming to enhance the attractiveness of public health messages, is the fact that health is a context of information that may be prone to induce information avoidance. Often individuals that public health messages aim to reach are those that partake in unhealthy behaviors (Maibach, Maxfield, Ladin, & Slater, 1996; Slater & Flora, 1991). These are targeted because they have a health problem that could be resolved, but for various reasons they are unable to do so. For instance, the unhealthy behavior may be too
connected to an individual’s self-concept and identity, the individual may enjoy the behavior to an extent they don’t want to change it, they are in denial that the problem exists, or the behavior is just too difficult to change (Comello, 2009; Prochaska & DiClemente, 1983). Therefore, these high priority candidates for health education efforts are often defensive and resistant to information that attempts to change their unhealthy behavior (Norcross & Goldfried, 1992; Patterson, Haines, & Popkin, 1994; Slater & Flora, 1991). Research identifying what message elements make a message more appealing may also alleviate threatening aspects surrounding the recommended belief or behavior; ultimately decreasing at-risk individuals’ defensiveness and information avoidance.

Overall, public health messages struggle to reach their target audiences because of the vast amount of competing attention-grabbing advertisements, limited exposure research to guide designers, and increased information avoidance. If research efforts focus on identifying what message elements for which recommended health behavior influences message exposure, these message elements can be implemented in order to increase health information exposure patterns among at-risk individuals. Further, impacts on belief and behavior change ultimately desired after message exposure can be determined. This process would lead to the development of more attractive public health
messages that increase attention paid to useful health information of considerable importance for individuals’ daily health maintenance and society’s health as a whole.

Capturing Health Information Exposure Patterns

Examining at-risk individuals’ health information exposure patterns would contribute to overcoming the barrier of limited exposure research and knowledge that hinders public health message designers’ ability to maximize exposure to important health messages. However, there are a few lines of research that hold different perspectives on what methodological approaches should be implemented in order to measure exposure. In the following paragraphs these approaches will be described and one particular approach, selective exposure, will be highlighted as the method adopted in the current study because of its ability to assist with the additional barrier public health message designers face—competition.

Context Driven Exposure

Many theories of information management address information seekers’ decision to select or avoid health messages based on uncertainty-discrepancy states and the feelings of anxiety aroused by these states. For instance, Brashers and colleagues’ work with uncertainty management theory has identified health information seeking strategies as a result of motivations to reduce uncertainty about a chronic illness. Information seeking is often self-reported during interviews and focus groups and then categorized as
active when individuals purposefully seek information sources, and passive or interactive, when individuals place themselves in environments where information might be presented or where informative interactions might be initiated (Berger & Bradac, 1982; Brashers, Neidig, Haas, Dobbs, Cardillo, & Russell, 2000). Similarly, this area of research also identified health information avoidance, where the individuals try to maintain or endure their current uncertainty about their condition out of fear of what they might learn and in order to maintain hope that could potentially be lost if presented with negative information (Brashers, Neidig, & Goldsmith, 2004). Self-report examples of information avoidance from interviews and focus groups with patients include purposefully avoiding information sources, situations that would present information to them, or interactions where they would be tested or hear results.

However, this area of research utilizing interviews and focus groups to determine context specific information seeking and avoidance strategies of those with chronic illnesses fails to conduct methods that capture daily information exposure or avoidance patterns. We encounter an enormous amount of information everyday and identifying our reactions to this information would be extremely helpful in determining when and under what circumstances individuals would be willing and able to attend to messages. Methods for measuring this type of exposure to everyday messages have been captured by the following two perspectives, rational choice models and selective exposure.
Rational Choice Models of Exposure

Rational choice models of media exposure (e.g., Uses and Gratifications Approach—Blumler & Katz, 1974) follow the functional perspective of Fishbein and Ajzen’s (1975) expectancy-value theory. This perspective suggests behavior is a function of the perceived probability that the behavior will have a specific outcome and the degree to which they perceive the outcome has a negative or positive consequence. In other words, rational models involve a great deal of cognitive thought, which drives the behavior they choose—in this case the media messages they select.

The assumption that conscious or rational thought drives message selection and exposure guides the research perspective’s methods of studying exposure. Specifically, the assumption that individuals are aware of their motivations to attend or avoid messages allows researchers to capture these choices through self-report measures, including introspection and recall. While these types of measures are sometimes the only manageable option for some large-scale surveys, obvious concerns exist relative to biases in exposure reports (Prior, 2009). For instance, inaccuracy or variation in a persons’ ability to account past or foresee future or hypothetical message encounters. Furthermore, by not capturing ‘actual exposure’ (observing exposure that takes place at the time of a message encounter) this method fails to provide message designers with knowledge about exposure patterns in the face of competing messages. The next perspective—selective
exposure—which is employed in the present study, adopts a methodological approach that measures ‘actual exposure’ in a quasi-naturalistic message environment with alternative message options for selection.

**Selective Exposure**

Selective exposure was often historically explained as the selection of media that is consistent with one’s own beliefs. This conceptualization was generated by selective exposure’s appearance in Lazarsfeld, Berelson, and Gaudet’s (1944) work on the selection of political media aligned with an individual’s political attitudes and was addressed with greater detail and made even more popular in Festinger’s (1957) theory of cognitive dissonance. This phenomenon, however, is just one instance of selective exposure which pertains to reinforcement-seeking exposure motivations. The broader paradigm of selective exposure is the phenomenon where media users do not allocate their time and choices equally among media messages, but instead demonstrate patterns of preference and avoidance based on situational circumstances and person characteristics (Zillmann & Bryant, 1985).

In selective exposure research, choices and preferences of individuals’ media message exposure are generally considered less conscious decisions that do not entail much deliberation as to why the decision was made (Zillmann & Bryant, 1985). Selective exposure research finds, in most empirical cases of media selection, that the ability to
predict an outcome of media exposure is unlikely and suggests that media choice involves little awareness or cognitive effort (Zillmann & Bryant’s, 1985). This assumption differentiates selective exposure from the functional perspective held by rational choice models. Given that these perspectives are so contradictory, it can be expected that selective exposure research differs greatly in its methods of measuring exposure as well.

Selective exposure is predicated on the assumption of unconscious message selection. That is, individuals often do not know why they are selecting the media they are using (Zillmann & Bryant’s, 1985), hence, selective exposure studies make inferences about motivations based on experimental exposure data that has been tracked unobtrusively. For instance, baseline measures will identify correlations between individual differences and selection trends (i.e., Knobloch-Westerwick & Hastall, 2010) or states may be induced to determine their effect on selection (i.e., Reinecke & Trepte, 2008).

Selective exposure can be examined a number of ways in order to determine its causes, which are no longer just the reinforcement-seeking strategies suggested by Festinger (1957). Most commonly selective exposure is analyzed in terms of choice, preference, and time (Zillmann, 1985). Choice is when an individual selects a media message over other messages that are offered at a specific time and when situational
influences play a large role. Preferences refer to an individual’s media habits or general tendencies to choose media of similar nature when given the opportunity. Time spent with message choices of preferences is often recorded and used as an overall selective exposure measure (i.e., Knobloch, Carpentier, & Zillmann, 2003), as described in the present study’s measures.

For the most part, selective exposure has been examined in political communication (i.e., Lazarsfeld, Berelson & Gaudet, 1944; Stroud, 2010), news reception (i.e., Knobloch-Westerwick, 2008; Young Mie, 2008), and entertainment contexts (i.e., Knobloch-Westerwick, 2006; Oliver, 2003; Reinecke, 2009). Selective exposure research has scarcely been examined in the health communication field. This neglect can be seen from only a handful of studies utilizing health information as their issue of study in the mid 60s to late 70s (for a review, see Frey, 1986), and a couple that appeared early in the new millennium (Jonas, Greenberg, & Frey, 2003; Jonas, Schulz-Hardt, Frey, & Thelen, 2001; for a review, see also Smith, Fabrigar, & Norris, 2008). The previous neglect of selective exposure research applied to health communication efforts and the traditional reliance on effects from forced exposure situations as effective evaluations of health messages has resulted in numerous failed public health campaigns (Hornik, 2002; Noar, 2008).
The selective exposure perspective and methodological approach are of key importance to the task of overcoming barriers that are hindering the improvement of public health message appeal. Employing selective exposure allows researchers to examine exposure unobtrusively at the time of a message encounter and in a setting where individuals are able to avoid or disregard a target message amongst several competing messages. Limited research is dedicated to whether messages will be selected by the target audience when an encounter is not accidental or forced (e.g., Pease, Brannon, & Pilling, 2006) and there is much to be learned from observing exposure in this more natural message consumption setting.

The present study displays health messages in a selective exposure setting in order to learn what message elements increase selective exposure and what elements decrease selective exposure. Furthermore, belief and behavior impacts of selective exposure to messages with varying elements as well as person characteristics’ influence on selective exposure and subsequent impacts are able to be investigated. A handful of recent studies, applying selective exposure in this manner suggest that it is an effective method to determine what message elements can give public health messages the sufficient exposure needed to produce desired belief and behavioral outcomes (i.e., Hastall & Knobloch-Westerwick, 2011; Johnson & Knobloch-Westerwick, 2011; Kessels et al., 2011; Sarge & Knobloch-Westerwick, 2011).
Chapter 3: Theoretical Review and Predictions

Potential Message Elements To Impact Selective Exposure And Subsequent Beliefs and Behaviors

Now that selective exposure’s theoretical perspective has been described and its methodological approach has been chosen to observe exposure to health messages in the present study, suggestions are put forth as to what message elements could increase individuals’ selective exposure and enhance subsequent message impacts on beliefs and behaviors. A number of theories provide solid frameworks for public health message designers to use when trying to increase their target audiences’ selective exposure. Influential concepts from these theories, many of which are already used in messages to affect attitudes, beliefs and behaviors (e.g., perceived risk, sensation-value, efficacy and exemplification), can help determine impacts on selective exposure. Once these trends are identified, those concepts serving as message elements that increase selection and decrease avoidance of health messages can then be implemented into useful public health messages and campaigns. Sufficient selective exposure to these public health messages portraying effective solutions to health issues will be more likely to produce intended persuasive outcomes.
Two aspects should be considered before choosing concepts to examine as potential message elements—whether they are (1) intuitively or empirically appropriate for the health context of interest and (2) theoretically associated with both message exposure and belief or behavior change. The two concepts that fit these criteria and thus, are examined as message elements in the present study are exemplification and efficacy. In the following, these concepts are briefly defined, but then are elaborated on in a discussion of the health context of interest and a review of five theories (social cognitive theory, informational utility, exemplification theory, entertainment overcoming resistance model, and social comparison theory) that suggest these concepts are related to either message exposure or belief and behavior change or both.

**Exemplification**

Exemplification involves the use of qualitative information or descriptions based on characteristics. Exemplars are a type of narrative defined as cases of individual behaviors or specific instances that represent more general phenomenon and are commonly used in various everyday communications (Zillmann, 1999). In this respect exemplars serve as models of behavior that can influence others’ behaviors through social learning (Bandura, 2004). Exemplars are most often compared to an alternate method of information presentation that can convey similar ideas quantitatively. This contrary type of evidence is an information presentation that describes ideas based on numeric
quantities as opposed to characteristics of specific cases. Messages that emphasize quantitative, general information are often referred to as base-rate or statistical messages (Ajzen, 1977).

**Efficacy**

The concept of efficacy was originally investigated in Bandura’s (1977) social learning theory (later extended to social cognitive theory, Bandura, 1986) as a mechanism to predict and explain behavior—with two types in terms of expectations for behavior, “efficacy expectations” and “outcome expectations”. Efficacy expectations, more commonly referred to as self-efficacy perceptions, are beliefs that one can personally execute a behavior in order to elicit a certain outcome. Outcome expectations, more commonly referred to as response efficacy perceptions, are beliefs about whether the behavior itself will actually produce the expected outcome apart from an individual’s capability to perform it. A behavior, however, is always task- and situation-specific and the expected outcome is often tied to a certain goal, thus both efficacy and outcome expectations vary by context (e.g., Hofstetter, Sallis, & Hovell, 1990).

**Overweight and Obesity Issues In America**

The overweight and obesity issue was chosen as the health context for this examination of health messages due to the prevalence and severity of consequences of overweight and obesity among the public. America faces a major obesity epidemic,
presenting a serious health issue that contributes an estimated 300,000 preventable deaths per year (HHS, 2007). Over the past 30 years the prevalence of obesity has dramatically increased among both adults and children (National Health and Nutrition Examination Survey). In 2007/08, 34% of U.S. adults were overweight and 40% obese (Ogden & Carroll, 2010). Furthermore, for this health area, competing commercial messages promoting weight loss solutions are a particularly plaguing issue for public health message designers (FTC, 2002).

For years public health professionals have promoted basic federal guidelines that are proven solutions to weight loss and maintenance, such as the minimum amount of moderate-intense physical activity (Moore, Fulton, Kruger, & McDivitt, 2010) and recommended intake of fruit and vegetables (Thompson, et al., 2011). Considering the extent of time and money spent on health campaign efforts presenting these effective solutions (Reedy & Krebs-Smith, 2008), it is puzzling that we are seeing a continuous upward trend for this preventable disease. This trend suggests a lack of success for public health campaigns. However, this lack of success may not solely be a result of behavioral adherence issues. Only a quarter of the population is actually familiar with the federal dietary health guidelines pertaining to body weight management (Thompson, et al., 2011). Low levels of knowledge for these guidelines indicate that public health messages
may not be reaching their target audiences effectively and getting noticed by the public is a precondition for successful public health messages (McGuire, 1989; 2000).

Public health weight management messages are promoted through health communication and education efforts as opposed to being heavily advertised and may not sufficiently stand out from the crowd of competing weight loss messages. Most weight loss messages that exist in media environments are made up of advertised products and services for weight loss and promise a “quick fix” to the problem (FTC, 2002). These “quick fix” solutions make up a $59 billion dollar market (MarketData Enterprises, 2009) and flood the dieting and exercise advice offered in advertising, popular magazines, and online (Campo & Mastin, 2007; FTC, 2002). Thus, the 53% of Americans who are trying to lose weight (IFIC, 2009) are likely attempting these types of “quick fix” weight loss strategies as opposed to the effective solutions promoted in public health messages. However, these alleged “quick fixes” have not demonstrated positive influences on the general weight problem and in fact have often been associated with subsequent health issues (FTC, 2002). Hence, the obesity epidemic could be better curbed if message designers discover what can be changed about public health weight loss messages to attract more exposure and promote effective health behaviors necessary for long-term weight management success.
Concepts that have been shown to play a role in behavior change are ideal to examine as potential message elements that increase selective exposure given most commercial messages advertising weight loss solutions (e.g., quick fixes) and public health recommendations for weight loss/maintenance (e.g., count calories/monitor food intake; eat breakfast; choose low calorie meals and smaller food portions; limit your screen time; reduce eating out) are behavioral in nature. The experimental manipulation of efficacy has led to increases in perceived self-efficacy and subsequent adoption of weight loss behaviors (for a review, see Strecher, McEvoy, Becker, & Rosenstock, 1986). Behavioral impacts due to the use of exemplars modeling weight loss solutions have rarely been studied, yet a couple of studies found that negative dieting behaviors (e.g., skipping meals) (Wertheim, Mee, & Paxton, 1999) and regular eating habits (Davison & Birch, 2001) modeled by parents predicted such behaviors among their children. Despite the limited research examining behavioral outcomes due to exemplars, the appearance of exemplars demonstrating exercise routines and sharing their weight management stories is prevalent throughout commercial messages found in popular women’s magazines (Author, in prep). Therefore, both exemplification and efficacy have reasonable connections to this health context and should be examined relative to their potential impact on selective exposure and subsequent belief and behavioral outcomes.
Theoretical Review of Exemplification And Efficacy

Exemplification and efficacy are already prevalent in messages and interventions for the health context of interest to the present study, overweight and obesity. Furthermore, there is empirical support linking their presence to weight related behavior change. While these connections to the health context suggest their potential to influence selective exposure and subsequent belief and behavioral impacts, theoretical relationships need to be established. These theoretical relationships serve as frameworks that assist in the development of specific predictions proposed and examined in the present study. The following discussion introduces five theories and highlights exemplification and efficacy’s existence within each.

Social cognitive theory. Bandura’s social cognitive theory (1986), an extension of his earlier social learning theory (Bandura, 1977), was developed to predict and explain behavior with concepts such as efficacy and modeling. According to Bandura, behavior greatly depends on efficacy—how an individual evaluates (1) own ability to perform a behavior and (2) the probability of the expected outcome (Bandura, 1977). Further, individuals pursue or put more effort into tasks they feel they can accomplish and associate positive outcomes with, while they avoid or put less effort into tasks for which they have less efficacy and negative outcome expectations (Bandura & Cervone, 1983; Maibach & Murphy, 1995).
Efficacy as a message component has a far-reaching significance for behavioral effects, reflected in its key role in theories such as the Health Belief Model (Rosenstock, Strecher, & Becker, 1988) and Extended Parallel Process Model (Witte, 1992) and its utility in development of specific health efficacy beliefs (e.g., Lee et al., 2008). Empirical evidence shows that implementing efficacy information into messages or interventions increases efficacy perceptions and, subsequently, behaviors in question are more likely adopted (as discussed in Bandura 1982; 2004a; Chambliss & Murry, 1979; O’Leary, 1985).

Bandura (1977; 1982; 1991) outlined four sources of information by which individuals’ efficacy perceptions could be enhanced: Performance accomplishments can increase efficacy perceptions pertaining to a behavior through one’s own successful experience enacting that behavior. Vicarious experience enhances efficacy by observing another person successfully model the behavior in question. Verbal persuasion is simply the idea that efficacy beliefs can be improved through suggestive influence. The fourth source, emotional arousal, references a negative impact on efficacy beliefs due to its association with heightened anxiety, which could serve as an indicator of vulnerability or incompetence regarding the behavior in question.

Vicarious experience as a method of increasing efficacy perceptions and subsequent behaviors is Bandura’s concept of modeling. Vicarious experience highlights
the importance of behavior models, which can be considered equivalent to exemplars, because exemplars serve as models of behavior influencing others’ behaviors through social learning (Bandura, 2004b). That is, featured exemplars in messages can act as models of behavior by which individuals can learn, which, in turn, enhances efficacy perceptions and increases the likelihood they will adopt or change a behavior (Bandura, 2001). Additionally, modeling of behavior through specific cases or personal examples has been shown to aid persuasion (Singhal, Cody, Rogers, & Sabido, 2004; Slater, 2002). Exemplars increase the likelihood of relating to the content or characters, which in turn, fosters adoption of beliefs and behaviors (Bandura, 1986; 2004b). Application of this social cognitive theorizing can be seen in entertainment formats that embed exemplars performing promoted behaviors to induce behavior change (for review, Singhal et al., 2004).

Less social cognitive research has addressed potential message efficacy and exemplar impacts on information selection behaviors. Before positive behavioral outcomes can occur from exposure to information sources that increase efficacy perceptions, individuals must be willing to select this efficacious information. Therefore, it is of key importance to determine the influence of efficacy, as a message element, on selection. Following propositions outlined by social cognitive theory, individuals should feel more positive about their own weight loss capabilities (self-efficacy perceptions) and
would be more likely to attempt a recommended behavior after reading about concrete exemplars succeeding at a weight loss behavior (efficacy information source) as opposed to reading about those who have failed. Further, a task such as selective exposure that could be useful in achieving a behavior, or a source that presents positive outcome expectancies, might be pursued with greater effort when a person anticipates that their efficacy toward the behavior is will be enhanced (Bandura & Cervone, 1983; Maibach & Murphy, 1995).

**Informational utility**. Informational utility (Knobloch-Westerwick, 2008) is a theory that suggests an alternative explanation to the confirmation bias, which states that individuals select information that is consistent with their own attitudes and opinions and avoid inconsistent information (Festinger, 1957; Lazarsfeld, Berelson, & Gaudet, 1944). Informational utility simply suggests that individuals selective information based on the utility of that information—the more useful the information the greater the selective exposure (Knobloch-Westerwick, 2008; (Knobloch, Carpentier, & Zillmann, 2003; Knobloch-Westerwick, Carpentier, Blumhoff, & Nickel, 2005).

There are four utility dimensions of informational utility theory that, when present, progressively enhance the usefulness of that message: perceived magnitude, likelihood, immediacy and efficacy. These dimensions are, for the most part, some of the same behavior dimensions used in persuasion models, but are applied to the information
selection process (Knobloch-Westerwick, 2008). That is, informational utility recognized that many of the same types of variables that regulate behavior, or behavior change for that matter, regulate selection as well. In view of the influence efficacy has on belief and behavior change (see discussion on social cognitive theory), informational utility theory suggests that information conveying efficacy would increase utility perceptions of the message and consequently, selective exposure to it (Knobloch-Westerwick, 2008).

**Exemplification theory.** Exemplification theory, which focuses on the use of exemplars in changing perceptions, points out that the cognitive schema that is activated because of similarities or personal characteristics expressed in exemplars can make a message feel more real (Zillmann, 1999). Zillmann (1999) describes exemplars as concrete and vivid presentations of information. His exemplification theory suggests that these characteristics, often associated with enjoyment consequences, attract more attention as opposed to more abstract, pallid presentations such as base-rate messages. Additionally, some research suggests that quantitative information can present a cognitive challenge that reduces some individuals’ willingness to process a message, which can subsequently reduce message effects (Yalch & Elmore-Yalch, 1984).

Exemplification theory has been the framework applied in many efforts to change beliefs about safety and health (Zillmann, 2006; Zillmann & Brosius, 2000; Zillmann & Gan, 1996). It has also demonstrated that the use of exemplars is more successful than the
presentation of base-rate information at changing estimates of the prevalence of events, perceptions of health risks, and protective behaviors such as weight control (Zillmann, Perkins, & Sundar, 1992). These perceptions or health risk and protective behaviors are related to self-efficacy perceptions and provide some evidence that portraying exemplars performing a behavior might enhance individuals’ self-efficacy perceptions for that behavior. Regarding potential long-term effects for changes in self-efficacy perceptions, prior work suggests that “the comparatively pallid, abstract nature of base-rate information allows the series of exemplars to dominate impression formation, and that this dominance grows over time because of stronger fading and poorer accessibility of the pallid information” and found exemplification impacts two weeks after information exposure (Zillmann, Gibson, Sundar, & Perkins, 1996, p. 431).

Entertainment overcoming resistance model. The entertainment overcoming resistance model (EORM) is a theoretical framework developed to outline the ways in which narrative formats can overcome various forms of psychological resistance to persuasion (Moyer-Gusé, 2008). Stemming from the extended-elaboration likelihood’s (E-ELM) finding that narrative engagement reduces counterarguing, the EORM outlines eight components of narrative processing and their associations to 7 different forms of resistance. The model then predicts an increased likelihood that media users will produce
story-consistent attitudes and beliefs or, in other words, that media users will be more susceptible to the messages’ persuasion.

The EORM was specifically aimed to determine the outcomes and processes produced in education-entertainment (Moyer-Gusé & Nabi, 2010), however, the fact that it investigates the components involved in narrative processing allows for further applications. The model’s predictions could be applied to various forms of media that utilize narrative and perhaps even message features that share narrative components, such the use of exemplars. The narrative components that can be applied to exemplification include, narrative structure that reduces psychological reactance, identification that reduces selective avoidance, and perceived similarity that increases self-efficacy and has the potential to change outcome expectancies or response efficacy perceptions.

The EORM suggests that the structure of a narrative reduces psychological reactance (Brehm, 1966), which is an individuals’ response when they perceive a threat to their freedom. Specifically, the structure of a narrative is claimed to better mask persuasive intent and present perceived risks more subtly (Green & Brock, 2000). Narratives also tie implications together in a causal chain rather than presenting arguments out straight (Green, 2006). Thus, persuasive assertions or arguments are not directly stated but implied in the storyline (Kreuter et al., 2007). The use of a story to present information does not forewarn an individual that they will be facing arguments.
Therefore, audiences’ guards are down when encountering a narrative (Green and Brock, 2000). This masking of persuasive intent is what is suggested to reduce reactance of messages, which occurs if the persuasion in a message is overly apparent and threatening to one’s freedoms (Brehm, 1966; Moyer-Gusé, 2008; Moyer-Gusé & Nabi, 2010).

Slater and Rouner (1996) demonstrated a possible preference for narrative formats due to their less threatening nature by finding that individuals were more willing to process value incongruent messages provided they were presented in a narrative format. Similarly, Moyer-Gusé (2010) found that those most vulnerable or at risk for sexually transmitted diseases were more likely to select related information in a dramatic narrative program as opposed to a news format. Often health information is persuasive information that itself is threatening and induces fear, especially if it is presenting risks to an individual (Hinyard & Kreuter, 2007; Winterbottom, Bekker, Conner, & Mooney, 2008). Exemplars ability to reduce reactance and present information in a less threatening manner, as opposed to more blatant persuasive message features such as statistical evidence, should be more likely to increase selective exposure and bring about desired persuasive outcomes.

The EORM suggests that the presentation of lived experiences and the use of realistic life examples in narrative formats foster identification, with its potential to reduces selective avoidance, and perceived similarity, with its potential to impact self-
efficacy and outcome expectancies. The realistic presentation of narrative formats make it less likely that individuals will discount what they are seeing or hearing (Kreuter et al., 2007). That is, the information in the message is perceived as more believable.

Exemplification theory also noted that similarities expressed in exemplars can make a message feel more real (Zillmann, 1999). Additionally, beliefs and behaviors can be influenced by narratives’ realistic portrayals of characters’ beliefs and actions in various situations. For instance, a message portraying an exemplar successfully modeling an effective healthy behavior or rejecting an unhealthy behavior is likely to (1) induce a similar behavior change or (2) increase perceptions that the audience member is also capable of these actions and that those actions will also be effective (enhanced self-efficacy and response efficacy). This process occurs through identification and similarity comparisons that are made with the content and characters of a message due to the narrative format, which ultimately leads to the adoption of their perceptions and modeling of their behaviors (Bandura, 1977b; 2004).

In brief, according to the EORM, the portrayal of exemplars in messages that are successfully performing effective health behaviors should: foster connections made with characters (e.g., identification and similarity), reduce feelings of reactance, decrease selective avoidance, increase self-efficacy perceptions, and influence outcome expectancies. All five processes should increase selective exposure to the health
messages, but the latter two would particularly foster relevant health perceptions and behaviors. Conversely, more intrusive message formats such as statistical information, which does not utilize any components common to narratives should: induce reactance, increase selective avoidance, and would not likely have significant impacts on self-efficacy perceptions or outcome expectancies. The former two processes should lead to decreased selective exposure, however, feelings of reactance could also potentially produce boomerang effects—the adoption of belief and behavior outcomes opposite of those intended or desired.

**Social comparison theory.** Festinger’s (1954) social comparison theory is a cognitive motivational theory that claims (1) we go through life comparing ourselves with others and (2) these comparisons lead to self-evaluations that can have strong impacts on our moods and emotions. We gage our abilities, opinions, emotions, and personality traits which define our identity, perceptions, and capabilities based on comparisons we make with others. Festinger believed that these comparisons with others, or social comparisons, could occur in real life or through mediated observation. Later, it was even suggested they could be cognitively elicited or “constructed, in-the-head” (Wood et al., 1985).

The majority of social comparison research has focused on the direction of the comparison and the motivations behind those directions. Originally, Festinger considered
self-enhancement as the only motive for social comparisons, but later self-enhancement was specified as the explanation for comparing with someone who was better-off than themselves (Thorton & Arrowood, 1966). This specification of a motivation to compare with superior others fostered discussions and investigations of comparisons with those less fortunate others (e.g., Hakmiller, 1966; Wills 1981). The distinctions between two types, ‘upward’ and ‘downward,’ of comparisons caused researchers to re-evaluation the motivations behind each type. Self-improvement was identified as the motivation behind upward comparisons, while self-enhancement motives were re-assigned to explain downward comparisons (for review see Suls & Wheeler, 2000). Health information in general, more often than not, attempts to encourage self-improvement through the adoption of or adherence to a healthy behavior or lifestyle. Whether or not the intended impact of self-improvement motivation is achieved may then depend on the type of comparison generated by the health message.

Upward comparisons are comparisons made with individuals who are in better standing than yourself on attributes or abilities you don’t have or in better-off situations you might be striving to obtain (Festinger, 1954). These upward comparisons are made either when individuals want to feel inspired to self-improve upon particular aspects and current situations or because they wish to identify or assimilate with superior others. For instance, athletes select news stories on TV, in a magazine, or on the internet about other
athletes’ triumphs as a means to encourage themselves to work harder at their sport of
interest. Another example could be individuals that watch TV programs like American
Idol or The Biggest Loser to compare to individuals’ who have the ability to sing or lose
weight in order for them to gain the inspiration to obtain such abilities. Downward
comparisons (Will, 1981) are comparisons that are made with people who are inferior on
one or several attributes or who are generally in worse states at the time of the
comparison. These downward comparisons are made in order for an individual to
enhance their self-perceptions. An example of this type of comparison is breast cancer
patients comparing themselves to patients who were less fortunate in their state of the
disease (Wood et al., 1985).

Social comparisons can be driven by not only motivations but by expectations of
a comparison target’s similarity as well (Collins, 1996). Expectations of similarity as
opposed to expectations of differences between oneself and the target tend to drive
comparisons. Large differences will most likely result in no comparison, while some
differences or only moderate similarities induce contrast (Collins, 2000). Contrast
comparisons driven by moderate perceived differences in a comparison target associated
with negative attributes or failure will most often result in downward comparisons. This
type of downward contrast comparison produces positive self-evaluations because an
individual is distancing themselves from a less fortunate comparison target. On the other
hand, contrast comparisons driven by moderate perceived differences in a comparison target with positive attributes or successes are likely to result in upward comparisons. Upward contrast comparisons induce negative self-evaluations caused by distance experienced between oneself and a more fortunate target.

Individuals prefer to compare themselves to similar rather than different targets (Wheeler et al., 1969). Thus, comparisons occur more often when perceptions of similarity exist as opposed to perceived differences. Individuals are more likely to perceive similarity if they expect similarity, and expectations of similarity evoke assimilation motivations (Manis & Paskewitz, 1984). Upward assimilation comparisons are much more frequent than downward assimilation comparisons because people generally believe they possess more positive attributes and abilities and want to be associated with them as opposed to negative ones (Collins, 2000). When assimilating, one would desire exposure to positive information about the similar comparison target, which would foster positive self-evaluations. Rare downward assimilation comparisons demonstrate a person wanting to be associated with negative attributes and abilities that lead to negative self-views.

The social comparison literature related to expectations, such as expected similarities in a comparison target or expected failure associated with a comparison target, (for full review see Collins, 2000) is a useful framework to determine when and
how comparisons can increase selective exposure to health information. Expectations of similarity or difference and success or failure correspond to exemplification and efficacy presentations. Exemplars, as a type of narrative format, exude similarity (Zillmann, 1999) and foster identification (Bandura, 1977b). These are characteristics that might project expectations of similarity and produce assimilation motivations. As discussed, individuals are more likely to want to upward compare when assimilating with a fortunate comparison target and thus, exemplars portraying successful health behaviors should increase selective exposure and produce subsequent positive self-evaluations (e.g., enhanced self-efficacy perceptions). Statistical evidence for health behaviors is a statistical aggregation or a concrete average of individuals and their abilities. Statistical information inherently creates perceptions of a majority and social distance. These characteristics project expectations that are less similar than exemplars and likely foster expectations of difference that could initiate contrast motivations. In this case of contrasting, individuals are more likely to want to downward compare by selecting information featuring unsuccessful health behavioral statistics and selectively avoid upward comparisons that feature successful health behavioral statistics.

The message framing patterns predicted above are consistent with additional research that has shown whether a person assimilates or contrasts with a comparison target depends on intragroup versus interpersonal perceptions. Brewer and Weber (1994)
found when comparing with specific cases of in-group members, such as exemplar portrayals, affiliation needs are rendered salient and result in assimilation effects. A finding associating statistical evidence with contrast comparisons states that when confronted with a comparison to a large number of in-group members, distinctiveness needs are rendered salient and lead to contrast effects of the comparisons (Brewer & Weber, 1994). Accordingly, self-perceptions are affected differently when an individual assimilates versus contrasts with others—when assimilating, upward comparison leads to self-improvement; when contrasting, upward comparison results in self-deflation (Brewer & Weber, 1994). The self-perception outcomes for success/failure of intragroup/interpersonal conditions also correspond to message efficacy and its role as described above.

**Current Research On Exemplification and Efficacy As Message Elements Impacting Exposure, Beliefs and Behaviors**

There are only a few studies that have examined efficacy and/or exemplar impacts on selection or exposure to health messages. Rimal and Real (2003) explored information selection in terms of information seeking intentions and behaviors, as opposed to selective exposure methods, while taking into account high or low risk perceptions. The level of efficacy manipulated in messages about skin cancer had no effect on intention to seek information or time spent seeking information. Similarly,
Turner, Rimal, Morrison, and Kim (2006) found no significant impacts on time spent seeking information due to efficacy manipulations in messages on skin cancer or diabetes. Studies employing selective exposure methods to examine exposure patterns have only found efficacy impacts when its presence was combined with other message elements. Sarge and Knobloch-Westerwick’s (under review) examination, parallel to the current, of weight loss messages featuring exemplars or statistical information and conveying either high or low efficacy revealed a main effect of exemplification that demonstrated longer reading times for articles featuring exemplars as opposed to statistics. Knobloch-Westerwick & Sarge (under review) found the same main effect for exemplification when analyzing selective exposure across eight different health topics as opposed to just articles on weight loss. However, the main effect found when analyzing the weight loss messages was qualified by an interaction effect due to the presence of efficacy within the article (Sarge & Knobloch-Westerwick, under review). Significantly longer reading times were found for the weight loss articles that conveyed high efficacy if the article portrayed an exemplar and significantly shorter reading times were found for articles that conveyed high efficacy when the article featured statistical information. A similar investigation of exemplification, efficacy, and severity as message elements featured in articles about eight different health topics was conducted in a cross-cultural study between Germany and the U.S. (Hastall & Knobloch-Westerwick, 2012). The same
main effect for exemplification and interaction effect between exemplification and efficacy was found across both countries. Further, the additional message element of severity also interacted with efficacy, regardless of country, which revealed longer reading times when high efficacy was conveyed in low severity articles and low efficacy was conveyed in high severity articles.

Considering the limited research on this topic, it is important highlight the main differences between these studies. First, Rimal and Real (2003) and Turner, Rimal, Morrison, and Kim (2006) examined efficacy manipulation impacts on subsequent information seeking intentions and behaviors (post exposure behavior measured after forced exposure to a manipulation), while Knobloch-Westerwick’s work with Sarge and Hastall measured selective exposure to the message element manipulations themselves. The first two studies investigated efficacy with manipulations of risk while the latter studies included exemplification manipulations (with or without risk manipulated in the form of severity). Lastly, each study examined messages on different health topics. While skin cancer is similar in nature to obesity issues in that they are, for the most part, preventable health issues, it is of crucial importance that health message development and evaluation is kept topic specific due to the unique situational and trait characteristics associated with each health issue (Knobloch-Westerwick & Sarge, under review).
Empirical investigations have also found the presence of efficacy and exemplars to enhance self-efficacy perceptions and change behaviors related to weight loss. For instance, efficacy sources implemented into weight loss interventions and programs have resulted in increases of self-efficacy perceptions and subsequent weight loss (Chambliss & Murray, 1979; Jeffery, Bjornson-Benson, Rosenthal, Lindquist, Kurth, & Johnson, 1984; Weinberg, Hughes, Critelli, England, & Jackson, 1984). However, the efficacy sources used in these efforts were most often personal performances and verbal persuasion as opposed to vicarious experience, such as messages portraying successful weight loss performances. Similarly, Kreuter and colleagues conducted a tailored campaign that designed some weight loss information to enhance self-efficacy and other information to induce low self-efficacy. Exposure to high self-efficacy information resulted in more positive evaluations of the material and desired behavioral intentions (Kreuter & Wray, 2003). Additionally, Gray and Harrington (2011) found increases in one’s own control beliefs after exposure to gain-framed messages that mimic high efficacy manipulations presenting a positive outcome for an exercise behavior. However, in this same study, no significant findings could be attributed to the presence of exemplars over statistical representations.

Even though Gray and Harrington (2011) were unable to show exemplification effects, a few other investigations have shown that the presence of exemplars can change
weight related beliefs and self-reported behavior change. Zillmann, Perkins, and Sundar (1992) found that exemplar representations of weight control estimates fostered more accurate beliefs about the incidence of weight regainers versus controllers after weight loss than statistical distributions. Furthermore, this effect of exemplification on incidence beliefs (but for a different topic than weight loss) was discovered to persist two weeks after exposure (Zillmann, Gibson, Sundar, & Perkins, 1996). Slater, Buller, Waters, Archibeque, and LeBlanc (2003) also found perceptual impacts due to narrative presentation. Believability assessments of nutrition information were higher when the information was presented in conversational narrative as opposed to news formats. The most recent evidence of exemplification impacts revealed increases in immediate and delayed (e.g., 2 weeks after exposure) weight loss self-efficacy beliefs after selective exposure to articles featuring exemplars conveying a successful weight loss behavior (Sarge & Knobloch-Westerwick, 2011). Additional findings indicated exposure to weight loss articles portraying exemplars, regardless of the presence of efficacy, resulted in positive track-eating behavior changes (recommended by the article) two weeks after exposure (Sarge & Knobloch-Westerwick, under review).

**The Present Study’s Predictions**

The theoretical frameworks introduced earlier suggest that exemplification and efficacy are elements that can make messages stand out and also have been shown to
increase self-efficacy beliefs and change health behaviors among individuals. More specifically, weight management messages that feature exemplars portraying successful and effective recommended weight management solutions should be most appealing due to their less threatening, unobtrusive, concrete, and vivid nature of presenting useful information (Bandura, 1977; Collins, 1996; Knobloch-Westerwick, 2008, Moyer-Gusé, 2008; Wheeler et al., 1969; Zillmann, 1999). Additionally, these efficacious exemplar portrayals are also potential triggers that activate the behavior change process by first increasing weight related self-efficacy perceptions and ultimately, increasing the likelihood the recommended weight management behavior is adopted (Bandura, 2001; 2004b; Knobloch-Westerwick, 2008; Festinger, 1954; Zillmann, 2006).

Social comparison theory and the entertainment overcoming resistance model (EORM) offer the most detailed explanations behind the processes by which weight management articles featuring efficacious exemplars should enhance selective exposure and subsequent belief and behavior change. According to social comparison theory, exemplars foster expectations of similarities between an individual and a comparison target prompting assimilation motivations, which should increase selective exposure to exemplars over statistical evidence formats. However, only upward assimilation comparisons are desired and thus, exemplars conveying efficacy through successful weight management behaviors should produce longer exposure times than failed weight
management attempts that are most likely avoided. The upward affiliation comparisons with efficacious exemplars should result in positive weight related self-evaluations (e.g., weight loss self-efficacy) and encourage recommended weight management behaviors.

Articles featuring statistical evidence should create expectations of difference as opposed to similarity. Accordingly, statistical evidence either fosters no similarity (large difference) expectations, for which there would be no comparisons made, or moderate difference expectations that foster contrast motivations. Downward contrast comparisons are preferred, which would translate to increases in selective exposure to statistical weight management information lacking efficacy. Such comparisons should induce positive weight related self-evaluations, but will not likely lead to behavior change. On the other hand, upward contrast comparisons (e.g., exposure to efficacious statistical information) are likely to be avoided because of resulting negative self-evaluations.

Lastly, the EORM suggests that particular narrative components, of which exemplars share, reduce resistance to persuasive messages. Thus, weight management messages featuring exemplars are more likely than messages featuring statistical information to foster identification and similarity perceptions (an overall connection with characters), mask persuasive intent, reduce reactance and decrease selective avoidance (increasing selective exposure). Additionally, the theory suggests that messages conveying successful portrayals of a recommended weight management behavior
(efficacious exemplars) would not only increase selective exposure, but also increase weight related self-efficacy perceptions. Conversely, statistical information could potentially reveal the persuasive intent of messages. Persuasive transparency could induce selective avoidance and possible reactance that leads to boomerang belief and behavioral responses.

Based on these theoretical propositions and the overview of empirical research described above, the following key hypotheses will be tested:

**Impacts on Selective Exposure**

H1a: Weight management messages featuring *exemplars* and conveying efficacy will result in longer selective exposure than weight management messages with other message element combinations.

H1b: Weight management messages featuring *statistics* and conveying efficacy will result in shorter selective exposure than weight management messages with other message element combinations.

**Impacts on Self-Efficacy**

H2a: Weight loss messages featuring *exemplars* will result in higher weight related self-efficacy beliefs than weight management messages featuring *statistics*.

H2b: The impact suggested in H2a is particularly pronounced for messages conveying efficacy.
Impacts on Connectedness

H3a: Weight loss messages featuring *exemplars* will result in higher feelings of connectedness to characters than weight management messages featuring *statistics*.

H3b: The impact suggested in H3a is particularly pronounced for messages conveying efficacy.

Impacts on State Reactance

H4a: Weight loss messages featuring *statistics* will result in higher state reactance than weight management messages featuring *exemplars*.

H4b: The impact suggested in H4a is particularly pronounced for messages conveying efficacy.

Impacts on Weight Management Behavior

H5a: Weight management messages featuring *exemplars* and conveying efficacy will result in greater behavior change than weight management messages with other message element combinations.

H5b: Weight management messages featuring *statistics* and conveying efficacy will result in less behavior change than weight management messages with other message element combinations.
Mediation in the Process of Behavior Change

H6: Impacts on weight related self-efficacy beliefs suggested in H2 are mediated by selective exposure to weight management messages.

H7: Impacts on behavior change suggested in H5 are mediated by both selective exposure to weight management messages and weight related self-efficacy beliefs.
Chapter 4: At-risk Person Characteristics and Research Questions

At-Risk Person Characteristics

The following section defines the target audience for public health weight management messages by identifying pre-existing characteristics of overweight or obese individuals, a process referred to as audience segmentation (Rogers & Storey, 1987). Individuals that encompass all of these characteristics are considered at-risk for negative outcomes associated with poor weight management and as such, are targeted by public health campaigns. Once at-risk person characteristics are identified, relationships between these characteristics and selective exposure patterns as well as subsequent behavioral impacts can be examined (Hornik & Ramirez, 2006; Slater, 1995). Gathering this information assists in the design and development of tailored messages that are most appealing and effective to those whom would receive greatest benefit (Kreuter, Strecher, & Glassman, 1999; Noar, Harrington, & Aldrich, 2009).

Body mass index, weight management history, and body image/weight perceptions

The present study uses Body Mass Index (BMI) as a demographic characteristic and individuals’ previous experience with weight management as evaluative criteria to determine if an individual is overweight and obese. BMI is used as an indicator of overweight and obesity among adults because it correlates with the amount of body fat on
an individual’s body (CDC, 2012). It is calculated by using an individual’s’ height and weight, weight (lbs.)/[height (in)]² x 703, and usually ranges between 18.5 to 35.

According to information provided by the CDC, an adult is considered overweight if he or she has a BMI between 25 and 29.9 and is considered obese if they have a BMI of 30 or higher (CDC, 2012). The BMI has proven to be a reliable initial measure to screen individuals as to whether or not they could possibly be at-risk for health problems due to their weight. However, BMI is just one possible indicator of issues or diseases associated with weight management problems. It is also important to test if an individual has ever had high blood cholesterol or Type 2 diabetes, and if they are physically inactive. The first two questions can be asked of individuals using items from the National Health and Nutrition Examination Survey Questionnaire (NHANES) created by the National Center for Health Statistics (NCHS) and with the help of the Centers for Disease Control and Prevention (CDC). The latter question about inactivity can be found in the Health Information National Trends Survey (HINTS) created by the National Institutes of Health (NIH). These are three additional indicators that identify the overweight and obese population targeted by the current study and public health weight loss campaigns.

An individual’s weight management or dieting history, perception of weight status, and satisfaction with their weight are also related to weight issues and potential weight loss outcomes. Empirical research has demonstrated that previous dieting and
body size dissatisfaction are significant negative predictors of weight loss outcomes (Teixeira et al., 2002; 2004). Specifically, this research conducted on middle-aged American and Portuguese females associated recent weight loss and recent dieting attempts with less weight loss during a 4-month lifestyle behavioral weight reduction program. Individuals studied in this research were also less likely to lose weight if they demonstrated body size dissatisfaction. Body size dissatisfaction is when there is a larger discrepancy between an individual and their ideal body figure (Williamson, Gleaves, Watkins, & Schlundt, 1993). Cognitive factors, such as discrepancies between actual and desired body size and weight as well as unrealistic weight loss expectations, often result in frustration that can lead to the cessation of weight management and maintenance efforts and ultimately weight gain (Cooper & Fairburn, 2001). These cognitive factors that exhibit a skewed picture of reality need to be identified and treated before weight loss is successfully achieved (Cooper & Fairburn, 2001; Murphy, Brennan, Walkley, Reece, & Little, 2011).

**Motivations, Intentions, and Stages of Change**

A person’s level of motivation and personal intentions are important predictors of actual behavior (Ajzen, 1977; Fishbein, 1980; Rogers, 1975). Those who are unmotivated and do not intend on trying lose weight should be negatively associated with current and future weight loss behaviors and should be less likely to want to read articles about
weight loss. Knowing these characteristics about a target audience and investigating their message selection preferences and reactions can determine what aspects would make a message most appealing and effective. Simply asking individuals if they intend to try to lose weight or how motivated they are to lose weight during a specified period of time (e.g., the next six months) is a common way to measure overweight patients’ motivational readiness to lose weight (Befort et al., 2006).

Another method by which to identify a person’s motivations regarding a behavior is to determine what ‘stage of change’ they are in. Six stages of change were conceptualized by Prochaska and DiClemente (1982) that identify variations of motivational readiness for cognitive and behavioral change in patients undergoing therapy. The precontemplation stage is the first of six stages that categorize an individuals’ motivational readiness to change. This stage encompasses individuals most often targeted by health campaigns because they have no intention to change an unhealthy behavior. These individuals are not only in denial that a problem exists, but adopt more defensive strategies and display stronger resistance toward changing their thinking and behavior (Prochaska, DiClemente, & Norcross, 1992). If individuals in the precontemplation stage are not likely to admit or recognize that their unhealthy behavior is a problem, they are much less likely to approach information about that problem. Similarly, Horowitz (1976; 1979) connected denial with behavioral inhibition and
observed that individuals in denial actively avoided reminders of their stressors. Following this line of reasoning, individuals are likely to avoid health information when in denial about a particular health situation, such as their own unhealthy behavior or illness. Additionally, since individuals in the precontemplation stage are in denial about a problem or behavior, relevant information is threatening. Similarly, health information is perceived as threatening in situations where the nature of health information challenges individuals’ beliefs or behaviors.

Identifying the stage of change an individual is experiencing allows public health message and campaign designers to develop the most effective strategies that match individuals’ state of motivational readiness (Slater, 1999). This application of the stages of change model is facilitated by the development of a stages of change measure that can be, similar to self-efficacy, modified to be context specific (URICA; McConnaughy, DiClemente, Prochaska, & Velicer, 1989). For instance, weight related stage of change measures have been created and applied to contexts such as physical activity, fruit and vegetable intake, dietary fiber, dietary fat, and various eating behaviors (e.g., Dunn, Neighbors, & Larimer, 2003; Ling & Horwath, 2000; Marcus & Owen, 1992; Robinson, Norman, Sallis, Calfas, Rock, & Patrick, 2008).

Prochaska and DiClemente (2001) describe a strategy by which a therapist communicates with a patient in the precontemplation stage. The role of the therapist is
described as “that of a nurturing parent joining with a resistant and defensive youngster who is both drawn to and repelled by the prospects of becoming more independent” (Prochaska & DiClemente, 2001, p. 444). With this role in mind, the aim of information targeting these individuals would be to carefully lead them to realize their involvement with the behavior, but in a veiled manner as to avoid threatening their perception of freedom. The message element that would be most effective at achieving both of these goals is the use of narrative, such as exemplars, in health information. Exemplars would provide a type of observational learning or modeling that could help precontemplators realize their connection to the content or characters through identification (Bandura, 1986; 2004). Further, the use of exemplars would assist in masking persuasive attempts within the message and subsequently, would reduce resistance to the information (Slater & Rouner, 2002; Moyer-Gusé, 2008; 2010).

**Self-efficacy**

Efficacy expectation, or self-efficacy, is one trait variable that has been examined extensively in health literature. Self-efficacy is the belief that one can personally execute a behavior in order to elicit a certain outcome (Bandura, 1977). While this concept has been addressed as one that can be manipulated in messages—each person also comes to a message with their own initial perceptions of self-efficacy regarding the specific behavior or task of interest.
Literature from informational utility theory would suggest that high efficacy messages would be of highest utility for those that have low self-efficacy perceptions and thus would be the messages most likely selected (Knobloch-Westerwick, 2008). However, Bandura (1982) claimed that “People avoid activities that they believe exceed their coping capabilities” and “When beset with difficulties people who entertain serious doubts about their capabilities slacken their efforts or give up altogether” (Bandura, 1982, p.123). Considering the task of selecting information in a health context, if individuals feel inefficacious about a particular health topic or behavior, they are likely to have lower motivation to select and perhaps higher motivation to avoid such information. This suggests support for the connection between a lack of self-efficacy and information avoidance due to the inherent “difficult” nature of serious health situations (Lee, Hwang, Hawkins, & Pingree, 2008). Furthermore, work by Lee, Hwang, Hawkins, and Pingree (2008) showed that higher efficacy beliefs increased cancer information seeking, which in turn also increased subsequent efficacy beliefs. Rimal and Real (2003) also found correlational evidence of a significant increase in self-reported information seeking behaviors among individuals with combined high efficacy and high risk perceptions.

Apart from these counter intuitive findings associating low efficacy beliefs to information avoidance and high efficacy beliefs to information exposure, there is limited research exploring pre-existing self-efficacy beliefs influence on information seeking
behaviors and selective exposure. However, it is well established that higher self-efficacy perceptions increase the likelihood that a behavior will actually be performed (Bandura, 1977). This associates individuals with pre-existing high self-efficacy perceptions to positive behavioral outcomes and thus, explains the abundant efforts to increase individuals’ self-efficacy in the area of persuasion and health belief and behavior change.

**Research Questions**

The above person characteristics are key individual differences that identify the target audience for most weight management messages. Considering the large amount of weight loss information presented in popular media, it is important to analyze selection preferences and reactions to weight loss messages of the general population; however, knowing such information about those who are at-risk for health issues due to their weight assists in the formulation of more tailored messages. These tailored messages are focused on helping those who would benefit most from weight loss information and intervention. The present study aims gain such knowledge about these at-risk individuals by investigating relationships between at-risk person characteristics and specific trends in selective exposure and subsequent behavioral impacts. These aims are posed as research questions below.
RQ1: To what extent does person characteristics (e.g., BMI, weight loss/dieting history, perception of weight status, weight satisfaction, motivation to lose weight, stage of change, self-efficacy) affect selective exposure?

RQ2: To what extent does person characteristics (e.g., BMI, weight loss/dieting history, perception of weight status, weight satisfaction, motivation to lose weight, stage of change, self-efficacy) affect message impacts on weight management behavior?
Chapter 5: Preliminary Research

Introduction

The proposed hypotheses and research questions are to be examined in the main study of the present dissertation. The main study consists of 3 sessions: a pretest, an experimental selective exposure session, and a post test. Prior to the completion of the main study, two studies were conducted as preliminary research in order to gain better insight into the creation of the stimuli to be used for the selective exposure session of the main experiment.

The first study was a content analysis of weight loss articles from 28 issues of 5 top-selling U.S. women's health and fitness magazines in 2010. The purpose of the content analysis was to determine the prevalence of the message elements of interest discussed in this dissertation: the use of exemplars and base-rate information throughout articles’ titles and text as well as the presence of efficacy conveyed within titles and subtitles. Additionally, the language used in these articles helped guide the creation of the stimuli tested in the following study and ultimately used in the main experiment. The second study was a preliminary test conducted in order to check the desired manipulations of exemplification and efficacy present within the titles and article leads of online weight management articles constructed for the main study’s experimental stimuli.
Study 1: Content Analysis

Messages on the issue of weight loss are abundant across media platforms. Attitudes, behaviors and social norms related to weight loss are projected and people are influenced daily by these mainstream mediated messages (Greenberg, Eastin, Hofschire, Lachian, & Brownell, 2003). While a handful of studies have found positive impacts on body satisfaction from exposure to weight related messages (i.e., Knobloch-Westerwick & Crane, 2012; Martin & Gentry, 1997; Wilcox & Laird, 2000), research on exposure to these messages has largely reported negative effects such as body dissatisfaction (i.e., Grabe, Hyde, & Ward, 2008; Tiggemann & McGill, 2004; Tiggemann & Pickering, 1996), harmful eating habits (i.e., Fay & Price, 1994; Stice & Shaw, 1994), and the adoption of unhealthy weight loss solutions (FTC, 2002). Perhaps some of these messages are presenting encouraging self-improvement information (Knobloch-Westerwick & Romero, 2011), while others are fostering comparisons to unrealistic ideals (Harrison, 2000). Such discrepancies in findings might best be determined and negative vs. positive outcomes could better be predicted if more research existed examining specific details about what message elements or evidence are exhibited in these popular media messages.

Variations of influence and outcomes such as these are justification for the importance of observing what types of messages people are exposed to in the media.
Further, the examination of weight related messages found in women’s magazines is particularly warranted given the enormous amount of attention paid to nutrition, dieting and health in women’s magazines, in general and in comparison to men’s magazines (Anderson & DiDomenico, 1992; Malkin, Wornian, & Chrisler, 1999), as well as their enduring role as a major source for this type of information among women (i.e., Dutta-Bergman, 2004; Graham, Bawden, & Nicholas, 1997; Novascone & Hertzler, 1986; Thomsen, Terry, & Amos, 1988). Despite the need for these types of magazine message examinations, there is a very limited amount of content analyses that solely focus on women health and fitness magazines, which likely have the largest amount of weight loss/management editorial content.

One study that fills some of these gaps was Campo and Mastin’s (2007) content analysis that aimed to identify strategies offered for preventing and overcoming overweight and obesity in editorial content found in African American and mainstream women’s magazines. Additionally, Aubrey (2010) conducted a content analysis that examined women’s health magazine covers to determine whether health advice use an appearance frame or a health frame. These studies are significant contributions to learning about what types of messages women are exposed to through magazines, however neither looks specifically at women’s health and fitness magazine editorial content. Willis and Knobloch-Westerwick (2012) conducted an analysis on the present
study’s sample of women’s health and fitness magazine issues and did focus on editorial content. Specifically, they examined message frames and types of strategies proposed in both body shaping and weight loss editorial content. Findings revealed a greater number of appearance-related message frames as opposed to health-related frames and more exercise-related weight loss strategies as opposed to caloric reduction strategies (Willis & Knobloch-Westerwick, 2012). While these efforts are finally examining the editorial content of women’s health and fitness magazines, the specific message elements consistently implemented across such editorial content in order to persuade women to adopt beliefs and solutions for how to handle overweight and obesity issues are never identified.

Research utilizing social cognitive theory as a framework, have indicated that a large amount of mediated weight loss and management messages include models which promote observational learning through demonstrating or displaying successful weight loss outcomes (i.e., Campo & Mastin, 2007). These models or exemplars may not only serve as a source of efficacy but could also serve as a comparison target, as outlined in social comparison theory (Festinger, 1954), another common theoretical framework often applied in weight and bodily appearance studies (i.e., Knobloch-Westerwick & Romero, 2011; Tiggemann & McGill, 2004; Want, 2009; Wilcox & Laird, 2002). Based on the earlier discussions of these theories, it is plausible that efficacy in the form of verbal
persuasion as well as through the use of exemplars could function as message elements that increase expectations of success, which could foster self-improvement motivations and selective exposure.

The current study acknowledges the void in understanding to what extent theoretically relevant message elements are implemented in women’s magazine articles that promote weight loss and management solutions. The content analysis aims to fill this void by identifying the potential presence of ‘attainability information’ in the form of message exemplification and efficacy elements. The following research questions will guide these efforts:

RQ1: To what extent are exemplars used to offer weight loss/management advice in editorial content from women’s health and fitness magazines?

RQ2: To what extent is numeric information used to offer weight loss/management advice in editorial content from women’s health and fitness magazines?

RQ3: To what extent is efficacy language conveyed within the titles and subtitles of editorial content from women’s health and fitness magazines?

RQ4: What types of efficacy messages are being conveyed within the titles and subtitles of editorial content from women’s health and fitness magazines?
Method

Sample

Magazine editorial content on weight loss or weight management was examined to determine the frequency with which exemplars, statistics and efficacy are conveyed within this type of content. The sample utilized to draw topic-relevant articles was compiled by Willis and Knobloch-Westerwick (2012) and consisted of twenty-eight issues from the five top-selling monthly magazines in 2009 for the category of ‘women’s health and fitness magazines’ (GfKMediamark Research & Intelligence, 2010). The issues were published during May through October 2010 from Prevention, Shape, Fitness, Health, and Self. Willis and Knobloch-Westerwick (2012) selected this time period because it includes “one of two high points and one of two low points in seasonal trends related to magazine coverage of weight loss issues” (p. 11). The unit of analysis was one article—for some analyses the title, subtitle and text of an article were examine and for other analyses only the title and subtitle of the article were examined. The articles used for analysis were classified as weight loss or management content by the primary investigator. Article titles and subtitles listed on the cover page and in the issue index were pulled for coding if they used weight loss/management terms or phrases and were accompanied by a page number. Article titles and subtitles strictly promoting fitness-related claims with no indication of weight loss or management, such as titles only using
phrases like ‘staying in shape,’ ‘getting fit,’ or ‘toning your body,’ were not coded. Three magazine issues (ten percent) from the 28 issues that made up the sample were used to establish reliability for this method of classifying which articles were weight loss or management editorial content. The primary and secondary investigators coded these three issues from three of the magazines (*Prevention, Shape, and Fitness*) and achieved acceptable inter-coder reliability at .82 based on Krippendorff’s alpha (\( \alpha \)) reliability estimates (Krippendorff, 2004) computed using the KALPHA macro for SPSS (Hayes & Krippendorff, 2007). A total of 240 articles (671 pages of content) were compiled from this process.

Ten percent of this sample of 240 articles (24 articles pulled from each magazine) was coded by two senior undergraduate students, trained by the primary investigator, to establish inter-coder reliability. For coding categories described below, acceptable inter-coder reliability ranging from .73 to 1 was established based on Krippendorff’s alpha (\( \alpha \)) reliability estimates (Krippendorff, 2004) computed using the KALPHA macro for SPSS (Hayes & Krippendorff, 2007).

**Coding Categories**

**Descriptive variables.** To gain a deeper understanding of the articles to be analyzed, descriptive categories were created to determine what weight loss/management strategies were being promoted. Coders identified whether exercise strategies (e.g.,
specific moves or a plan) ($\alpha = .92$) or dieting strategies (e.g., behaviors or a plan) ($\alpha = .92$) were discussed within the editorial content. If either one or both of these types of strategies were identified, the coders then indicated if the strategy was: 1 = ‘approach focused,’ 2 = ‘avoidant focused,’ 3 = ‘both approach and avoidant focused,’ or 0 = ‘neither’ ($\alpha_{\text{exercise}} = .92$; $\alpha_{\text{dieting}} = .92$). Approach focused was defined as a strategy framed as promoting doing something in order to have the weight loss/management result occur (e.g., “follow these easy moves to shed pounds quick”). An avoidant focused frame promoted the strategy of avoiding or not doing something in order to have the weight loss/management result occur (e.g., “stay away from these 5 foods this winter and keep the weight off”).

**Primary exemplars.** Coders counted how many primary exemplars were used in each article ($\alpha = .81$). These primary exemplars were described as a case illustration or model, such that they are a “person demonstrating, following, or who has followed the weight loss/management advice or solution the article is promoting.” Aside from simply counting these exemplars, coders indicated whether there was a picture of the exemplar ($\alpha = 1.00$), testimony—defined as first person quotations—from the exemplar ($\alpha = .87$), or a full story or narrative of the exemplar (had to be conveyed within the title or subtitle, for example “weight loss diary” or “success stories”) ($\alpha = .78$).
**Numeric/base-rate information.** Articles were identified by the coders as either containing numeric (base-rate) information or not ($\alpha = .78$). Examples of this information included: numbers listed for weight loss/management recipes, numbers listed for exercise repetitions in order to loss/maintain weight, number of calories a person will lose or that is listed in foods discussed in the article’s content, and percentages or ratios pertaining to weight loss/management statistics.

**Efficacy.** Coders first identified whether an article title or subtitles conveyed confidence that a weight loss/management strategy can be done and will work ($\alpha = .82$). Once the presence of efficacy within the title or subtitle was determined, coders were asked to identify what type of efficacy language was being used. Three categories of efficacy language were coded: ease, rapidity, and permanence. Ease was defined as a claim that the weight loss/management strategy is either ‘easy/simple’ or a ‘hard/difficult struggle’. Coders reported 0 if no ease claims were used, 1 if there were ‘easy/simple’ claims used, and a 2 if there were ‘hard/difficult/struggle’ claims used ($\alpha = .78$). For the second efficacy category, coders simply reported whether rapidity claims—terms describing a short-term result or outcome, such as ‘fast/quick/rapid’—were present in the title or subtitle ($\alpha = .73$). Permanence, the final efficacy category, refers to claims of long-term weight loss/management (e.g., “lose weight and keep it off”). Coders indicated whether such claims were present in the article titles or subtitles ($\alpha = 1.00$).
Results

Descriptive Analyses

In the monthly magazine issues from May through October 2010, 240 articles discussing weight loss or weight management issues were published in *Prevention* (*n* = 25), *Shape* (*n* = 86), *Fitness* (*n* = 47), *Health* (*n* = 51), and *Self* (*n* = 31). There are significant differences between the five magazines’ amount of weight loss/management editorial content, $F(4, 240) = 24.08$, $p < .001$, $\eta^2 = .291$. Specifically, *Shape* (*$M = 43.5$; $SD = 1.95$*) had a significantly greater amount of weight loss/management articles than all the other magazines ($p < .001$) and *Prevention* (*$M = 13$, $SD = 3.61$*) had significantly less articles than *Health* (*$M = 26$, $SD = 2.53$), $p = .035$. The number of articles for each magazine per month can be found in Table 1. Based on these numbers, the month of May featured the most weight loss/management articles (*$n = 50$*) while September (*$n = 36$*) featured the least (after adding the articles from the merged July/August issues to both July and August totals).

All 240 articles were analyzed to determine if they promoted an exercise or dieting strategy as their weight loss/management solution. Results showed that 40% suggested an exercise strategy (95 articles), 31% suggested a dieting strategy (74 articles), and 16% suggested both an exercise and dieting strategy (39 articles). 131 of the exercise strategy articles were presented in an approach frame, zero articles used an
avoidant frame, and one article did not use either frame. Of the dieting strategy articles, 112 used an approach frame, zero used an avoidant frame, and 3 did not use either frame. The promotion of these two strategies did not significantly differ among the five magazines, $F(4, 240) = .105, p = .981$, nor did the common choice of an approach frame for articles suggesting exercise strategies, $F(4, 240) = 1.56, p = .187$, or articles suggesting dieting strategies, $F(4, 240) = .319, p = .865$.

**Research Questions**

The first research question asked to what extent are exemplars found in weight loss/management editorial content. Coders reported the total number of exemplars in each article, which ranged from 0 to 14 ($M = .58; SD = 1.33$). Across all articles there were a total of 139 exemplars presented. A dichotomous measure was created to determine what percentage of the sample contained one or more versus no exemplars. Results from a frequency analysis of this variable showed that 35% of the 240 articles (83 articles) contained exemplars while the remaining 65% (157 articles) did not. Three additional pieces of information were gathered about these 83 articles portraying exemplars: 89% (74 articles) included one or more images of the presumed exemplar(s), 81% (67 articles) contained testimony (direct quotations) from the exemplar(s), and 31% (26 articles) used terms in the title or subtitle that conveyed there would be a narrative (complete story) about the exemplar(s).
Research question two addressed the issue of how frequently numeric (base-rate) information appears in weight loss/management articles. Frequencies revealed that 81% (195 articles) of the sample had at least one piece of numeric information and 19% (45 articles) did not have any within the article. Further analyses show that 27% (65 articles) utilize both exemplars and numeric information while 8% (18 articles) only use exemplars and 54% (130 articles) only use numeric information. The average number of pieces of numeric information across all articles is 24.48 ($SD = 53.13$) ranging from 0 to 433. However, this summed variable’s distribution is positively skewed. The median at six helps paint a more accurate picture of this data distribution showing that half of the sample contained six or less pieces of numeric information. That is, of the 195 articles that contained one or more pieces of numeric information, about 79 articles only contained one to six pieces of numeric information and 52% of the total sample has six pieces of numeric information or less. Forty-eight percent of the total articles contain greater than six pieces of numeric information and there are no more than six articles for any given data point between the range of 7 and 433.

The final two research questions aim to examine the extent to which efficacy language is found in weight loss/management article titles and subtitles (RQ3) as well as what types of efficacy messages are being conveyed within the efficacy language used (RQ4). Results showed that efficacy language is used in 34% of the sample (82 articles)
and not in the other 66% of the sample (158 articles). More specifically, efficacy language was found in six of the 18 exemplar only articles, 49 of the numeric information only articles, and 16 of the articles that contained both exemplars and numeric information.

To answer research question four, coders also categorized the efficacy language in the 82 articles using the three classifications discussed earlier: ease, rapidity, and permanence. Four percent (10 articles) of the 82 efficacy articles conveyed ease while only one of the articles that did not use efficacy expressed difficulty or a struggle regarding the weight loss/management strategy. The other two categories revealed 22% (52 articles) conveyed rapidity and 5% (12 articles) conveyed permanence.

**Discussion**

The findings from this content analysis reveal that both exemplars and numeric information are message elements prevalent throughout weight loss/management articles found in women’s health and fitness magazines. Numeric information seemed to dominate over exemplars, which is intuitively surprising given popular magazines have been suggested as a form of mass communication born to model contemporary consumer culture (Schneirov, 1994) and what better way to do so than using actual models (Bandura, 1977). Future studies should explore whether the health aspect of these magazine fosters the use of more numeric evidence as opposed to anecdotal case studies.
depicted by exemplars. However, together both of these characteristics only account for about half of the articles from the total sample, thus there is much more work to be done identifying what additional theoretical concepts are being implemented. Further it would be beneficial to identify what specific types of exemplars exist in these articles (e.g., normal people, celebrities, athletes, etc.) and what specific types of numeric information are presented (e.g., facts, statistical claims, recipes, etc.).

Efficacy language was found in only about one-third of the sample. This number also was lower than expected given that theory has been suggesting this as a persuasive message element for decades and its presence is found in almost every public health campaign or intervention. One reason the amount of efficacy used may have been low is because only the titles and subtitles of the articles were coded for efficacy. While the presence of efficacy within titles and subtitles may be most important in terms of exposure, efficacy language used within the body of the editorial content may be most useful for attitude or behavioral changes.

The present study did take a step further than previous content analyses by examining the types of efficacy claims found in the titles and subtitles. Results showed that rapidity claims promising ‘quick’ results were most common and messages projecting the ‘ease’ of performing the strategy or accomplishing the weight related outcomes were the next most popular claims. Taking a closer look at the efficacy
language found in these weight loss/management articles is extremely important, because it emphasizes the problem that they contradict reality. Weight loss/management is not quick or easy and requires a long-term commitment to eating right and exercising. This contradiction poses a major problem for individuals adhering to these messages.

Exposure to this large quantity of unrealistic messages could generate an idealistic sense of self-efficacy among readers. It seems these magazines may be successfully instilling confidence that one can achieve unattainable results through impractical strategies and time periods. The effects of such exposure and continuous failed weight loss attempts could be detrimental for individuals’ motivation to maintain the pursuit of attaining a healthier weight. Therefore, a strong need exists for future investigations on the potential effects caused by exposure to these messages that individuals are self-selecting for weight advice and solutions. The present main experiment addresses this need by implementing efficacy claims, modeled after those found in this analysis, within weight management articles in order to examine their impacts on selection, perceived self-efficacy, and behavioral adherence.

**Study 2: Test of Constructs**

Several weight management article titles and leads were created and modeled after the articles analyzed in Study 1. Exemplars, numeric information and efficacy claims were implemented into various versions of article titles and leads in order to create
controlled experimental conditions that allow for the analysis of unique impacts from each message element. However, before using them as the main experiment’s stimuli, tests needed to be conducted as to whether the presence of the manipulated message elements actually convey the construct desired (e.g., ensuring readers perceive the article that was designed with an exemplar in the lead as containing a model or case study). An additional amount of articles needed for the main experiment were developed so that the versions with the clearest construct manipulations could be utilized.

**Participants**

One-hundred and thirteen students recruited from upper-level communications courses served as the participant sample. The participants’ task was to check whether the desired manipulations of exemplification and efficacy were effectively conveyed within the stimuli options created for the main experiment. They had an average age of $M = 21$ ($SD = 1.97$) and 64% were female ($n = 72$). The racial background of this sample was predominantly white (80%) with 8% identifying as ‘Black or African American’, 9% as ‘Asian’, 3% as ‘multiple races mentioned’, and 1% as ‘other’.

**Procedure**

Two sets of 18 article leads with titles were created. Of the 18 in each set, 6 lead versions existed for 3 different FDA weight loss recommendations being promoted. These recommendations were: (1) ‘focus on total calories consumed, monitor food
intake,’ (2) ‘eat breakfast and plan meals to choose smaller portions/low-calorie options,’ and (3) ‘reduce eating out and limit screen time’. That is, there were 6 versions for each recommendation in both sets of the article leads. These versions were generated using a 2X3 design of the various message elements—exemplars/statistics by no efficacy/low efficacy/high efficacy. Exemplar versions featured an individual along with a quote, whereas base-rate versions featured statistics. The no efficacy version presented the weight management strategy as difficult and not effective/unsuccesful, the low efficacy versions implied that the strategy was difficult to achieve and a struggle before it would be effective, and the high efficacy versions suggested that the strategy was easy, quick and effective.

Six online questionnaires were created that each displayed 6 of the 36 manipulated article leads. The 6 versions of one article lead were dispersed across all six questionnaires in order to keep respondents from seeing 2 versions of the same lead. These questionnaires were randomly distributed to respondents with the instruction “Consider a news article with the following lead paragraph.” To enhance the impression of reading an article lead, the stimuli texts were only three inches wide and centered on the page with the headline in bold typeface.

Based on the article lead, respondents indicated their perceptions of the article regarding exemplar presentation, base-rate information presentation, response efficacy,
and self-efficacy. The two statements pertaining to the use of exemplars and base-rate information were “This article features examples and case descriptions” and “This article features many numbers and statistics.” The statement pertaining to response efficacy was, “This article indicates that there are effective strategies to improve habits with regard to body weight control.” and the statement for self-efficacy was, “This article indicates that you are able to improve your habits with regard to body weight control.” Responses for all four dimensions were given on a 7-point scale, ranging from strongly disagree to strongly agree. After evaluating the article leads, participants indicated socio-demographic information.

Results

Twelve of the 36 article leads with titles were chosen to be used as stimuli for the main experiment. To determine which 12 leads, mean difference tests were conducted to ensure message versions were significantly different than one another. Results indicated that the ‘low efficacy’ message versions were not significantly different from their ‘no efficacy’ or ‘high efficacy’ message version counterparts and thus, 12 potential article leads were eliminated. Of the remaining two sets of four leads for each weight loss recommendation (24 leads in total), the set with the largest mean differences between message versions were then subjected to analyses testing their intended manipulated construct. Table 2 reports the means of the 12 article leads analyzed.
ANOVAs were conducted to assess the effectiveness of the construct manipulations for each of the three weight loss recommendations (article topics). The exemplification and efficacy manipulations served as between group factors and responses to the various exemplification and efficacy statements served as the dependent measures. Specifically, the dependent measure of the ANOVA pertaining to the exemplification construct used the difference between the ratings for the two related statements (score for “This article features examples and case descriptions” minus score for “This article features many numbers and statistics”). The main effects for all three recommendations were significant and the statistical results are listed below. For the first recommendation of ‘counting calories/monitor food intake,’ the average exemplification score was 1.02 (SD = 1.78) and -1.14 (SD = 1.74) for the base-rate version, $F(1, 113) = 65.74, p < .001$ partial $\eta^2 = .381$. The second recommendation of ‘eat breakfast/choose smaller/low calorie portions’ had an average exemplification score of 2.09 (SD = 2.20) and base-rate score of -1.02 (SD = 1.80), $F(1, 113) = 87.44, p < .001$, partial $\eta^2 = .450$. The last recommendation of ‘reduce eating out and media screen time’ had an average exemplification score of 2.14 (SD = 2.18) and base-rate score of -1.27 (SD = 1.77), $F(1, 113) = 102.32, p < .001$, partial $\eta^2 = .489$.

The ANOVA pertaining to the efficacy manipulation employed a combined efficacy variable, constructed from the average of both response and self-efficacy, as
repeated measures. The main effects for the efficacy manipulations were also significant, as desired. Thus, the stimuli manipulation was successful. The average efficacy scores for the first recommendation of ‘counting calories/monitor food intake’ were 2.97 ($SD = 1.37$) for ‘no efficacy’ and 5.14 ($SD = 1.60$) for ‘high efficacy,’ $F(2, 113) = 187.26, p = .001$, partial $\eta^2 = .778$. The average efficacy scores for the second recommendation of ‘eat breakfast/choose smaller/low calorie portions’ were 3.37 ($SD = 1.78$) for ‘no efficacy’ and 5.80 ($SD = .92$) for ‘high efficacy,’ $F(2, 113) = 276.04, p = .001$, partial $\eta^2 = .838$. For the final recommendation of ‘reduce eating out and media screen time,’ the average efficacy scores were 3.07 ($SD = 1.51$) for ‘no efficacy’ and 5.37 ($SD = 1.41$) for ‘high efficacy,’ $F(2, 113) = 182.94, p = .001$, partial $\eta^2 = .774$.

Conclusions

Based on the results of these tests, the 12 article leads with titles contained successful construct manipulations and were determined effective stimuli to be used in the main experiment (see Table 3 for titles and texts of leads).
Chapter 6: Methods and Measures

Main Study Methods and Measures

Overview

The data for this experiment was collected online in three waves over three months. Monetary support was provided by a Miller Research Award granted through The Ohio State University’s School of Communication and by the Graduate School’s Alumni Grants for Graduate Research and Scholarship (AGGRS) fund. The first wave involved the collection of baseline information including person characteristics, self-evaluations, and behavioral information via an internet survey. The second wave was the selective exposure session, during which participants viewed three online magazines (one immediately after another) each containing six headlines and leads as well as corresponding full articles. In each online magazine there was one weight management article that contained a 2x2 experimental manipulation of message elements—exemplification (exemplars vs. statistics) and efficacy (low vs. high). Exposure to the three weight management articles was the data of interest for the current study analyses. The third session conducted was an internet questionnaire, sent out two weeks after the lab session. A two-week time span between immediate and delayed measure was chosen because it is generally common in persuasion research (e.g., on the sleeper effect, see
Kumkale & Albarracin, 2004) and has also been used in exemplification research (Zillmann, Gibson, Sundar, & Perkins, 1996). This final questionnaire collected information nearly identical to that collected in the initial questionnaire.

Participants

Data for the main experiment was collected from a non-convenience sub-sample of the general-population from an overweight/obese category formed by a survey sampling company, Survey Sampling International (SSI). To be placed in this category of participants, these individuals selected ‘overweight/obesity’ from a list of responses to the following refinement question, “Which of the following illnesses do you suffer from? (Please select all that apply.)” Additional details of this refinement process are provided in Appendix B. A total of 477 participants completed both wave 1 and the selective exposure browsing session of wave 2. Forty-four of these participants were removed from the sample because they did not have a BMI of 25 or over and thus would not be considered overweight or obese according to common health standards (CDC, 2012). An additional 33 were removed before analyses because they showed no exposure to any of the articles or indicated they did not participate in the browsing activity.

Descriptives of sample used for selective exposure analyses. Sixty-three percent \( (n = 251) \) of the remaining 400 participants used for the selective exposure analyses were female and their ages ranged from 26 to 71 \( (M = 45.85, SD = 10.90) \).
Eighty-seven percent \( (n = 347) \) of the sample reported their race as ‘White’, seven percent \( (n = 29) \) as ‘Black or African American’, one and a half percent \( (n = 6) \) as ‘Asian American’, one and a half percent \( (n = 6) \) as ‘Indian or Alaska Native’, one half percent \( (n = 2) \) as ‘Native Hawaiian or other Pacific Islander’, two percent \( (n = 8) \) as ‘Multiple Races Mentioned’, and one half percent reported as ‘Not Sure’. Seven percent of the participants indicated their ethnicity was ‘Hispanic or Latino’.

Characteristics of the sample related to overweight or obesity included BMIs ranging from 25.01 to 69.07 \( (M = 36.60, SD = 7.88) \) and weight ranging from 130 to 440 \( (M = 233.90, SD = 53.92) \). Twenty percent \( (n = 80) \) of the sample reported that they had Type 2 diabetes (other than during pregnancy), 42 percent \( (n = 168) \) of the population reported that they had been told by a health professional that their blood cholesterol level was high and 44 percent \( (n = 175) \) had also been told by a health profession that they needed to control their weight or lose weight in order to lower their blood cholesterol level.

**Descriptives of sample used for immediate perception analyses.** Two hundred and forty-six of the 400 participants that completed wave 1 and the selective exposure session from wave 2 also completed the questionnaire from wave 2 that contained measures for the immediate perception variables of interest in the current study. Sixty-two percent \( (n = 153) \) were female and the age of the sub-sample ranged from 26-71 \( (M \)
Eighty-seven percent \((n = 215)\) of the sample reported their race as ‘White’, seven percent \((n = 18)\) as ‘Black or African American’, one percent \((n = 3)\) as ‘Asian American’, one percent \((n = 3)\) as ‘Indian or Alaska Native’, three percent \((n = 7)\) as ‘Multiple Races Mentioned’, and one half percent \((n = 1)\) reported as ‘Not Sure’. Six percent \((n = 15)\) of the participants indicated their ethnicity was ‘Hispanic or Latino’.

BMIs of this sub-sample ranged from 25.52 to 69.07 \((M = 36.54, SD = 7.76)\) and weight ranged from 137 to 440 \((M = 234.51, SD = 53.58)\). Twenty-two percent \((n = 55)\) of the sample reported that they had Type 2 diabetes (other than during pregnancy), 42.5 percent \((n = 105)\) of the sample reported that they had been told by a health professional that their blood cholesterol level was high and 42 percent \((n = 104)\) had also been told by a health profession that they needed to control their weight or lose weight in order to lower their blood cholesterol level.

**Descriptives of sample used for delayed self-efficacy and behavior analyses.**

A sub-sample of participants that completed the wave 2 questionnaire completed wave 3. This sample consisted of 166 participants. Fifty-nine percent \((n = 97)\) were female and sample ages ranged from 26 to 71 \((M = 46.48, SD = 10.66)\). Eighty-five percent \((n = 141)\) of the sample reported their race as ‘White’, eight percent \((n = 14)\) as ‘Black or African American’, one percent \((n = 2)\) as ‘Asian American’, two percent \((n = 3)\) as ‘Indian or
Alaska Native’, and three percent \((n = 5)\) as ‘Multiple Races Mentioned’. Seven percent \((n = 12)\) of the participants indicated their ethnicity was ‘Hispanic or Latino’.

BMIs of this sub-sample ranged from 25.52 to 69.07 \((M = 36.17, SD = 7.76)\) and weight ranged from 137 to 440 \((M = 233.50, SD = 54.03)\). Nineteen percent \((n = 32)\) of the sample reported that they had Type 2 diabetes (other than during pregnancy), 42 percent \((n = 70)\) of the sample reported that they had been told by a health professional that their blood cholesterol level was high and 41 percent \((n = 67)\) had also been told by a health profession that they needed to control their weight or lose weight in order to lower their blood cholesterol level.

**Procedure**

**Baseline questionnaire.** Participants received an email from the online sample provider inviting them to partake in a research study. The email provided the participants a link to a survey website. The link was unique for each invitation and corresponded to an account using an unidentifiable subject code. The subject code was kept consistent for each participant and used to track their data from the three sessions of the study. Before the session questionnaire could appear, participants had to already have or follow the instructions provided in order to download the commonly used Microsoft Silverlight plugin. The plug-In was used in order to create the study sessions and thus, participants’ computers must run Silverlight in order for the online sessions to appear. For the first
session, participants completed a questionnaire that collected baseline information, such as participants’ demographics, weight management history, weight-related perceptions and motivations, weight management behaviors and satisfaction relative to those behaviors. When participants had completed the last question of the survey they were taken to another page that thanked them for their participation.

**Selective exposure session.** Two to seven days after participants completed the first session of the study they were sent another invite and link to participate in session two. The second session was conducted using the same Silver-light plug-in and online survey website. During this session, three different online ‘magazines’ with one of the pretested articles on dietary recommendations among five other articles in each magazine were presented to participants (see below for stimuli details). Participants were asked to browse each magazine for 3 minutes and 30 seconds (one after another for a total of 10 minutes and 30 seconds) while their hyperlink selection and reading time in seconds was unobtrusively logged. After the scheduled browsing time for all magazines elapsed, participants were asked questions regarding their thoughts and impressions of the articles. Participant self-evaluation and weight-related perception information, similar to that gathered from the questionnaire in session one, was also collected.

**Post questionnaire.** No earlier than two weeks after the second session was completed, participants were emailed another link to the survey website inviting them to
complete the third and final session of the study. The session consisted of a brief questionnaire that was virtually a condensed version of the questionnaire used in the base-line session in order to examine any changes in perceptions or behaviors. When participants completed the final question, they were forwarded to another page where they were thanked and debriefed.

**Experimental Stimuli**

The pretested stimuli article leads with corresponding full articles on dietary recommendations for weight management were embedded into all three online magazines. Each online magazine had a realistic but unique title and ‘look’ with features adapted from real-world online magazines. The overview page featured a masthead with the title of the magazine, some decorative icons on top, and along the side or across the bottom were deactivated links to additional topics or information.

Six article headlines and leads including one of the manipulated article leads on weight management were shown in the main frame of each online magazine overview page (see Table 3 for headlines and leads). The other article topics did not contain manipulated message elements and were kept constant for each magazine since only the weight management article in every magazine were of interest to the present analysis. The placement of the article leads on the overview page was randomized for each participant to avoid order effects. However, the order of the online magazine presentation
remained constant as did the weight management strategy article used in that particular magazine. The versions of the manipulated articles is what varied between participants, however the version remained the same across all three online magazines depending on what message element condition participants randomly received. All leads featured a hyperlink that allowed access to the corresponding full text article. The texts were compilations of articles pulled from various Internet sources.

The article lead versions were pretested to determine that they conveyed the construct intended (see results of Study 2 in the preliminary research) and were highly comparable. Each headline consisted of 6-9 words and the leads featured 46-49 words depending upon the weight management strategy. To avoid different levels of appeal or identification by recipient gender through the representation of a same-sex character, gender-ambiguous names (e.g., Alex, Casey, and Morgan) were used in exemplar versions. The article leads displayed on the overview page were the first paragraph in the full text of the articles, while the main body of the articles remained identical across the four versions for a topic and consisted of 525-558 words depending on the weight management strategy.

It was ensured that the article lead text did not feature any statements that would not converge with other parts of the article, despite text differences along experimental treatments. However, because the exemplification manipulation required very different
article openings in the article lead, each article featured a transition paragraph between lead and main body text of 21-42 words depending on the weight management strategy. The texts featured in transitions broadly reiterated the lead information and then led into the topic information in the main body text. Full texts for all article versions are provided in Appendix D.

**Measures**

**Predictor Variables.**

**Experimental group variables.** Two dichotomous variables were created, one for the exemplification condition and another for the efficacy condition. Participants randomly placed in the 'base-rate' condition \( (n = 196) \), those given the opportunity to view weight management articles featuring statistics, received a value of 0 on the exemplification variable and participants in the 'exemplification' condition \( (n = 204) \), those given the opportunity to view weight management articles featuring exemplars, received a value of 1 \( (M = 0.51, SD = 0.50) \). Similarly, participants randomly placed in the 'no efficacy' condition \( (n = 196) \), those given the opportunity to view weight management articles conveying no efficacy language, received a value of 0 on the efficacy variable and participants in the 'efficacy' condition \( (n = 204) \), those given the opportunity to view weight management articles conveying efficacy language, received a value of 1 \( (M = 0.51, SD = 0.50) \).
**BMI.** Body Mass Index (BMI) was calculated using participant’s height and weight recorded by participants at baseline (T1). First, participants’ height originally reported in both feet and inches was recoded to just inches and was squared. Participants’ weight in pounds was then divided by height(in)² and the quotient was then multiplied by 703. The BMI was the product of that final equation. According to information provided by the CDC, an adult is considered overweight if he or she has a BMI between 25 and 29.9 and is considered obese if they have a BMI of 30 or higher (CDC, 2012). Therefore, participants with a BMI of 25 or greater were used for analysis ($M = 36.60$, $SD = 7.88$).

**Weight maintenance.** The item used to measure weight maintenance was taken from the Stages of Change Scale for Weight Control, which is a short form of the subscale found in the University of Rhode Island Change Assessment (URICA) (CPRC & URI, measure online). To measure weight maintenance, participants reported whether they had maintained their desired weight over the past 6 months by responding yes (=1) or no (=0) to one item asking: "Have you maintained your desired weight for more than 6 months?" ($M = 0.22$, $SD = 0.41$). Seventy-eight percent of the sample ($n = 312$) indicated they had not maintained their desired weight over the past 6 months while twenty-two percent ($n = 88$) had maintained their desired weight.

**Frequency of weight loss attempts.** An item assessing frequency of weight loss attempts was taken from the National Health and Nutrition Examination Survey.
Questionnaire (CDC & NCHS, 2009-2010). Participants responded to one item asking: "In the past 6 months, how often have you tried to lose weight?" ($M = 2.46$, $SD = 0.71$). Responses were based on a 4-point scale (1 = never, 2 = sometimes, 3 = a lot, 4 = not sure). Eleven and a half percent of the sample ($n = 46$) reported never, 33% of the sample ($n = 133$) reported sometimes, 53.5% of the sample ($n = 214$) reported a lot, and 2% ($n = 7$) reported that they were not sure.

Currenty trying to lose weight. The item used to measure whether participants were currently trying to lose weight was taken from the Stages of Change Scale for Weight Control, which is a short form of the subscale found in the University of Rhode Island Change Assessment (URICA) (CPRC & URI, measure on-line). Participants reported whether or not they were currently trying to lose weight by responding yes (=1) or no (=0) to one item asking: "Are you seriously considering trying to lose weight to reach a goal in the next 6 months?" ($M = 0.76$, $SD = 0.43$). Twenty-four percent of the sample ($n = 96$) indicated they are not currently serious about trying to lose weight while 76% of the sample ($n = 304$) is serious about trying to lose weight.

Perceived weight status. The item used to capture participants' perceived weight status was taken from the National Health and Nutrition Examination Survey Questionnaire (CDC & NCHS, 2009-2010). To determine participants' perceived weight status they were given the prompt: "At this time, do you consider yourself to be..." and
responded by indicating which category out of 7 they perceived their weight to be (1 = extremely underweight, 2 = underweight, 3 = somewhat underweight, 4 = about the right weight, 5 = somewhat overweight, 6 = overweight, 7 = extremely overweight/obese). For analyses conducted using this variable, categories 1, 2, and 3 were combined and recoded into category 1 = underweight due to the small portion of the sample that indicated they perceived themselves to be any variation of underweight ($n = 4$) and considering their BMI was still 25 or greater ($M = 3.96, SD = 0.88$). One percent of the sample ($n = 4$) reported that they were 'underweight', four percent ($n = 16$) reported they were 'about the right weight', 23% ($n = 91$) reported that they were 'somewhat overweight', 42% ($n = 170$) reported they were 'overweight', and 30% ($n = 119$) reported that they were 'extremely overweight/obese'.

**Perceived weight satisfaction.** Participants reported the degree to which they were satisfied with their current weight by responding to one item asking: "How satisfied are you with your current weight?" ($M = 2.17, SD = 1.52$). The responses were based on a 7-point scale (1 = very dissatisfied to 7 = very satisfied). 45.3% of the sample ($n = 181$) was 'very dissatisfied' with their current weight, 25.8% ($n = 103$) was 'dissatisfied' with their weight, 13.8% ($n = 55$) was 'somewhat dissatisfied' with their weight, 6.8% ($n = 27$) was 'neither dissatisfied nor satisfied' with their weight, 3% ($n = 12$) was 'somewhat
satisfied' with their weight, 2% \((n = 8)\) was 'satisfied' with their weight, and 3.5% \((n = 14)\) of the sample was 'very satisfied' with their current weight.

**Perceived health risk due to weight.** The item used to assess perceived health risk was taken from the National Health and Nutrition Examination Survey Questionnaire (CDC & NCHS, 2009-2010). Participants reported the degree to which they perceived themselves to be at risk for health issues due to their weight by responding to one item asking: "To what extent do you feel 'at risk' for severe health problems due to your weight?" \((M = 3.65, SD = 1.08)\). The responses were based on a 5-point scale (1 = *not at all at risk* to 5 = *extremely at risk*). Six percent of the sample \((n = 23)\) indicated that they were 'not at all at risk' for health issues due to their weight, 11% \((n = 45)\) perceived themselves to be 'moderately not at risk', 13% \((n = 53)\) indicated they were 'not sure if they were at risk', 52% \((n = 207)\) perceived themselves to be 'moderately at risk', and 18% \((n = 72)\) perceived themselves to be 'extremely at risk' for health issues due to their weight.

**Motivation to lose weight.** A single item taken from Befort et al.'s (2006) study examining weight-related perceptions among both patients and physicians was used to measure participants' motivation to lose weight. Participants responded to a single item that asked: “How motivated are you to lose weight in the next 6 months?” \((M = 5.33, SD = 1.52)\). Responses were based on a 7-point scale (1 = *not at all motivated* to 7 =
extremely motivated). Three percent of the sample \((n = 12)\) was 'not at all motivated' to lose weight, 2.8\% \((n = 11)\) was 'unmotivated', 7.3\% \((n = 29)\) was 'somewhat unmotivated', 10.3\% \((n = 41)\) was 'neither unmotivated nor motivated' to lose weight, 24\% \((n = 96)\) was 'somewhat motivated', 27.3\% \((n = 109)\) was 'motivated', and 25.5\% \((n = 102)\) of the sample was 'extremely motivated' to lose weight.

**Stage of weight loss readiness.** The scale measuring stage of weight loss readiness was taken from Macqueen, Brynes, and Frost's (1999) 'stages of change questionnaire' (SQC) based on Lamb and Joshi's (1996) shortened version of Prochaska et al.’s (1992) five stages of change. To determine participants' stage of readiness to make a change regarding their weight loss efforts they were asked to: "Please select which statement sounds most like you regarding your efforts to lose weight:" \((M = 3.69, SD = 1.29)\). Participants responded by indicating which stage out of 6 matched their weight loss efforts. Three percent of the sample \((n = 12)\) reported 'I have not really thought about it’ (=1), 17.8\% \((n = 71)\) reported ‘I mean to lose weight but I don’t actually get around to it’ (=2), 23\% \((n = 92)\) reported ‘From time to time I go on a diet/exercise but then I stop after a few days’ (=3), 28.3\% \((n = 113)\) reported ‘I have been working on losing weight for the past 6 months’ (=4), 19.5\% \((n = 78)\) reported ‘I have been working on losing weight or have kept off the weight I lost for over 6 months’ (=5), and 8.5\% \((n = 34)\) reported that ‘None of the above sound like me’ (=6).
Outcome Variables

Selective exposure. To capture selective exposure to the weight management articles presented in each online magazine, hyperlink use was tracked in order to log whether they accessed the article and for how long they viewed it. In the following analyses, selective exposure as a dependent variable consisted of the three total exposure times for the weight management articles used as within-factors in repeated measures analyses. When considering the weight management articles from each online magazine separately (by behavior strategy), average exposure was $M = 32.75$ ($SD = 46.34$) for the ‘focus on total calories consumed, monitor food intake’ article, $M = 30.29$ ($SD = 44.58$) for the ‘eat breakfast and plan meals to choose smaller portions/low-calorie options’ article, and $M = 26.32$ ($SD = 42.61$) for the ‘reduce eating out and limit screen time’ article.

Selective exposure as a predictor, mediator or covariate in analyses was the average exposure time across the three weight management articles ($M = 29.79$, $SD = 33.66$). Average exposure in seconds ranged from zero to 191.67.

Self-efficacy for weight loss. The measure for weight loss self-efficacy was constructed following the guidelines laid out by Bandura (2006). Participants rated the strength of their belief in their ability to execute eleven different activities, which helped to distract from the behavior of interest. Participants were told: "Below is a list of
different activities. Rate how confident you are that YOU CAN DO each of the following as of now. Indicate your degree of confidence in YOUR ABILITY by pressing a number key from 0 to 8." The activity measuring weight loss self-efficacy was "lose weight." Participants recorded the strength of their beliefs on a 9-point unipolar response scale, ranging in single unit intervals from 0 ("Cannot do at all"); through intermediate degrees of assurance, 4 ("Moderately certain can do"), to complete assurance, 8 ("Highly certain can do"). For analysis purposes, these responses were recoded from 0 through 8 to 1 through 9.

The weight loss self-efficacy measure recorded at baseline (T1) ($M = 5.69; SD = 2.24$) was used as a person characteristic predicting both selective exposure and behavior change and was controlled for in analyses observing impacts on weight loss self-efficacy recorded at session two (T2) ($M = 6.14; SD = 1.96$) and session three (T3) ($M = 5.97; SD = 2.07$). T2 self-efficacy for weight loss was measured to analyze immediate impacts from selective exposure while controlling for weight loss self-efficacy at T1. T3 self-efficacy for weight loss was measured to analyze delayed impacts from selective exposure while controlling for weight loss self-efficacy at T1 and T2. Self-efficacy was significantly higher at T2 than at baseline, $t(245) = 3.91, p < .001$, but no other comparisons between time points were significant.
**Self-efficacy for weight management strategies.** The measure for weight management self-efficacy was also constructed following the guidelines laid out by Bandura (2006). Participants rated the strength of their belief in their ability to execute six different weight management strategies (those promoted in the weight management articles), which were embedded in 5 additional activities to help distract from the behaviors of interest. Participants were told: "Below is a list of different activities. Rate how confident you are that YOU CAN DO each of the following as of now. Indicate your degree of confidence in YOUR ABILITY by pressing a number key from 0 to 8." The six strategies measuring weight management self-efficacy were: "count calories/monitor food intake," "eat breakfast," "choose smaller food portions," "limit TV/computer screen time to lose/management weight," "choose low-calorie options," and "avoid or reduce eating out to lose/manage weight." Participants recorded the strength of their beliefs on a 9-point unipolar response scale, ranging in single unit intervals from 0 ("Cannot do at all"); through intermediate degrees of assurance, 4 ("Moderately certain can do"), to complete assurance, 8 ("Highly certain can do"). For analysis purposes, these responses were recoded from 0 through 8 to 1 through 9. The average of all six strategies' self-efficacy scores totaled was used as a scale for weight management self-efficacy and was measured at every session.
The weight management self-efficacy measure recorded at baseline (T1) ($M = 6.38; SD = 1.36; \text{Cronbach’s } \alpha = .763$) was used as a person characteristic predicting both selective exposure and behavior change and was controlled for in analyses observing impacts on weight management self-efficacy recorded at session two (T2) ($M = 6.62; SD = 1.41; \text{Cronbach’s } \alpha = .826$) and session three (T3) ($M = 6.55; SD = 1.45; \text{Cronbach’s } \alpha = .826$). T2 self-efficacy for weight management strategies was measured to analyze immediate impacts from selective exposure while controlling for weight management self-efficacy at T1. T3 self-efficacy for weight management strategies was measured to analyze delayed impacts from selective exposure while controlling for weight management self-efficacy at T1 and T2. There were no significant mean differences in weight management self-efficacy between time points.

**Connectedness.** To determine whether there was a connection made between the reader and the individual or individuals portrayed in the articles, items were developed to capture similarity with characters (e.g., Jose & Brewer, 1984, McCroskey, Richmond, & Daly, 1975), empathy with characters—based off of items from the perspective-taking subscale of the Interpersonal Reactivity Index (IRI) (Davis, 1980), and identification with characters—modeled after items from Cohen’s Identification scale (2001) used to measure audience identification with media characters. Participants were given the following prompt: “Please indicate how strongly you DISAGREE or AGREE with the
following statements about the individual(s) portrayed in the articles you read by pressing the number keys 1-7.” Participants then used a 7-point Likert-type scale (1 = strongly disagree to 7 = strongly agree) to respond to six items: “I am similar to the individual(s),” “I could imagine how the individual(s) felt,” “I could take the perspective of the individual(s),” “I could relate to the individual(s),” “I could identify with the individual(s),” and “I could learn from the individual(s).” The total response score from all six items was averaged in order to create the connectedness scale that ranged from 1 to 7—the higher the value the stronger the perceived connection with characters. Connectedness was only measured after the selective exposure portion of session two. The scale was appropriately characterized as a single factor that explained 68.27% of the variance and had factor loadings greater than .71 (M = 5.22; SD = 1.10; Cronbach’s α = .902).

**State reactance.** State reactance was measured using a “perceived threat to freedom” scale adopted from Shen and Dillard (2005). Participants were given the following prompt: “Please indicate how strongly you DISAGREE or AGREE with the following statements about the articles you read by pressing the number keys 1-7.” Participants then used a 7-point Likert-type scale (1 = strongly disagree to 7 = strongly agree) to respond to four items: “The articles threatened my freedom to choose,” “The articles tried to make a decision for me,” “The articles tried to manipulate me,” and “The
articles tried to pressure me.” The total response score from all four items was averaged in order to create the state reactance scale that ranged from 1 to 7—the higher the value the stronger the perceived threat to freedom. State reactance was only measured after the selective exposure portion of session two (\(M = 2.43; SD = 1.37; \text{Cronbach’s } \alpha = .892\)).

**Behavior change in weight management strategies.** Frequency of weight management behavior for all six weight management strategies promoted in the articles was measured at baseline (T1) and session three (T3). Participants indicated how frequently they performed the six strategies, which were embedded in 5 additional activities to help distract from the behaviors of interest. Participants were asked: "In the past 14 days how often did you do each of the following activities?" The six weight management strategies were: "count calories/monitor food intake," "eat breakfast," "choose smaller food portions," "limit TV/computer screen time to lose/management weight," "choose low-calorie options," and "avoid or reduce eating out to lose/manage weight." The response options were 1 = *never done this before*, 2 = *have done this before but not in the last 14 days*, 3 = *once or twice*, 4 = *occasionally (3 to 5 days)*, 5 = *often (6 to 8 days)*, 6 = *frequently (9 to 11 days)*, 7 = *almost every day (12 to 14 days)*. The average of all six strategies' frequency scores totaled was used as a scale for weight management behavior. Behavior change as a variable was based on the difference between the weight management behavior scale at T3 (\(M = 4.26; SD = 1.42; \text{Cronbach’s } \alpha \))
\(\alpha = .820\) and baseline \((M = 4.00; SD = 1.33; \text{Cronbach's } \alpha = .770)\), T3 minus T1 \((M = 0.22; SD = 1.09)\). For the analyses, a standardized score of this difference between measurement points served to represent change in weight management behavior. Weight management behavior was reported as significantly more frequent at T3 than at baseline, \(t(165) = -2.59, p = .010\).
Chapter 7: Results

Main Study Results

Impacts on Selective Exposure

As mentioned previously, in analyses where selective exposure served as a dependent variable, the three total exposure times for the weight management articles were within-subjects variables in repeated measures ANOVAs. Between-subjects factors are specified for given analyses and varied between message element conditions and person characteristics. See Appendix C for detailed information on data management conducted prior to analyses.

Preliminary analyses. A significant within-subjects main effect of selective exposure was found across the three exposure groups, $F(2, 798) = 3.29, p = .038$. Specifically, participants spent significantly longer amounts of time reading the first article about ‘focus on total calories consumed, monitor food intake’ ($M = 32.75, SD = 46.34$) compared to the third article about ‘eat breakfast and plan meals to choose smaller portions/low-calorie options’ ($M = 26.32, SD = 42.61$), $p = .025$. There were no significant gender differences in average reading time of weight management articles, $F(1, 398) = 0.48, p = .490$. However, there was a between subjects by within-subjects interaction of gender by exposure time, $F(2, 796) = 3.69, p = .025$, where females spent a
significantly greater amount of time ($M = 36.66, SD = 46.07$) on the first weight management article promoting the behavior ‘focus on total calories consumed, monitor food intake’ than males ($M = 26.15, SD = 46.22$), $F(1, 398) = 4.85, p = .028$. An additional analyse with race as a between-subjects factor revealed there were no significant differences in selective exposure due to racial background ($p = .655$) and a simple regression analysis showed age was not a significant predictor of selective exposure, $\beta = -.235, t(398) = -1.457, p = .123$.

**Message element impacts on selective exposure.** The first hypothesis suggests that selective exposure would differ depending on the message elements presence within the weight management articles. Specifically, the hypothesis proposed that weight management articles using exemplars that convey high efficacy will have longer exposure times than all other condition combinations (H1a) while the unique combination of articles using statistical information conveying high efficacy will have the shortest exposure times (H1b). There were no between-subject main effects for the exemplification, $F(1, 396) = .102, p = .749$, or the efficacy condition, $F(1, 396) = 1.012, p = .315$.

Results of the between-subjects interaction of exemplification by efficacy revealed that various combinations of these message elements did not produce differences in selective exposure times, $F(1, 396) = .003, p = .955$. The only significant
effect of the between-subject message element conditions was found as an interaction within-subjects of exemplification by selective exposure, $F(2, 792) = 4.705, p = .009$. For the second weight management article promoting the strategy ‘reduce eating out and limit screen time’, the base-rate version presenting statistical information produced significantly longer exposure times ($M = 35.12, SD = 47.67$) than the exemplar version ($M = 25.65, SD = 40.97$), $F(1, 398) = 4.55, p = .034$.

**Person characteristic impacts on selective exposure.** To determine how person characteristics affect selective exposure (RQ1), several person variables particularly related to weight were used as between-subjects factors while the three total exposure times for the weight management articles remained within-subjects variables in repeated measures ANOVAs. However, as BMI was a continuous variable it was the only person characteristic that was analyzed using OLS regression. BMI served as the predictor and the average selective exposure across all three time points was used as the dependent variable. BMI did not significantly predict average selective exposure, $\beta = .203, t(398) = .947, p = .344$. To test for significant between-subjects interactions of BMI by condition on average selective exposure, a multiple regression analysis was conducted using standardized interaction terms created for BMI by the exemplification condition and BMI by the efficacy condition, but did not produce significant results, $F(2, 397) = .683, p = .506$. 

96
Variables related to participants’ weight management history were analyzed as between-subjects factors in repeated measures ANOVAs. These variables measured whether participants had maintained their desired weight over the last six months, how often participants had tried to lose weight in the past 6 months, and whether participants were currently serious about trying to lose weight. The latter variable relative to trying to lose weight did not generate significant differences in exposure time \((p = .107)\), but both maintaining a desired weight, \(F(1, 398) = 5.69, p = .018\), and the frequency of weight loss attempts in the past 6 months, \(F(3, 396) = 2.88, p = .036\), produced significant between-subject main effects. Pairwise comparisons revealed that participants indicating they had maintained their desired weight in the past 6 months had significantly lower exposure times for the weight management articles \((n = 88; M = 22.27, SD = 29.71)\) than participants who indicated they had not maintained their desired weight in the past 6 months \((n = 312; M = 31.91, SD = 34.44), p = .018\). Additionally, participants that reported having tried to lose weight ‘a lot’ in the past 6 months had significantly higher exposure times for the weight management articles \((n = 214; M = 33.92, SD = 36.25)\) than those who reported having only ‘sometimes’ tried to lose weight in the past 6 months \((n = 133; M = 23.08, SD = 28.80), p = .021\).

Among the three ‘weight management history’ variables, there was only one significant interaction with the message element conditions. There was a significant
between-subjects interaction of maintained a desired weight by exemplification on selective exposure, $F(1, 392) = 4.977, p = .026$. The interaction revealed that participants who had maintained their desired weight over the past 6 months spent significantly less time reading the weight management articles using exemplars ($M = 14.93, SD = 20.53$) versus statistical information ($M = 30.57, SD = 35.41$), and compared to exposure times of those who did not maintain their desired weight over the past 6 months for both exemplar ($M = 33.18, SD = 35.67$) and base-rate ($M = 30.37, SD = 33.16$) articles.

To assess the impact of current weight perceptions on selective exposure to weight management articles, participants’ perceived weight status, weight satisfaction, and perceived health risk due to weight were used as between-subjects factors in repeated measures analyses. Significant between-subjects effects appeared for each of these weight perception variables on selective exposure. First, differences in selective exposure were found among weight status perceptions, $F(4, 395) = 2.94, p = .020$. The finding revealed that participants’ who perceived themselves as 'about the right weight' had significantly shorter exposure times ($M = 6.04, SD = 14.47$) than those who perceived themselves as 'overweight' ($M = 31.52, SD = 31.29; p = .037$) and 'extremely overweight/obese' ($M = 33.67, SD = 37.03; p = .020$). Selective exposure also significantly differed depending on participants' satisfaction with their current weight, $F(6, 393) = 3.76, p = .001$. Pairwise comparisons revealed those who were 'very
dissatisfied' with their weight had significantly longer exposure times ($M = 35.08, SD = 36.14$) than those who were 'neither dissatisfied nor satisfied' with their weight ($M = 13.62, SD = 16.19$), $p = .036$. 

Finally, perceived health risk due to weight influenced selective exposure, $F(4, 395) = 4.31, p = .002$. Participants who felt they were 'moderately not at risk' had significantly shorter exposure times with the weight management articles ($M = 14.12, SD = 22.80$) than participants who perceived themselves as 'moderately at risk' ($M = 31.54, SD = 32.65; p = .015$) and 'extremely at risk' ($M = 38.48, SD = 41.09; p = .001$). Perceived health risk due to weight was the only variable that interacted with a message element, exemplification, to significantly impact selective exposure, $F(4, 381) = 3.01, p = .018$. Participants who perceived themselves as 'moderately at risk' ($n = 207$) spent significantly longer amounts of time with exemplar weight management articles ($M = 36.26, SD = 35.30$) than base-rate articles ($M = 26.39, SD = 28.80$), $p = .029$. Additionally, these participants had significantly shorter exposure times for the base-rate weight management articles ($M = 26.39, SD = 28.80$) compared to participants who perceived themselves 'extremely at risk' for health problems because of their weight ($M = 44.13, SD = 43.28$), $p = .005$.

The last set of person characteristics includes three variables that measure or are related to one's motivational goals to lose weight: motivation to lose weight, current stage
of change regarding weight loss efforts, and self-efficacy perceptions about being capable of losing weight. There were no significant between-subjects main effects on selective exposure for either the motivation variable ($p = .128$) or the stages of change variable ($p = .484$). There was a significant between-subjects by within-subjects interaction of the motivation variable by selective exposure when it was dichotomized, categorizing participants that were 'somewhat unmotivated', 'unmotivated' or 'extremely unmotivated' as unmotivated ($n = 52$), and those that were 'somewhat motivated', 'motivated' or 'extremely unmotivated' as motivated ($n = 307$). However, Mauchly’s test indicated that the assumption of sphericity had been violated (chi-square = 6.20, $p = .045$), therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\epsilon = 0.98$), $F(1.97, 701.89) = 3.36, p = .036$. After probing the interaction it was revealed that exposure time in the second weight management article promoting the strategy ‘reduce eating out and limit screen time’ was significantly shorter among ‘unmotivated’ participants ($M = 19.83, SD = 41.49$) compared to ‘motivated’ participants ($M = 32.49, SD = 44.85$), $p = .047$. Participants’ self-efficacy perception that they were capable of losing weight did not have any significant between-subjects or within-subjects influence on selective exposure. Further, none of these motivational variables interacted with the message element conditions to significantly influence selective exposure.

**Impacts on Beliefs**
**Self-efficacy.** Self-efficacy perceptions reported at time 2 and time 3 are proposed to be higher after exposure to weight management articles featuring exemplars than after exposure to weight management articles featuring statistical information (H2a). Additionally, this impact is suggested to be pronounced when high efficacy is conveyed through weight management ease and success (H2b). Four self-efficacy perceptions were analyzed as the dependent variables in the following analyses: perceived self-efficacy for weight loss reported at time 2 and at time 3 and perceived self-efficacy for weight management strategies reported at time 2 and at time 3. To determine whether the presence of exemplars versus statistics impacted these self-efficacy perceptions, four ANOVAS were conducted with the perceived self-efficacy variable of interest as the dependent variable, the exemplification condition as the fixed factor, and the corresponding self-efficacy perception reported at base-line (and time 2 for time 3 analyses) as well as selective exposure to the weight management articles as covariates.

There were no significant impacts of the exemplification condition on perceived weight loss self-efficacy at time 2, $F(1, 242) = 0.01, p = .942$, or time 3, $F(1, 161) = 0.06, p = .805$. Similar non-significant results were found for perceived self-efficacy for weight management strategies at time 2, $F(1, 242) = 2.76, p = .098$, and time 3, $F(1, 161) = 0.30, p = .582$. Thus, H2a was not supported.
Simple moderation analyses were conducted using the SPSS macro PROCESS (Hayes, 2012) to determine whether the presence of efficacy impacted any effects of the exemplification condition on the self-efficacy variable of interest, addressing H2b. Specifying MODEL 1 in PROCESS estimated the effect of exemplification on the self-efficacy variable of interest by the efficacy condition. The same variables used as covariates in the above ANOVAs remained covariates in the current analyses. Results revealed no significant interactions between message conditions on perceived weight loss self-efficacy at time 2, ($\beta = .007, t = -.02, p = .985$), or time 3, ($\beta = .213, t = .49, p = .622$). Further, no significant interactions were found between conditions on perceived self-efficacy for weight management strategies at time 2, ($\beta = -.129, t = -.46, p = .644$), or time 3, ($\beta = .242, t = .84, p = .402$). Therefore, no conditional effects of exemplification on self-efficacy appeared due to the presence of efficacy.

**Connectedness.** Similar analyses were run to determine the message element conditions impact on connectedness reported immediately after viewing the weight management articles. The results of an ANOVA with connectedness as the dependent variable, the exemplification condition as a fixed factor, and selective exposure to the weight management articles as a covariate did not show significantly higher levels of connectedness in participants that viewed articles featuring exemplars as opposed to base-rate articles (H3a), $F(1, 244) = .10, p = .758$. Another simple moderation analysis
was conducted using the aforementioned methods of analysis in order to determine if the presence of efficacy impacted the effect of exemplification on connectedness (H3b). Results revealed there was a marginally significant interaction in the proposed trends between the exemplification condition and efficacy, \( (\beta = .516, t = 1.85, p = .066) \). Specifically, the presence of efficacy in articles featuring exemplars increased participants’ levels of connectedness while the presence of efficacy in articles featuring statistical information decreased levels of connectedness experienced immediately after article exposure, however mean differences between conditions were not large enough to be significant at a .05 level.

**State reactance.** Impacts on state reactance experienced immediately after exposure to the weight management articles were also proposed to be affected by the message element conditions. An ANOVA was conducted with the exemplification condition as the fixed factor, state reactance as the dependent variable, and selective exposure as a covariate. Results of this analysis were not significant, \( F(1, 244) = 0.10, p = .747 \), indicating state reactance was not significantly lower for weight management articles featuring exemplars or significantly higher for articles featuring statistics (H4a). A simple moderation model was then estimated using PROCESS to determine whether there was conditional effect of exemplification on state reactance due to efficacy (H4b),
however this analysis did not produce significant results for the conditional effect, ($\beta = -0.467, t = -1.33, p = .184$).

**Impacts on Behavior**

Hypothesis 5 suggests that delayed behavioral impacts (after at least 2 weeks) of exposure to the weight management articles will depend on the message element conditions. Specifically, the hypothesis proposed that weight management articles featuring exemplars that convey high efficacy will produce the greatest amount of behavior change than all other condition combinations (H5a) while the unique combination of articles using statistical information conveying high efficacy will generate the least amount of behavior change (H5b). In order to test H5, an ANOVA was conducted that utilized the standardized difference in participants’ weight management behavior from base-line to time 3 as the dependent variable, the exemplification and efficacy message element conditions as the fixed factors, and selective exposure to the weight management variables as the covariate.

Results from this analysis did not reveal an interaction between message conditions on behavior change; therefore, H5a and H5b were not supported. That is, various combinations of the message elements did not produce significant differences in amount of behavior change, $F(1, 161) = 1.73, p = .191$. A significant main effect was found for the efficacy condition on behavior change, $F(1, 161) = 5.34, p = .022$. 
supporting H5b (illustrated in Figure 1). This finding revealed increases in weight management behavior \( (M = .39, SD = .33) \) two weeks after exposure to weight management articles that conveyed high efficacy (regardless of the evidence presentation of exemplars or statistics). Results did not show a significant main effect for the exemplification condition, so exposure to the exemplar articles did not generate significant increases in weight management behavior nor were there decreases in weight management behavior due to exposure to base-rate articles, \( F(1, 161) = 0.01, p = .941 \).

**Person characteristic impacts on behavior change.** To address RQ1, BMI was first used as a predictor variable along with the message element conditions in its own regression analysis to predict behavior change, but no significant main or interaction effects on behavior change were found. ANOVAs were conducted to determine how the additional person characteristics affected behavior change. The person characteristics and message element conditions served as fixed factors while the standardized difference in participants’ weight management behavior from base-line to time 3 remained the dependent variable and selective exposure to the weight management articles was a covariate.

The first ANOVA was conducted using the three weight history variables as fixed factors as well as the message element conditions; however, no main or interaction impacts were significant for this analysis. The next set of person characteristics used as
fixed factors with the message element conditions were the current weight perceptions. The only significant effect on behavior change was a main effect of weight status perceptions, $F(4,72) = 3.24, p = .017$. Specifically, participants who perceived themselves as ‘underweight’ demonstrated significant increases in behavior ($M = 1.04; SD = 2.08$) two weeks after exposure to the weight management articles. The last set of characteristics analyzed as fixed factors were the motivational goal to lose weight variables. There were no significant main or interaction effects on behavior change for these variables. Non-significant statistics for the results of these analyses are available upon request of the author.

**Mediation Processes**

Model 7 of the statistical analysis macro PROCESS (Hayes, 2012) was designed to examine conditional process modeling proposed in H6. H6 suggests that the message element conditions’ impact on perceived self-efficacy of weight loss and for weight management strategies at time 2 and time 3 are mediated by selective exposure to the weight management articles. Since PROCESS allows these to relationships mentioned above to be tested simultaneously, a conditional indirect effect of exemplification on the self-efficacy variable of interest through selective exposure that depends on the presence of efficacy in the article (or is moderated by efficacy) is tested and but not supported for all four self-efficacy dependent variables.
H7 suggests a serial mediation analysis with two mediators, selective exposure to the weight management articles and perceived self-efficacy (for weight loss and weight management strategies) at time 2, operating in sequence to produce behavior change. Based on the findings from H5, the efficacy condition is used as the predictor variable in the serial mediation analysis (Model 6) conducted using PROCESS and both the exemplification condition and the corresponding base-line perceived self-efficacy variable are included as covariates. Results of this serial multiple mediation analyses were not significant, such that the specific indirect effect of the efficacy condition on behavior change through both selective exposure and perceived self-efficacy were potentially due to chance when using both perceived weight loss self-efficacy at time 2 ($a1a3b2 = -.0001; CI = -.012 to .001$) and perceived self-efficacy for weight management strategies at time 2 ($a1a3b2 = .0013; CI = -.028 to .004$) in the analyses. These analyses also revealed that selective exposure and neither perceived self-efficacy were significant single mediators of efficacy’s impact on behavior change.
Chapter 8: Discussion and Conclusions

Discussion

Summary of Results

The primary purpose of the main study was to examine the potential for message elements’ presence in weight management articles to influence selective exposure, weight related perceptions, and weight management behaviors. In doing so, the potential for selective exposure and perceived self-efficacy for weight loss and weight management strategies to serve as mediators of message elements’ impact on immediate and delayed self-efficacy perceptions and delayed behavior change was investigated. Overall, the data did not support most hypotheses, but unexpected significant results were found.

The first set of findings was from tests of H1 and RQ1 examining message and person characteristics’ impact on selective exposure. H1a suggested that weight management articles featuring exemplars and conveying high efficacy (presents weight management strategies’ ease, rapidity and success using exemplars as evidence) would result in the longest selective exposure. Further, H1b proposed that base-rate weight management articles that conveyed high efficacy (presents weight management strategies’ ease, rapidity and success using statistical information as evidence) would result in the shortest selective exposure. Both propositions were not supported revealing
that average exposure time across all three weight management articles did not differ depending on the message elements present within the article. However, an unexpected finding was significant within the exposure times for each article. While the trends (ns) of the first weight management article, promoting the strategy ‘focus on total calories consumed, monitor food intake’, and the third, promoting ‘eat breakfast and plan meals to choose smaller portions/low-calorie options’, both demonstrated that estimated selective exposure means for articles featuring exemplars were higher than those featuring statistics and suggested an additive efficacy impact increasing means when present, the second article revealed significant exposure patterns in the opposite direction. The second article promoting ‘reduce eating out and limit screen time’ had significantly longer exposure times for the base-rate articles as opposed to the exemplar articles, yet a non-significant additive effect of efficacy remained a trend for this article as well.

RQ1 investigated potential person characteristic main effects on selective exposure as well as conditional impacts on message elements’ effect on selective exposure. BMI did not predict any significant main or conditional effects. The variable measuring whether participants had maintained their desired weight in over the past 6 months had a significant negative impact on selective exposure and the variable measuring how frequently they had tried to lose weight in the past 6 months had a significant positive effect on selective exposure. The former variable also produced a
significant interaction with the exemplification message element condition. Participants who indicated they had maintained their weight in the past 6 months had significantly shorter exposure times for exemplar articles versus statistical articles and compared to exposure times for both message conditions among those who reported they had not maintained their desired weight. Participants who reported that their current weight status was ‘at the right weight’ had significantly shorter exposure times for the weight management articles compared to participants who reported any other weight status. Participants who indicated they were very dissatisfied with their current weight had significantly longer exposure times than those who indicated they were ‘neither dissatisfied nor satisfied’ with their current weight. Lastly, analyses examining perceptions of how ‘at risk’ participants were to health issues due to their weight revealed both significant main and interaction effects on selective exposure. Participants who indicated they were ‘moderately not at risk’ had significantly shorter exposure times for the weight management articles. A significant interaction with the exemplification condition revealed that participants who felt they were ‘moderately at risk’ had significantly higher exposure times for the exemplar articles versus the base-rate articles. Further, these participants had significantly shorter exposure times for the base-rate articles than even the participants who perceived themselves to be ‘extremely at risk’ for health problems.
H2 through H4 examined the message elements’ impacts on various perceptions including self-efficacy (H2), connectedness (H3), and reactance (H4). Findings did not support H2a or H2b. There were no significant impacts of the exemplification condition on perceived self-efficacy variables for both weight loss and weight management strategies at time 2 and time 3 (H2a) nor were there any conditional effects due to efficacy (H2b). While the proposed main effect due to exemplification on connectedness was not supported (H3a), a marginally significant interaction effect was found between both message elements on perceived connectedness (H3b – marginally supported). The finding suggests that the presence of efficacy in articles featuring exemplars potentially increased participants’ levels of connectedness while the presence of efficacy in articles featuring statistical information potentially decreased levels of connectedness reported immediately after article exposure. H4a and H4b were not supported, due to findings that showed no significant main effects of the exemplification condition on state reactance (H4a) nor conditional impacts of efficacy by exemplification’s effect on state reactance (H4b).

Delayed behavioral impacts experienced due to message and person characteristics were proposed in H5 and RQ2. H5 suggested any main effects of the message elements would be qualified by a significant interaction between conditions revealing that weight management articles featuring exemplars that convey efficacy
would generate the greatest behavior change (H5a) while the articles using statistical information that convey efficacy would produce the least amount of behavior change (H5b). The only significant finding reported a main effect for the efficacy message element condition. The presence of efficacy in weight management articles led to a significant increase in reported weight management behaviors among participants at least two weeks after exposure to the articles. RQ2 investigated the person characteristic impacts on behavior change; however, current perceived weight status was the only variable that produced a significant impact. Specifically, the small portion of participants who perceived themselves as ‘underweight’, demonstrated larger significant increases in weight management behavior two weeks after exposure to the weight management articles compared to participants who reported other weight statuses.

Mediation models were proposed in H6 and H7. H6 suggested that selective exposure with the weight management articles would mediate the message elements’ impacts on the various perceived self-efficacy variables at both time 2 and time 3. No significant indirect effects were found, which left H6 not supported. H7 suggested a serial mediation model where selective exposure to the weight management articles and perceived self-efficacy (for weight loss and weight management strategies) at time 2 serve as sequential mediators in the message element → behavior change relationship. H7
was not supported and the proposed mediators also failed to appear as significant single mediators.

**Discussion of Findings and Ideas for Future Research**

Selective exposure means for the weight management articles, regardless of condition, decreased over the three online magazines (exposure points). That is, the first online magazine had the highest estimated mean of the weight management articles while the third had the lowest. Mean differences were only significant between the first and third, however the mean for the second article’s exposure time did fall between the two. The decrease over exposure points could be due to a number of factors. For instance, it could reflect a preference for the strategy being promoted or a decrease in interest for the topic of weight management due to previous exposures. Future research should investigate differences in exposure time over multiple exposure points in order to determine patterns which would more realistically reflect everyday exposure to messages. Once patterns or trends for multiple exposures are identified potential explanations can be examined. Findings from this research would have significant implications for media buyers, who decide on the placement of their messages within magazines or similar media formats, looking to maximize exposure to their message.

The present study was interested in effects on selective exposure due to the presence of message elements theoretically and empirically suggested to impact
exposure. No significant findings were determined except for within the specific weight management articles themselves or due to interactions with person characteristics. The within exposure time finding for the second weight management article that demonstrated trends opposite of those hypothesized and opposite of those found in the first and the third article showed significant increases in time spent with the base-rate articles as opposed to the exemplar article. It is likely this extreme difference hindered subsequent repeated measures analyses that could have resulted in significant, proposed trends had the second article’s exposure patterns mimicked that of the other two.

Speculations for the occurrence of the rogue exposure pattern could be reactions to the specific weight management strategy promoted, an effect of the combination of articles or article topics that was presented on the second online magazine, or the overall appearance or appeal that was exuded by the second online magazine. While there is little that can be done to determine the validity of these potential impacts, one clear distinction sets the second weight management article apart from the other two in support of an intuitive and theoretical explanation for differentiated exposure patterns. The strategy promoted in the second weight management article was an avoidance framed strategy, suggesting that participants reduce current behaviors they likely find enjoyable—going out to eat and using media screens. The other two strategies promoted in the first and third articles were approach framed strategies that suggested participants adopt new
behaviors in order to management their weight. The difference in frame tied to the strategy and used to present the strategy could be influencing participants’ preference for articles using exemplars versus statistical information. This highlights the need for research to be conducted examining the impacts of message frames (e.g., approach vs. avoidance frames utilized frequently in health messages) on selective exposure.

Person characteristics also impacted selective exposure and interacted with the message element conditions to produce variations in exposure time. Characteristics that together created a profile of individuals who had significant weight issues (e.g., participants who had not maintained their desired weight in the past 6 months, had tried to lose weight ‘a lot’ in the past 6 months, did not feel as if they were at the right weight, were very dissatisfied with their weight, and perceived themselves to be at risk for health problems due to their weight) were associated with longer selective exposure to the weight management articles. This finding is encouraging considering much of the target audience seems to be spending the greatest amount of time with these messages. However, these findings also highlight the fact that weight loss and management is an issue with many causes and barriers to success. It is especially important for research on the issue of weight to take into account all interacting determinants: behavioral, personal (cognitive, affective, and biological), and environmental (Campo & Mastin, 2007).
The person by message element interaction between whether participants had maintained their weight in the past 6 months and the exemplification condition showed extremely short exposure times for exemplars. Since all participants were considered overweight or obese according to their BMI, perhaps these individuals who were subjectively at their desired weight did not want to be emotionally influenced by or feel empathy toward the exemplars and their efforts to manage weight. On the other hand, participants who felt they were moderately at risk for health problems due to their weight demonstrated a preference for the exemplar articles as opposed to the base-rate articles. Further, they even spent significantly less time with the base-rate articles than those who felt they were extremely at risk for health problems. This finding suggests that perhaps a threshold exists for those who feel threatened by their weight issues. Perhaps, those who felt they were moderately at risk desired to spend more time with an article that would help them cope with this constant threat and thus, they spent more time with the exemplar articles. Conversely, participants who knew they were extremely at risk may have desired exposure to an article of higher utility and thus, spent longer amounts of time with base-rate articles (perhaps due to the common perceptions of importance and credibility tied to statistics). Additional research should explore the interactions between levels of perceived threat and motivation to reduce risks.
Further, detailed investigations need to identify more specific cognitive and affective reactions before and after individuals are exposed to exemplification and statistical types of evidence prior to their use as experimental stimuli. This knowledge would largely aid in isolating causes of significant impacts on exposure, beliefs and behaviors. For instance, state reactance measured in the current study was proposed to occur due to the message combination of statistics and efficacy and connectedness was suggested to occur after exposure to the message combination with exemplars and efficacy. Although the hypothesized effects for connectedness were marginally supported, initial tests of these propositions would most accurately be tested immediately after exposure to only the experimental stimuli.

The lack of significant impacts on self-efficacy were inconsistent with previous empirical examinations (i.e., Gray & Harrington, 2011; Sarge & Knobloch-Westerwick, 2012). A good part of this inconsistency may be due to variations in the sample’s age. Both Gray and Harrington (2011) and Sarge and Knobloch-Westerwick (2012) examined college-aged students, while the current study examined a general population sample that had an average age of 46. The present study’s older sample may have established self-efficacy beliefs relative to weight loss that could be more resilient to change. Further, these overweight and obese individual have likely experienced additional weight loss message exposure and unsuccessful weight loss attempts, which could have lowered their
weight loss self-efficacy over a number of years. Some evidence in support of this speculation is the significant negative relationship between age and base-line self-efficacy for weight loss, $\beta = -0.023$, $t(398) = -2.235$, $p = .026$. As age of the participants increase, self-efficacy beliefs related to weight loss decrease.

Lastly, previous research has found behavioral change two weeks after exposure to weight management articles featuring exemplars (Sarge & Knobloch-Westerwick, under review), but the current data show behavior change two weeks after exposure to articles conveying efficacy. The variation in findings might also be due differences in the sample. The former study was a sample of younger individuals who were less inflicted with weight issues, while the current study is a sample of individuals targeted by weight management articles due to their struggle with weight. Perhaps the overweight or obese are more heavily influenced by exposure to efficacy within a message than they are concerned with what evidence is used to convey the efficacy. Future research could explore these sample specific impacts due to varied message elements by collecting a larger sample of the general population that contains greater variance among BMIs.

**Study Strengths and Limitations**

The current study examined a sample of individuals who are the target audience for weight loss/management messages and interventions. The sample size for the selective exposure and wave 2 data was acceptable with well over 60 participants for
each condition, however unexpectedly high attrition rates led to only 165 participants completing the third and final wave of the study. The behavioral findings were the only results subject to error due to the low sample size and thus, these findings should be tentative until replicated in future research. Additional medical measures to determine weight status should also be explored.

As suggested in the discussion of findings, a larger as well as more diverse sample relative to BMI should be examined to determine variations in behavioral impacts two weeks after exposure to weight management articles due to the presence of exemplification and efficacy. Further, the present study’s sample was a sub-sample of the general population who, in order to be part of this sub-sample, acknowledged that they suffered from overweight or obesity. The willingness to admit this condition inherently reflects a unique characteristic among this group that perhaps suggests higher motivation to lose weight or at least removes a group of individuals who may be in denial about their condition. A general population sample would allow for an examination of differences in not only individuals who do not suffer from overweight or obesity, but those who may not be so freely willing to admit they suffer from this health condition. The ability to examine these various groups has significant implications for motivation and weight perception impacts on exposure and behavior.
The significant strength of this examination is its use of selective exposure methods in order to examine exposure preferences as well as impacts in a more naturalistic setting. Further, the repeated measures design adds power to the analysis and serves as a preliminary investigation of how initial exposure impacts subsequent exposure. One unforeseen limitation was the potential loss of power due to the contradictory frame used in the second weight management article. However, the difference in exposure trends potentially due to approach versus avoidance present an intriguing suggestion for future research. For additional analyses and exploration using the current data, it may be beneficial to control for exposure time from the second article if conclusions relative to the similarity of the articles presenting the same message elements wish to be made. A post-test could also be conducted to determine if this difference in frame is actually perceived by participants and thus, exploratory analyses could be conducted relative to variations in approach versus avoidance framed messages.

The intricate manipulation of the stimuli is another main strength of the current study. Word length in each headline and lead and overall appearance of the messages were kept constant to avoid the influence of extraneous variables. The online magazines were realistic in nature since they were adapted from real websites and the non-manipulated articles remained the same for every magazine but their order of presentation was randomized. The weight management messages were developed using real articles
from leading health magazines and pretested to ensure the message elements were successfully manipulated to convey the desired constructs. The content analysis took initial steps toward identifying types of efficacy language and the main experiment implemented this language.

The stimuli for the current analysis utilized real weight loss/management articles as a model and tried to identify and implement various instances of efficacy. However, it should be noted that there are no clear guidelines or standards to follow when trying to convey this characteristic. An additional complication arises because two types of efficacy exist, self- and response efficacy. The two concepts are inexplicably intertwined when found and implemented in messages—especially those promoting behaviors. This is because it is important to persuade individuals that they are capable of performing the behavior and that the behavior will successfully produce the desired outcome. Conveying the success or failure of a behavior—response efficacy—is more straight-forward than persuading the individuals that they are capable of performing the behavior—conveying self-efficacy. Response efficacy seemed to be more heavily manipulated and yet perceived response efficacy for the weight management strategies was not analyzed. Additional analyses will investigate response efficacy to determine if the hypotheses involving self-efficacy are significant when replaced with response efficacy as the variable of interest. Further, perhaps Bandura’s (1977; 2000) efficacy sources—the use of
exemplars, detailed instructions, and verbal encouragement—are a good place to begin the development of more concrete guidelines or standards for message efficacy.

Overall, despite a lack of significant findings the current study laid substantial groundwork for future investigations. Differences discovered within the articles highlight not only the importance of characteristics or elements within the message, but how message framing can significantly impact an individuals’ selective exposure. Multiple message designs facilitate the discovery of additional impacts on variables of interest, such as the potential framing effect found in the current data. It is also apparent based on previous research and the current data on person characteristics that selective exposure and message element impacts on exposure, perceptions and behaviors will vary greatly depending on the sample. For the current study, it was advantageous that the data was collected from those individuals targeted by weight management messages, so that conclusions made about how to increase exposure and induce positive behavior changes are applicable to those who would benefit most from such messages.
References


Cancer Prevention Research Center (CPRC), University of Rhode Island. [Measures Online]. Weight: Stages of Change-URICA-Short Form. Retrieved from, http://www.uri.edu/research/cprc/Measures/Weight01.htm


*Communication Research, 33*(4), 262-284.


Appendix A: Tables and Figures
Table 1

*Number of magazine articles by issue.*

<table>
<thead>
<tr>
<th>Magazines</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>August</th>
<th>September</th>
<th>October</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shape</td>
<td>20</td>
<td>16</td>
<td>15</td>
<td>15</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Fitness</td>
<td>11</td>
<td>8</td>
<td>5</td>
<td>5</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Self</td>
<td>3</td>
<td>6</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Health</td>
<td>11</td>
<td>10</td>
<td>4.5</td>
<td>4.5</td>
<td>9</td>
<td>12</td>
</tr>
<tr>
<td>Prevention</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
Table 2

*Construct means of article leads chosen for main study*

<table>
<thead>
<tr>
<th>Count Calories</th>
<th>Exemplar Version</th>
<th>Base-Rate Version</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Efficacy</td>
<td>Efficacy</td>
</tr>
<tr>
<td>Response</td>
<td>3.00(1.55)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>5.62(1.50)&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Efficacy</td>
<td>3.00(1.59)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>5.25(1.48)&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>3.00(1.41)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>5.44(1.46)&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Combined Efficacy</td>
<td>4.31(1.78)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>4.75(1.98)&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Exemplification</td>
<td>3.06(2.08)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2.38(1.59)&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Statistics</td>
<td>2.58(1.90)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>6.05(0.95)&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Eating Habits</td>
<td>2.79(1.84)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>5.95(1.15)&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Response</td>
<td>2.68(1.74)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>6.00(1.01)&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Efficacy</td>
<td>4.79(1.58)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>5.60(1.23)&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>2.22(1.67)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2.30(1.63)&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Combined Efficacy</td>
<td>3.13(1.59)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>5.00(1.71)&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Exemplification</td>
<td>2.50(1.51)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>5.36(1.41)&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Statistics</td>
<td>2.81(1.44)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>5.18(1.52)&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Change Activities</td>
<td>5.13(2.06)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>5.28(1.49)&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Response</td>
<td>2.00(1.21)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2.40(1.38)&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>
### Table 3

*Texts of article headlines and leads*

<table>
<thead>
<tr>
<th>Exemplar</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Title:</strong> A Dieting Tale: Weight Loss Success</td>
<td><strong>Title:</strong> The Dieting Stats: Weight Loss Successes</td>
</tr>
<tr>
<td><strong>Headline:</strong> Eager to shed some pounds quickly, Alex starts to count the total amount of calories consumed daily. Alex states, &quot;Monitoring my food intake helped me drop weight fast and took no effort at all.&quot; Alex reveals details about this simple strategy that is the key to swift weight loss success.</td>
<td><strong>Headline:</strong> Eager to shed pounds quickly, 68% of overweight Americans are counting the total amount of calories consumed daily. Surveys say monitoring food intake helps 30% drop weight fast and 79% claim it takes no effort at all. Numbers reveal this simple strategy is key to swift weight loss success.</td>
</tr>
<tr>
<td><strong>Title:</strong> My Weight Management: Small Routine Changes Yield Big Results</td>
<td><strong>Title:</strong> Weight Management Data: Small Routine Changes Yield Big Results</td>
</tr>
<tr>
<td><strong>Headline:</strong> Casey took a simple path to weight management by rapidly reducing the total amount of time spent eating out and watching media screens. Casey says, “It’s easier than you realize.” Limiting these leisure activities proved to be an effortless task and Casey quickly succeeded at reshaping body and lifestyle</td>
<td><strong>Headline:</strong> One-fourth of the population took a simple path to weight management by rapidly reducing 40% of time spent eating out and watching media screens. According to statistics, 52% say it’s easier than expected. The task proved to be effortless for 28% who quickly succeeded at reshaping body and lifestyle.</td>
</tr>
<tr>
<td><strong>Title:</strong> A Personal Easy Victory Over Bad Eating Habits</td>
<td><strong>Title:</strong> Numbers Show Easy Victories Over Bad Eating Habits</td>
</tr>
<tr>
<td><strong>Headline:</strong> Morgan succeeds in attaining a healthy weight by eating breakfast and choosing smaller, low calorie meals. Morgan states, “It’s easy to improve your everyday food habits and it takes little prep work.” With no effort at all, Morgan adopts these habits and achieves a healthy weight.</td>
<td><strong>Headline:</strong> Among adults, 26% succeed in attaining a healthy weight by eating breakfast and choosing smaller, low calorie meals. Statistics show it's easy to improve everyday food habits and it takes little preparation. With no effort at all, 49% adopt these habits and achieve a healthy weight.</td>
</tr>
<tr>
<td>Exemplar</td>
<td>Statistics</td>
</tr>
<tr>
<td>----------</td>
<td>------------</td>
</tr>
</tbody>
</table>
| **Title:** A Dieting Tale: Weight Loss Let-Down  
**Headline:** Stuck in a weight loss rut, Alex tries to count the total amount of calories consumed daily. Alex states, “Monitoring my food intake didn’t help me budge the scale and took too much effort.” Alex reveals details about this difficult strategy that is unable to produce weight loss success. | **Title:** The Dieting Stats: Weight Loss Let-Downs  
**Headline:** Stuck in a weight loss rut, 68% of overweight Americans try counting total amount of calories consumed daily. Surveys say monitoring food intake doesn’t help 30% budge the scale and 79% claim it takes too much effort. Numbers reveal this difficult strategy is unable to produce weight loss success. |
| **Title:** My Weight Management: Severe Routine Changes Can’t Reduce Weight  
**Headline:** Casey tried a challenging path to weight management by attempting to reduce the total amount of time spent eating out and watching media screens. Casey says, “It’s harder than you realize.” Limiting these leisure activities proved too tough a task and Casey ultimately failed at reshaping body or lifestyle. | **Title:** Weight Management Data: Severe Routine Changes Can’t Reduce Weight  
**Headline:** One-fourth of the population has tried a challenging path to weight management by attempting to reduce 40% of time spent eating out and watching media screens. According to statistics, 52% say it’s harder than expected. It proved too tough for 28% who ultimately failed at reshaping body or lifestyle. |
| **Title:** A Personal Losing Battle Against Bad Eating Habits  
**Headline:** Morgan attempts to attain a healthy weight by eating breakfast and choosing smaller, low calorie meals. Morgan states, “It’s hard to improve your everyday food habits and it takes a lot of prep work.” Despite continuous efforts, Morgan fails and stays trapped at an unhealthy weight. | **Title:** Numbers Show Losing Battles Against Bad Eating Habits  
**Headline:** Among adults, 26% attempt to attain a healthy weight by eating breakfast and choosing smaller, low calorie meals. Statistics show it’s hard to improve everyday food habits and it takes a lot of preparation. Despite continuous efforts, 49% fail and stay trapped at an unhealthy weight. |
Figure 1. Changes in Weight Management Behavior as a Function of Efficacy as a Message Element
SSI Sample Refinement Process

SSI, the survey sampling company used for the present study, implemented a refinement process that involved a refinement question to help target the overweight/obese population desired for the present study’s sample.

Here is the refinement question utilize for this study:

Which of the following illnesses do you suffer from? (Please select all that apply.)

*High Blood Pressure (Hypertension)
*Type 1 Diabetes
*Type 2 Diabetes
*High Cholesterol
*Overweight (Obesity)
*Diabetic Neuropathy (DPN)
*None of the Above

Panelists who select Overweight (Obesity) are those that were eligible to move on to the present study.

Below are images of pages from a PDF information sheet provided by SSI describing the refinement process that was implemented in order to attain the present study’s sample.
Description: Power Your Online Research with SSI Dynamix—the Next-Generation Online Sampling Platform, Combining the Control of Panels and the Scope of the Internet in One Integrated Solution

SSI Dynamix is a breakthrough dynamic sampling platform that radically improves every stage of the sampling process—reach, profiling, blending, engagement and results. A methodological masterpiece that combines the control of panels and the scope of the Internet in one integrated solution, SSI Dynamix captures the millions of people who want to share their opinions—even hard-to-reach targets who would never join a traditional panel.

SSI Dynamix links to a multitude of sources—SSI’s proprietary panels, online communities, social media, affiliate partnerships and more—to build a smart, balanced access stream. Then, it dynamically profiles participants in real time—progressively refining and updating knowledge about each respondent. So you get the broadest access to the most relevant participants with the tightest sampling controls.

But SSI Dynamix doesn’t just widen access. It deepens engagement, driving the right people...to the right surveys...at the right time...to deliver the right results. Our game-changing methodology offers major advantages that enhance the respondent experience—and improve data quality.

Rather than being sampled for individual surveys, respondents are offered one of many projects they qualify for—just at the moment they want to participate. Our real-time qualification reduces screen outs and decreases email invitations—resulting in higher respondent satisfaction and lower drop-out rates. You benefit from fresher data, more representative samples, faster fielding times and more involved participants.

While SSI Dynamix is a true breakthrough, it is the epitome of responsible innovation—meticulously planned, tested and validated. You see the “science of sampling” in action in every facet of our approach—from how we profile and assign respondents to how we customize recruitment and rewards programs. You always get the gold standard data integrity you expect from SSI.

Importance: You Need a Sampling Platform Built for Today’s Radically Changing World

Over the past decade, a flood of forces has transformed the way people live, work and share information. Consider just a few of the changes that have re-shaped our world. Since 2000, Internet use has grown 380.3%. Facebook has more than 500 million active users. And Google averages more than 298 million searches a day.

SSI recognizes that we can’t turn to yesterday’s solutions to meet today’s challenges. So, we re-invented sampling to fit the demands of the new media, new markets and new behaviors that define your new world. With SSI Dynamix, you have a sampling platform built for today’s fast-paced digital age—and able to handle whatever changes the future will bring.

(continued)
Benefits: The Broadest Access, the Freshest Data, the Most Engaging Respondent Experience and the Highest Quality Results

A powerful advance in online sampling, SSI Dynamix™ offers a range of unique advantages:

> The widest reach, integrating multiple sources, all meticulously vetted to ensure the highest quality
> The most effective respondent experience, ensuring satisfied participants providing thoughtful responses
> The highest data integrity, using advanced quality processes to balance sample control overlap...embed multiple levels of randomness...ensure stringent quality checks...slash screen-out and drop-out rates...and verify and de-dupe respondents, including digital fingerprinting, third-party database matches and traps to uncover geo-ip violations
> The deepest respondent engagement, providing customized, motivating incentives that drive response
> The freshest data, using a "supercomputing" environment that determines the right surveys for each respondent in seconds
> The optimal blending solution, blending on people, not sources, to ensure consistency and validity
> The convenience of "one stop" support, meeting all of your needs—programming and hosting, data processing, coding, weighting, tabulations, database appending, translations, questionnaire consultation, real-time reporting and customized dashboards
> The power of real-time dynamic profiling, linking participants to relevant surveys, so they get engaged—and you get accurate insights

For More Information

In North America: +1 203 567 7200 or info@surveysampling.com
In Europe: +31 10 850 5300 or info.eur@surveysampling.com
In APAC: +61 (0)3 8020 2616 or inquiry.ap@surveysampling.com
In Latin America: +52 55 2282 9200 or info.latam@surveysampling.com

info@surveysampling.com | surveysampling.com
Appendix C

Data Management

The present study involved three waves of data collection. Participants from the first wave completed an online questionnaire that collected baseline information, such as participants’ demographics, weight management history, weight-related perceptions and motivations, weight management behaviors and satisfaction relative to those behaviors. The number of participant ID’s that appeared in the wave one dataset were 1354. Only participants who had gotten to the end of the survey were supposed to be collected as “completes” from the survey company and have data that appear in the dataset, however 114 participants who had not even completed one-fourth of the survey had accidentally been sent through as “completes”. These participants were removed from the dataset, leaving data from 1240 participants to be matched with data collected during wave two.

There were two parts to the wave two data collection. The first part was an experimental session requesting that participants browse through three online magazines. The second part was a brief questionnaire collecting information regarding participants’ thoughts and impressions of the articles as well as self-evaluative and weight-related perceptions—similar to those gathered from the questionnaire in wave one. Analyses with browsing times for the weight management articles, selective exposure to the articles of interest in the current study, serving as the outcome variable matched data from wave one and the first part of wave two. Analyses examining immediate self-efficacy, connectedness, and state reactance as outcomes required matching data from wave one and both parts of wave two.

Data for part one of wave two, the browsing data, showed 984 participant “completes.” However, due to a malfunction in the survey company’s system, 462 participants (whose IDs should have kept them from entering back into the survey) had been permitted to complete the browsing session twice. The duplicate participant data had to be removed because of double exposure to the experimental stimuli. Thus, 486 participants remained in the dataset. An additional three participant IDs did not match with any of the IDs from wave one, another three participant IDs matched with IDs from survey one that had no data (were part of the 114 removed), and a final three participant IDs did not have any browsing data (indicating they had entered the survey but had not proceeded far enough to start the browsing activity). Out of the remaining 477 participants, 44 were removed because they did not report a BMI less than 25 (required in order for the sample to be considered “overweight” or “obese”). Lastly, 31 participants
were removed because their data showed that they had zero time spent on any magazine articles, which indicated that they had sat on the overview page of the first online magazine rather than engaging in the browsing activity, and two more were removed because they had sat on one article for 1000 seconds (past the time for which they are required to move on to the next online magazine), which also indicated a lack of browsing activity.

Of the remaining 400 participants that were merged with survey one to create the dataset used to examine selective exposure to the weight management articles as a dependent variable, 154 did not go on to complete the second part of wave 2, the follow-up questionnaire. These participants either only completed part of the browsing session or simply ceased participation after the browsing session and before the questionnaire portion of the data collection. Thus, data from 246 participants were linked from wave 1 and both parts of wave 2 in order to complete analyses examining outcomes involving immediate self-efficacy, connectedness, and state reactance as outcomes.

Wave three consisted of a 10 minute online condensed version of the online questionnaire used in wave one in order to examine any changes in self-efficacy beliefs and weight management behavior. Two-hundred and forty-one participant data entries were recorded as “completes” for wave three. Within these 241 entries one participant had completed the questionnaire twice (their ID was duplicated in the 241 data entries) and thus, the data from the second time they completed the questionnaire was removed leaving only 240 participants who completed wave three. When merging all datasets to analyze delayed self-efficacy beliefs and weight management behavior outcomes, 74 of the 240 participants who completed wave three had not completed the other two waves (wave one and both parts of wave two). This left 166 participants as the sample when examining wave three.
Appendix D

Full Article Titles and Texts

Online Magazine: Newsstand
Version: No Efficacy Exemplar

Title: A Dieting Tale: Weight Loss Let-Down

Headline:
Stuck in a weight loss rut, Alex tries to count the total amount of calories consumed daily. Alex states, "Monitoring my food intake didn’t help me budge the scale and took too much effort.” Alex reveals details about this difficult strategy that is unable to produce weight loss success.

Full Article:
Stuck in a weight loss rut, Alex tries to count the total amount of calories consumed daily. Alex states, "Monitoring my food intake didn’t help me budge the scale and took too much effort.” Alex reveals details about this difficult strategy that is unable to produce weight loss success. Alex says, “It all comes down to keeping up with the important steps involved in counting calories.” Weight is a balancing act, but the equation is simple: If you consume more calories than you burn, you gain weight.

Calories are the energy in food. Your body has a constant demand for energy and uses the calories from food to keep functioning. Energy from calories fuels your every action, from fidgeting at your desk to running a marathon. When you eat calories, one of two things occurs. Either the calories are converted to physical energy and used by your body, or the calories are stored as fat within your body. Stored calories remain in your body as fat unless the amount of calories you use exceeds the amount of calories you consume. Therefore, understanding how to count calories in your diet is a vital tool toward losing weight a healthy way.

The following five steps can help you accurately count calories, which will assist you in setting and achieving weight-related goals:
1. Determine your body’s daily caloric needs. This can be done by asking your doctor or using a website that offers formulas for calculating calorie needs. Use this information, to set a goal for how many calories you need to consume each day. Write these numbers down in a notebook that will serve as your calorie counting journal.

2. Look up the caloric value of the food. If it is a packaged item, the nutritional label on the packaging will indicate the number of calories per serving. If it is a fresh item, look up the approximate number of calories in a calorie counter book, or on a calorie counting website.

3. Determine how much food you are eating, as compared with the serving size. Measure items with measuring cups and/or a food scale as needed for accuracy.

4. Write down the number of calories eaten at every sitting in your journal, including any calorie-containing drinks that you consume.

5. At the end of the day, add up the number of calories that you have consumed. If you have eaten too many or too few calories based on your goal, adjust the amount of food that you eat the next day accordingly.

It is also important to review your food diary as often as possible to identify ways to cut calories. For example, if you are consistently going over your calorie goal by a small amount, cutting out just one can of soda may eliminate those excess calories.

Despite all the other diet strategies out there, weight management still comes down to the calories you take in versus those you burn off. Fad diets may promise that the secret to weight loss is avoiding carbs or eating a mountain of grapefruit, but it's really all about calories. If you regularly consume more calories than your body needs, the result is unwanted weight in the form of fat. Since any food can be enjoyed in moderation, calorie counting is a healthy way to lose weight without drastic lifestyle changes.
Title: My Weight Management: Severe Routine Changes Can’t Reduce Weight

Headline: Casey tried a challenging path to weight management by attempting to reduce the total amount of time spent eating out and watching media screens. Casey says, “It’s harder than you realize.” Limiting these leisure activities proved too tough a task and Casey ultimately failed at reshaping body or lifestyle.

Full Article:
Casey tried a challenging path to weight management by attempting to reduce the total amount of time spent eating out and watching media screens. Casey says, “It’s harder than you realize.” Limiting these leisure activities proved too tough a task and Casey ultimately failed at reshaping body or lifestyle. Casey learned how difficult it can be to break a routine. The best way to start is by making small changes.

People who spend more time being sedentary, particularly sitting in front of television or computer screens, are more likely to be overweight or obese. Like most people, you might not be able to change how much time you spend in front of the computer for work or school, but you can decrease your screen time during other times of the day and on the weekend. Replace this screen time with activities that get you moving!

Concerned about decreasing screen time? Here are some suggestions to help you overcome common stumbling blocks you may hit along the way:

- Track how much time you spend in front of a screen. Based on this information, set a goal for how much screen time you need to limit.

- Develop a screen time budget. For instance, plan to watch television shows you'd really like to see and write down a few non-screen activities you could do instead of watching other shows.

- Use the time you watch television to be physically active in front of the television. For instance, walk in place (or on a treadmill) while watching your favorite shows.
• Limit eating while in front of screens. Many people overeat when watching television or using the computer because they aren't thinking about what or how much they are eating. If you choose to eat while in front of a screen, portion out a small amount.

• It is also important to recognize that you have more control than you might think. You can turn off the TV, computer and the video games!

Another leisure activity that has become routine in our culture is going out to eat. However, while eating out takes little time and effort, it costs you in terms of money, calories, and long-term health. To keep your wallet fuller, weight under control, and your cholesterol levels healthy, prepare more home-cooked meals made with fresh, natural ingredients and at portion sizes you control.

Of course, there are times when you will want to go out to eat at restaurants, and that’s fine. Just keep in mind that frequently eating out at restaurants largely contributes to excess calorie intake and weight gain. When eating at restaurants, large portions, fattening sauces and rich ingredients can rack up the fat and calories, and not every restaurant offers nutritional information that makes navigating menus easier.

When you do decide to eat at a restaurant, try following these five strategies:

1. Choose a smaller size option (e.g., appetizer, small plate).

2. Manage larger portions by sharing or taking home part of your meal.

3. Check posted calorie counts or check calorie counts online before you eat at a restaurant.

4. Choose dishes that include vegetables, fruits, and/or whole grains—avoid choosing foods with the following words: creamy, smothered, fried, breaded, battered, or buttered.

5. Keep portions of syrups, dressings, and sauces small.
Title: A Personal Losing Battle Against Bad Eating Habits

Headline: Morgan attempts to attain a healthy weight by eating breakfast and choosing smaller, low calorie meals. Morgan states, “It's hard to improve your everyday food habits and it takes a lot of prep work.” Despite continuous efforts, Morgan fails and stays trapped at an unhealthy weight.

Full Article:
Morgan attempts to attain a healthy weight by eating breakfast and choosing smaller, low calorie meals. Morgan states, “It's hard to improve your everyday food habits and it takes a lot of prep work.” Despite continuous efforts, Morgan fails and stays trapped at an unhealthy weight. It is easy to understand that Morgan cannot find time for breakfast and food portion control. Time is at a premium, but it pays to make time for what may be the most important meal of the day.

Eating breakfast helps weight loss and is associated with better weight control. Breakfast eaters tend to experience the following benefits:

- They eat fewer calories, less saturated fat, and less cholesterol.
- They have better overall nutritional status.

When you skip breakfast, your metabolic rate slows down and your blood sugar drops. Breakfast skippers tend to experience the following drawbacks:

- They become hungry more often.
- They have less energy throughout the day.

Skipping breakfast sets you up to impulsively snack in the morning, often on high-fat sweets, or to eat extra servings or bigger portions at lunch or dinner. When you eat breakfast, your body feels nourished and satisfied, making you less likely to overeat throughout the rest of the day.

Breakfast choices are endless, but whole-grain cereals top the list as the best choice for weight control and improving health. Besides whole-grain foods, also try to choose foods high in protein, like eggs. Protein foods take longer to digest and will provide sustained energy and keep you feeling full longer. Adding a little lean protein and whole-grain to
your breakfast may be just the boost you need to help keep you feeling full until
lunchtime.

In addition to eating breakfast, an effective weight control program should also include
monitoring your food portion size and choosing low caloric foods for your diet. Proper
and healthy portion control is characterized by moderation. Learn about the
recommended serving sizes of various types of food, and do your best to adhere to them.
This will ensure that you are eating a proper amount and that your body is fully
nourished.

Here are some helpful tips for portion and calorie control:

1. Use smaller cups and plates. The same amount of food looks bigger on a small
   plate, so using this strategy can help you start serving yourself smaller proportion
   of food.

2. Replace large portions of high-calorie foods with lower calorie, nutrient filled
   foods, such as vegetables, fruits, whole grains, fat-free or low-fat dairy products,
   and protein foods.

3. Prepare and pack healthy meals and snacks at home to eat at school, work or on-
   the-go.

4. Choose products and foods prepared with little or no added sugars or solid fats.

There are a number of benefits to having a moderately portioned, low calorie diet. First,
you'll condition your body to become full after consuming a smaller quantity of food.
This means that controlling your portions should become easier and easier over time.
Additionally, your digestion process and your regularity will improve. Finally, many
people find that they generally feel better and have more energy when they've eaten
moderately portioned, low-calorie meals.
Eager to shed some pounds quickly, Alex starts to count the total amount of calories consumed daily. Alex states, "Monitoring my food intake helped me drop weight fast and took no effort at all." Alex reveals details about this simple strategy that is key to swift weight loss success.

Calories are the energy in food. Your body has a constant demand for energy and uses the calories from food to keep functioning. Energy from calories fuels your every action, from fidgeting at your desk to running a marathon. When you eat calories, one of two things occurs. Either the calories are converted to physical energy and used by your body, or the calories are stored as fat within your body. Stored calories remain in your body as fat unless the amount of calories you use exceeds the amount of calories you consume. Therefore, understanding how to count calories in your diet is a vital tool toward losing weight a healthy way.

The following five steps can help you accurately count calories, which will assist you in setting and achieving weight-related goals:

1. Determine your body’s daily caloric needs. This can be done by asking your doctor or using a website that offers formulas for calculating calorie needs. Use this information, to set a goal for how many calories you need to consume each day. Write these numbers down in a notebook that will serve as your calorie counting journal.
2. Look up the caloric value of the food. If it is a packaged item, the nutritional label on the packaging will indicate the number of calories per serving. If it is a fresh item, look up the approximate number of calories in a calorie counter book, or on a calorie counting website.

3. Determine how much food you are eating, as compared with the serving size. Measure items with measuring cups and/or a food scale as needed for accuracy.

4. Write down the number of calories eaten at every sitting in your journal, including any calorie-containing drinks that you consume.

5. At the end of the day, add up the number of calories that you have consumed. If you have eaten too many or too few calories based on your goal, adjust the amount of food that you eat the next day accordingly.

It is also important to review your food diary as often as possible to identify ways to cut calories. For example, if you are consistently going over your calorie goal by a small amount, cutting out just one can of soda may eliminate those excess calories.

Despite all the other diet strategies out there, weight management still comes down to the calories you take in versus those you burn off. Fad diets may promise that the secret to weight loss is avoiding carbs or eating a mountain of grapefruit, but it's really all about calories. If you regularly consume more calories than your body needs, the result is unwanted weight in the form of fat. Since any food can be enjoyed in moderation, calorie counting is a healthy way to lose weight without drastic lifestyle changes.
Title: My Weight Management: Small Routine Changes Yield Big Results

Headline:
Casey took a simple path to weight management by rapidly reducing the total amount of time spent eating out and watching media screens. Casey says, “It’s easier than you realize.” Limiting these leisure activities proved to be an effortless task and Casey quickly succeeded at reshaping body and lifestyle.

Full Article: Casey took a simple path to weight management by rapidly reducing the total amount of time spent eating out and watching media screens. Casey says, “It’s easier than you realize.” Limiting these leisure activities proved to be an effortless task and Casey quickly succeeded at reshaping body and lifestyle. Casey learned how easy it can be to break a routine. The best way to start is by making small changes.

People who spend more time being sedentary, particularly sitting in front of television or computer screens, are more likely to be overweight or obese. Like most people, you might not be able to change how much time you spend in front of the computer for work or school, but you can decrease your screen time during other times of the day and on the weekend. Replace this screen time with activities that get you moving!

Concerned about decreasing screen time? Here are some suggestions to help you overcome common stumbling blocks you may hit along the way:

- Track how much time you spend in front of a screen. Based on this information, set a goal for how much screen time you need to limit.

- Develop a screen time budget. For instance, plan to watch television shows you'd really like to see and write down a few non-screen activities you could do instead of watching other shows.

- Use the time you watch television to be physically active in front of the television. For instance, walk in place (or on a treadmill) while watching your favorite shows.
- Limit eating while in front of screens. Many people overeat when watching television or using the computer because they aren't thinking about what or how much they are eating. If you choose to eat while in front of a screen, portion out a small amount.

- It is also important to recognize that you have more control than you might think. You can turn off the TV, computer and the video games!

Another leisure activity that has become routine in our culture is going out to eat. However, while eating out takes little time and effort, it costs you in terms of money, calories, and long-term health. To keep your wallet fuller, weight under control, and your cholesterol levels healthy, prepare more home-cooked meals made with fresh, natural ingredients and at portion sizes you control.

Of course, there are times when you will want to go out to eat at restaurants, and that’s fine. Just keep in mind that frequently eating out at restaurants largely contributes to excess calorie intake and weight gain. When eating at restaurants, large portions, fattening sauces and rich ingredients can rack up the fat and calories, and not every restaurant offers nutritional information that makes navigating menus easier.

When you do decide to eat at a restaurant, try following these five strategies:

1. Choose a smaller size option (e.g., appetizer, small plate).

2. Manage larger portions by sharing or taking home part of your meal.

3. Check posted calorie counts or check calorie counts online before you eat at a restaurant.

4. Choose dishes that include vegetables, fruits, and/or whole grains—avoid choosing foods with the following words: creamy, smothered, fried, breaded, battered, or buttered.

5. Keep portions of syrups, dressings, and sauces small.
Title: A Personal Easy Victory Over Bad Eating Habits

Headline:
Morgan succeeds in attaining a healthy weight by eating breakfast and choosing smaller, low calorie meals. Morgan states, “It’s easy to improve your everyday food habits and it takes little prep work.” With no effort at all, Morgan adopts these habits and achieves a healthy weight.

Full Article:
Morgan succeeds in attaining a healthy weight by eating breakfast and choosing smaller, low calorie meals. Morgan states, “It’s easy to improve your everyday food habits and it takes little prep work.” With no effort at all, Morgan adopts these habits and achieves a healthy weight. It is easy to understand that Morgan can find time for breakfast and food portion control. Time is at a premium, but it pays to make time for what may be the most important meal of the day.

Eating breakfast helps weight loss and is associated with better weight control. Breakfast eaters tend to experience the following benefits:

- They eat fewer calories, less saturated fat, and less cholesterol.
- They have better overall nutritional status.

When you skip breakfast, your metabolic rate slows down and your blood sugar drops. Breakfast skippers tend to experience the following drawbacks:

- They become hungry more often.
- They have less energy throughout the day.

Skipping breakfast sets you up to impulsively snack in the morning, often on high-fat sweets, or to eat extra servings or bigger portions at lunch or dinner. When you eat breakfast, your body feels nourished and satisfied, making you less likely to overeat throughout the rest of the day.

Breakfast choices are endless, but whole-grain cereals top the list as the best choice for weight control and improving health. Besides whole-grain foods, also try to choose foods high in protein, like eggs. Protein foods take longer to digest and will provide sustained
energy and keep you feeling full longer. Adding a little lean protein and whole-grain to your breakfast may be just the boost you need to help keep you feeling full until lunchtime.

In addition to eating breakfast, an effective weight control program should also include monitoring your food portion size and choosing low calorie foods for your diet. Proper and healthy portion control is characterized by moderation. Learn about the recommended serving sizes of various types of food, and do your best to adhere to them. This will ensure that you are eating a proper amount and that your body is fully nourished.

Here are some helpful tips for portion and calorie control:

1. Use smaller cups and plates. The same amount of food looks bigger on a small plate, so using this strategy can help you start serving yourself smaller proportion of food.

2. Replace large portions of high-calorie foods with lower calorie, nutrient filled foods, such as vegetables, fruits, whole grains, fat-free or low-fat dairy products, and protein foods.

3. Prepare and pack healthy meals and snacks at home to eat at school, work or on-the-go.

4. Choose products and foods prepared with little or no added sugars or solid fats.

There are a number of benefits to having a moderately portioned, low calorie diet. First, you'll condition your body to become full after consuming a smaller quantity of food. This means that controlling your portions should become easier and easier over time. Additionally, your digestion process and your regularity will improve. Finally, many people find that they generally feel better and have more energy when they've eaten moderately portioned, low-calorie meals.
Headline:
Stuck in a weight loss rut, 68% of overweight Americans try counting total amount of calories consumed daily. Surveys say monitoring food intake doesn’t help 30% budge the scale and 79% claim it takes too much effort. Numbers reveal this difficult strategy is unable to produce weight loss success.

Full Article:
Stuck in a weight loss rut, 68% of overweight Americans try counting total amount of calories consumed daily. Surveys say monitoring food intake doesn’t help 30% budge the scale and 79% claim it takes too much effort. Numbers reveal this difficult strategy is unable to produce weight loss success. For about one-third of Americans it all comes down to keeping up with the important steps involved in counting calories. Weight is a balancing act, but the equation is simple: If you consume more calories than you burn, you gain weight.

Calories are the energy in food. Your body has a constant demand for energy and uses the calories from food to keep functioning. Energy from calories fuels your every action, from fidgeting at your desk to running a marathon. When you eat calories, one of two things occurs. Either the calories are converted to physical energy and used by your body, or the calories are stored as fat within your body. Stored calories remain in your body as fat unless the amount of calories you use exceeds the amount of calories you consume. Therefore, understanding how to count calories in your diet is a vital tool toward losing weight a healthy way.

The following five steps can help you accurately count calories, which will assist you in setting and achieving weight-related goals:

1. Determine your body’s daily caloric needs. This can be done by asking your doctor or using a website that offers formulas for calculating calorie needs. Use this information, to set a goal for how many calories you need to consume each day. Write these numbers down in a notebook that will serve as your calorie counting journal.
2. Look up the caloric value of the food. If it is a packaged item, the nutritional label on the packaging will indicate the number of calories per serving. If it is a fresh item, look up the approximate number of calories in a calorie counter book, or on a calorie counting website.

3. Determine how much food you are eating, as compared with the serving size. Measure items with measuring cups and/or a food scale as needed for accuracy.

4. Write down the number of calories eaten at every sitting in your journal, including any calorie-containing drinks that you consume.

5. At the end of the day, add up the number of calories that you have consumed. If you have eaten too many or too few calories based on your goal, adjust the amount of food that you eat the next day accordingly.

It is also important to review your food diary as often as possible to identify ways to cut calories. For example, if you are consistently going over your calorie goal by a small amount, cutting out just one can of soda may eliminate those excess calories.

Despite all the other diet strategies out there, weight management still comes down to the calories you take in versus those you burn off. Fad diets may promise that the secret to weight loss is avoiding carbs or eating a mountain of grapefruit, but it's really all about calories. If you regularly consume more calories than your body needs, the result is unwanted weight in the form of fat. Since any food can be enjoyed in moderation, calorie counting is a healthy way to lose weight without drastic lifestyle changes.
Title: Weight Management Data: Severe Routine Changes Can’t Reduce Weight

Headline:
One-fourth of the population has tried a challenging path to weight management by attempting to reduce 40% of time spent eating out and watching media screens. According to statistics, 52% say it’s harder than expected. It proved too tough for 28% who ultimately failed at reshaping body or lifestyle.

Full Article:
One-fourth of the population has tried a challenging path to weight management by attempting to reduce 40% of time spent eating out and watching media screens. According to statistics, 52% say it’s harder than expected. It proved too tough for 28% who ultimately failed at reshaping body or lifestyle. A large portion of the population learned how difficult it can be to break a routine. The best way to start is by making small changes.

People who spend more time being sedentary, particularly sitting in front of television or computer screens, are more likely to be overweight or obese. Like most people, you might not be able to change how much time you spend in front of the computer for work or school, but you can decrease your screen time during other times of the day and on the weekend. Replace this screen time with activities that get you moving!

Concerned about decreasing screen time? Here are some suggestions to help you overcome common stumbling blocks you may hit along the way:

- Track how much time you spend in front of a screen. Based on this information, set a goal for how much screen time you need to limit.

- Develop a screen time budget. For instance, plan to watch television shows you'd really like to see and write down a few non-screen activities you could do instead of watching other shows.

- Use the time you watch television to be physically active in front of the television. For instance, walk in place (or on a treadmill) while watching your favorite shows.
Limit eating while in front of screens. Many people overeat when watching television or using the computer because they aren't thinking about what or how much they are eating. If you choose to eat while in front of a screen, portion out a small amount.

It is also important to recognize that you have more control than you might think. You can turn off the TV, computer and the video games!

Another leisure activity that has become routine in our culture is going out to eat. However, while eating out takes little time and effort, it costs you in terms of money, calories, and long-term health. To keep your wallet fuller, weight under control, and your cholesterol levels healthy, prepare more home-cooked meals made with fresh, natural ingredients and at portion sizes you control.

Of course, there are times when you will want to go out to eat at restaurants, and that’s fine. Just keep in mind that frequently eating out at restaurants largely contributes to excess calorie intake and weight gain. When eating at restaurants, large portions, fattening sauces and rich ingredients can rack up the fat and calories, and not every restaurant offers nutritional information that makes navigating menus easier.

When you do decide to eat at a restaurant, try following these five strategies:

1. Choose a smaller size option (e.g., appetizer, small plate).
2. Manage larger portions by sharing or taking home part of your meal.
3. Check posted calorie counts or check calorie counts online before you eat at a restaurant.
4. Choose dishes that include vegetables, fruits, and/or whole grains—avoid choosing foods with the following words: creamy, smothered, fried, breaded, battered, or buttered.
5. Keep portions of syrups, dressings, and sauces small.
Title: Numbers Show Losing Battles Against Bad Eating Habits

Headline:
Among adults, 26% attempt to attain a healthy weight by eating breakfast and choosing smaller, low calorie meals. Statistics show it’s hard to improve everyday food habits and it takes a lot of preparation. Despite continuous efforts, 49% fail and stay trapped at an unhealthy weight.

Full Article:
Among adults, 26% attempt to attain a healthy weight by eating breakfast and choosing smaller, low calorie meals. Statistics show it’s hard to improve everyday food habits and it takes a lot of preparation. Despite continuous efforts, 49% fail and stay trapped at an unhealthy weight. It is easy to understand that nearly half of these adults cannot find time for breakfast and food portion control. Time is at a premium, but it pays to make time for what may be the most important meal of the day.

Eating breakfast helps weight loss and is associated with better weight control. Breakfast eaters tend to experience the following benefits:

- They eat fewer calories, less saturated fat, and less cholesterol.
- They have better overall nutritional status.

When you skip breakfast, your metabolic rate slows down and your blood sugar drops. Breakfast skippers tend to experience the following drawbacks:

- They become hungry more often.
- They have less energy throughout the day.

Skipping breakfast sets you up to impulsively snack in the morning, often on high-fat sweets, or to eat extra servings or bigger portions at lunch or dinner. When you eat breakfast, your body feels nourished and satisfied, making you less likely to overeat throughout the rest of the day.

Breakfast choices are endless, but whole-grain cereals top the list as the best choice for weight control and improving health. Besides whole-grain foods, also try to choose foods high in protein, like eggs. Protein foods take longer to digest and will provide sustained

172
energy and keep you feeling full longer. Adding a little lean protein and whole-grain to your breakfast may be just the boost you need to help keep you feeling full until lunchtime.

In addition to eating breakfast, an effective weight control program should also include monitoring your food portion size and choosing low calorie foods for your diet. Proper and healthy portion control is characterized by moderation. Learn about the recommended serving sizes of various types of food, and do your best to adhere to them. This will ensure that you are eating a proper amount and that your body is fully nourished.

Here are some helpful tips for portion and calorie control:

1. Use smaller cups and plates. The same amount of food looks bigger on a small plate, so using this strategy can help you start serving yourself smaller proportion of food.

2. Replace large portions of high-calorie foods with lower calorie, nutrient filled foods, such as vegetables, fruits, whole grains, fat-free or low-fat dairy products, and protein foods.

3. Prepare and pack healthy meals and snacks at home to eat at school, work or on-the-go.

4. Choose products and foods prepared with little or no added sugars or solid fats.

There are a number of benefits to having a moderately portioned, low calorie diet. First, you'll condition your body to become full after consuming a smaller quantity of food. This means that controlling your portions should become easier and easier over time. Additionally, your digestion process and your regularity will improve. Finally, many people find that they generally feel better and have more energy when they've eaten moderately portioned, low-calorie meals.
2. Look up the caloric value of the food. If it is a packaged item, the nutritional label on the packaging will indicate the number of calories per serving. If it is a fresh item, look up the approximate number of calories in a calorie counter book, or on a calorie counting website.

3. Determine how much food you are eating, as compared with the serving size. Measure items with measuring cups and/or a food scale as needed for accuracy.

4. Write down the number of calories eaten at every sitting in your journal, including any calorie-containing drinks that you consume.

5. At the end of the day, add up the number of calories that you have consumed. If you have eaten too many or too few calories based on your goal, adjust the amount of food that you eat the next day accordingly.

It is also important to review your food diary as often as possible to identify ways to cut calories. For example, if you are consistently going over your calorie goal by a small amount, cutting out just one can of soda may eliminate those excess calories.

Despite all the other diet strategies out there, weight management still comes down to the calories you take in versus those you burn off. Fad diets may promise that the secret to weight loss is avoiding carbs or eating a mountain of grapefruit, but it's really all about calories. If you regularly consume more calories than your body needs, the result is unwanted weight in the form of fat. Since any food can be enjoyed in moderation, calorie counting is a healthy way to lose weight without drastic lifestyle changes.
Weight Management Data: Small Routine Changes Yield Big Results

One-fourth of the population took a simple path to weight management by rapidly reducing 40% of time spent eating out and watching media screens. According to statistics, 52% say it’s easier than expected. The task proved to be effortless for 28% who quickly succeeded at reshaping body and lifestyle.

Full Article:
One-fourth of the population took a simple path to weight management by rapidly reducing 40% of time spent eating out and watching media screens. According to statistics, 52% say it’s easier than expected. The task proved to be effortless for 28% who quickly succeeded at reshaping body and lifestyle. A large portion of the population learned how easy it can be to break a routine. The best way to start is by making small changes.

People who spend more time being sedentary, particularly sitting in front of television or computer screens, are more likely to be overweight or obese. Like most people, you might not be able to change how much time you spend in front of the computer for work or school, but you can decrease your screen time during other times of the day and on the weekend. Replace this screen time with activities that get you moving!

Concerned about decreasing screen time? Here are some suggestions to help you overcome common stumbling blocks you may hit along the way:

- Track how much time you spend in front of a screen. Based on this information, set a goal for how much screen time you need to limit.

- Develop a screen time budget. For instance, plan to watch television shows you'd really like to see and write down a few non-screen activities you could do instead of watching other shows.

- Use the time you watch television to be physically active in front of the television. For instance, walk in place (or on a treadmill) while watching your favorite shows.
Limit eating while in front of screens. Many people overeat when watching television or using the computer because they aren't thinking about what or how much they are eating. If you choose to eat while in front of a screen, portion out a small amount.

It is also important to recognize that you have more control than you might think. You can turn off the TV, computer and the video games!

Another leisure activity that has become routine in our culture is going out to eat. However, while eating out takes little time and effort, it costs you in terms of money, calories, and long-term health. To keep your wallet fuller, weight under control, and your cholesterol levels healthy, prepare more home-cooked meals made with fresh, natural ingredients and at portion sizes you control.

Of course, there are times when you will want to go out to eat at restaurants, and that’s fine. Just keep in mind that frequently eating out at restaurants largely contributes to excess calorie intake and weight gain. When eating at restaurants, large portions, fattening sauces and rich ingredients can rack up the fat and calories, and not every restaurant offers nutritional information that makes navigating menus easier.

When you do decide to eat at a restaurant, try following these five strategies:

1. Choose a smaller size option (e.g., appetizer, small plate).

2. Manage larger portions by sharing or taking home part of your meal.

3. Check posted calorie counts or check calorie counts online before you eat at a restaurant.

4. Choose dishes that include vegetables, fruits, and/or whole grains—avoid choosing foods with the following words: creamy, smothered, fried, breaded, battered, or buttered.

5. Keep portions of syrups, dressings, and sauces small.
Title: Numbers Show Easy Victories Over Bad Eating Habits

Headline:
Among adults, 26% succeed in attaining a healthy weight by eating breakfast and choosing smaller, low calorie meals. Statistics show it’s easy to improve everyday food habits and it takes little preparation. With no effort at all, 49% adopt these habits and achieve a healthy weight.

Full Article:
Among adults, 26% succeed in attaining a healthy weight by eating breakfast and choosing smaller, low calorie meals. Statistics show it’s easy to improve everyday food habits and it takes little preparation. With no effort at all, 49% adopt these habits and achieve a healthy weight. It is easy to understand that nearly half of these adults can find time for breakfast and food portion control. Time is at a premium, but it pays to make time for what may be the most important meal of the day.

Eating breakfast helps weight loss and is associated with better weight control. Breakfast eaters tend to experience the following benefits:

- They eat fewer calories, less saturated fat, and less cholesterol.
- They have better overall nutritional status.

When you skip breakfast, your metabolic rate slows down and your blood sugar drops. Breakfast skippers tend to experience the following drawbacks:

- They become hungry more often.
- They have less energy throughout the day.

Skipping breakfast sets you up to impulsively snack in the morning, often on high-fat sweets, or to eat extra servings or bigger portions at lunch or dinner. When you eat breakfast, your body feels nourished and satisfied, making you less likely to overeat throughout the rest of the day.

Breakfast choices are endless, but whole-grain cereals top the list as the best choice for weight control and improving health. Besides whole-grain foods, also try to choose foods high in protein, like eggs. Protein foods take longer to digest and will provide sustained
energy and keep you feeling full longer. Adding a little lean protein and whole-grain to your breakfast may be just the boost you need to help keep you feeling full until lunchtime.

In addition to eating breakfast, an effective weight control program should also include monitoring your food portion size and choosing low calorie foods for your diet. Proper and healthy portion control is characterized by moderation. Learn about the recommended serving sizes of various types of food, and do your best to adhere to them. This will ensure that you are eating a proper amount and that your body is fully nourished.

Here are some helpful tips for portion and calorie control:

1. Use smaller cups and plates. The same amount of food looks bigger on a small plate, so using this strategy can help you start serving yourself smaller proportion of food.

2. Replace large portions of high-calorie foods with lower calorie, nutrient filled foods, such as vegetables, fruits, whole grains, fat-free or low-fat dairy products, and protein foods.

3. Prepare and pack healthy meals and snacks at home to eat at school, work or on-the-go.

4. Choose products and foods prepared with little or no added sugars or solid fats.

There are a number of benefits to having a moderately portioned, low calorie diet. First, you'll condition your body to become full after consuming a smaller quantity of food. This means that controlling your portions should become easier and easier over time. Additionally, your digestion process and your regularity will improve. Finally, many people find that they generally feel better and have more energy when they've eaten moderately portioned, low-calorie meals.