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Identifying Alternative Frames and Values to Increase Public Support for Health Policies that Target Obesity

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Identifying Alternative Frames and Values to Increase Public Support for Health Policies that Target Obesity

A dissertation submitted in partial satisfaction of the
requirements for the degree Doctor of Philosophy
in Health Policy and Management

By

Selena Esmeralda Ortiz

2013

ABSTRACT OF THE DISSERTATION

Identifying Alternative Frames and Values to
Increase Public Support for Health Policies that Target Obesity

by

Selena Esmeralda Ortiz

Doctor of Philosophy in Health Policy and Management

University of California, Los Angeles, 2013

Professor Frederick J. Zimmerman, Chair

Objective: This research assesses how the public and experts currently think about and discusses obesity within the context of dominant causal and solution frames such as personal responsibility, proposed alternative frames, and values associated with these frames. This research also empirically tests whether exposure to two alternative frames (the Life-Course Perspective and the Manipulation frame), or two value statements (social responsibility and equality of opportunity), significantly influence support for health policies that address the social and environmental constraints that contribute to obesity. **Data**: This research uses 3 original data sets, including content analysis transcripts, quantitative content analysis data and experimental survey data. **Methods**: Strategic Frame Analysis (SFA) is used to deconstruct the dominant frames of reference that drive reasoning on public issues, including qualitative expert interviews, quantitative content analyses of online news media and online readers' comments, and a population-based survey experiment. Bivariate tests of significance and logistic regression models are estimated. **Results**: Experts and the public have different perspectives on causal attributes and perceptions of responsibility though common areas exist. Where experts invoke the environmental frame and social responsibility, the public invokes the

personal responsibility frame and autonomy. The media also significantly influences the public's use of frames in obesity discourse. In the experimental study, exposure to both alternative frames and values significantly influenced support for one healthy policy-breastfeeding support in the workplace. No other statistically significant results were found. **Implications**: This research shows that exposure to any frame other than the personal responsibility could influence public opinion and support for structural-level health policies. The research also identifies a false dichotomy between the environmental frame and personal responsibility. The manipulation frame can serve as a sub-frame of the environmental frame which can be more effective in identifying specific causal attributes and solution attributes.

The dissertation of Selena Esmeralda Ortiz is approved.

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2013

Dedication Page

This dissertation is dedicated to my son, Samuel, and my husband, Gary.

Samuel, you've made it possible for me to say that the biggest accomplishment I had in 2013
was not completing this dissertation.
Your mirth and wonder is contagious, even at 3:30 in the morning.
I am so lucky to be your mama!

Gary, thank you for being the husband, friend, and scholar you are.
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Ortiz, SE. and Zimmerman, FJ.
Does Race and Ethnicity Moderate the Relationship between Homeownership and Health? Findings from the California Health Interview Survey
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Ortiz, SE. and Zimmerman, FJ.
Does Race and Ethnicity Moderate the Relationship between Homeownership and Health? Findings from the California Health Interview Survey
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Ortiz, SE., Ponce, NA., and Perez, D.
The Role of Generational Status in Diabetes Care and Processes among Mexicans
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Zimmerman, FJ. and **Ortiz, SE**.
The Economics of Obesity: Why We Know More Than We Think and Why We Can't See It
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Reducing Immigrant Deaths along the U.S./Mexico Border: The Role of Academic Institutions
American Public Health Association Annual Meeting (Oral Presentation), San Diego, CA, October 2008

CHAPTER 1: INTRODUCTION

1.1. OVERVIEW OF THE PROBLEM

Both proponents and opponents of policies addressing social health concerns, from tobacco policies to gun control [1], have waged framing debates to build support for favored strategies and assail competing ones [1-3]. The use of frames is critical to public health because it can determine the worthiness of a social health concern in the public eye, set the boundaries of public opinion and debate [4], and influence the level of public and private investment a social health concern receives [5].

Frames can be understood as cognitive shortcuts that allow people to organize complex phenomena into cogent, comprehensible categories and to assimilate complex new information [6]. Framing is formally referred to as the "process by which people develop a particular conceptualization of an issue or reorient their thinking about an issue" [6, 7]. By framing an issue in a particular way, emphasis is placed on certain aspects of a social problem in order to elicit specific responses and to identify who (or what) is responsible [8]. Consider the following example. While conservatives frame progressive taxation for the rich as the forcible taking of money against those who have worked the hardest, liberals frame it as a duty of moral accounting for the goods and services the rich receive from the public that enable them to make their profits in the first place [9]. In addition to the substantive, conceptual aspects of the message, these disparate frames each function by tapping into people's deeply held values, such as autonomy and justice [10], resulting in clearer understanding of otherwise complex meanings.

Studies of the effects of frames on public support of policies are increasing within health policy research, including studies on how frames influence public support on tax increases for health insurance expansion [11] and health care reform [12]. Research into how framing influences the public's opinion on a social health concern, as well as support for policies to address that social health concern is also increasing [1, 13-15]. The analysis of unconscious framing can expose underlying values

and preferences by demonstrating what influences an individual to support a policy [12]. Recognizing which frames are in use, where they originate, and how they persist enables researchers to draw conclusions about how frames inform both the policy agenda and public discourse [7].

Obesity is a significant public health concern whose importance and intractability warrant a detailed analysis of its frames. Obesity has a number of related co-morbidities such as cardiovascular disease and diabetes [16, 17], and mental health conditions such as depression and anxiety [18]. Obese persons also experience increased discrimination in occupational and social environments, as well as within the health care setting [19, 20]. Although considerable amounts of resources have been dedicated to address obesity, there have to date been no significant declines in obesity rates among adults or children [21-23]. Analyses of why efforts have been unsuccessful should raise concerns about the dominant frames that shape causal beliefs and perceptions of responsibility about obesity prevention.

Obesity is also a social health concern whose frames have deeply polarized public discourse. Although obesity has come to be defined by some as a social problem [24], it has also been prominently framed as an issue of individual choice and personal responsibility [25]. This framing contest has played out in media news coverage [13, 26, 27], public opinion forums [28, 29], and political debates [30, 31]. Values embedded within the personal responsibility frame, including self-discipline and self-restraint for example, significantly contribute to its potency, resulting in health-promotion initiatives that focus on changing individual behavior (such as advice to eat less and exercise more) as opposed to policies that address structural constraints that impinge on people's ability to eat nutritionally and exercise regularly (such as limiting aggressive marketing and bringing fresh produce into food deserts) [32, 33].

Overall, it is fair to say that the individual frame anchored in personal responsibility has the upper hand in public debate and policy approaches. Yet individual approaches toward obesity have

demonstrated limited effectiveness. The field is stuck in an unproductive frame. The personal responsibility frame itself impedes progress in the fight against obesity-related morbidity and costs; once its tools of information and exhortation have been exhausted, no other potent tools remain. At this juncture, developing and using alternative frames and identifying and endorsing values in addition to personal responsibility may be an important part of a paradigm shift that would enable research, practice, and politics to shift away from the personal responsibility frame and value and toward frames and values in which collective action on outcomes is more clearly visible.

Some research has examined the worth of other frames in which to contextualize obesity besides the personal responsibility frame. For example, Adler and Stewart (2009) propose that a social justice frame might facilitate a synthesis of both the medical frame and the public health frame and place responsibility to prevent obesity upon both the individual and society [34]. However, there is no empirical evidence to date as to whether this frame or other alternative frames of obesity are effective in shifting public opinion on the causal attributes of obesity or perceptions of responsibility, or whether other frames of obesity are effective in significantly influencing public support of structural-level health policies to address obesity. Likewise, there are no studies that investigate whether particular values are effective in influencing public opinion about obesity.

There are a few potential competing frames worth investigating for their influence on opinion and support for public policies. The first alternative contextualizes obesity within the *life-course perspective*, which considers long-term biological, behavioral, and psychosocial processes that link adult health and disease risk to physical or social exposures during gestation, childhood, adolescence, early adulthood, or across generations [35]. Applying a life-course perspective to address obesity recognizes and redresses the biological and social constraints that establish metabolic patterns or poor eating and exercise habits that make it difficult to maintain a healthy weight. A second alternative is a *manipulation frame*, which considers various manipulation strategies used by the

food industry to increase the availability and over-consumption of processed foods and sugary beverages. Applying a manipulation frame to address obesity advances a structural-level policy agenda to counteract the effects of manipulation strategies, such as through food advertising.

Given the severity of the issue, it is necessary to investigate whether either of these alternative frames and the values associated with these frames are able to successfully challenge the dominant frames used in obesity discourse, influence the public's reasoning about the causal factors contributing to obesity, shift public beliefs in respect to where responsibility to prevent obesity lies, and increase public support for health policies that focus on the structural forces of obesity that lead to integrated and productive prevention strategies.

This dissertation identifies new, alternative frames and values that challenge the dominant frames and values of obesity; and tests whether these alternative frames and values can further the salience of public policies and public health interventions to more effectively address obesity. To accomplish these goals, the dissertation employs a unique research methodology known as Strategic Frame Analysis (SFA) a multi-method iterative process that includes both qualitative and quantitative research methods to deconstruct the dominant frames of reference that drive reasoning on public issues. Strategic frame analysis is strategic in that it not only deconstructs the dominant frames, but it also identifies alternative frames and values that are most likely to stimulate public reconsideration away from an exclusive and unproductive emphasis on blaming individuals toward systemic and community-based solutions [36]. There are eight basic methodological components of SFA, including: 1) Content analysis of news media; 2) Cognitive interviews; 3) Peer discourse analysis; 4) Expert interviews and material reviews; 5) Mapping the gap conceptual analysis; 6) Simplifying model development/value statement development; 7) National experimental surveys; and 8) Persistence trials (for more information, please see *Appendix 1A: Strategic Frame Analysis*). This dissertation research employs five out of the eight SFA components including content analysis of

news media, expert interviews, mapping the gap conceptual analysis, value statement development, and a national experimental survey, to empirically test strategies to reframe the way the public thinks about obesity.

1.2. OBJECTIVES

The dissertation has four primary objectives.

- First, through select qualitative and quantitative research methods (including expert interviews and quantitative content analyses of online newspaper articles and online readers' comments), the study assesses how the public and experts currently think about and discuss obesity within the context of dominant causal and solution frames such as personal responsibility, proposed alternative frames, and values associated with these frames.

- Second, the study examines what conceptual gaps exist between experts and the public in understanding and discussing obesity within the context of frames and values.

- Third, value statements associated with these alternative frames are identified and developed. These value statements serve to connect the public to the frame by emphasizing the values invoked by the frame [36].

- The fourth and final objective quantitatively tests seven research questions:

    1) Whether exposure to alternative frames or value statements significantly influence support for health policies that address the social and environmental constraints that diminish the ability or the desire to eat healthy and exercise regularly;

    2) Whether exposure to alternative frames or value statements can significantly influence beliefs about the causal factors of obesity;

3) Whether exposure to alternative frames or value statements can significantly influence perceptions of responsibility to address obesity;

4) Whether political orientation significantly moderates the effect of exposure to alternative frames or value statements on support for policies that address obesity at the structural level;

5) Whether level of interest in political and civic affairs significantly moderates the effect of exposure to alternative frames or values statements on support for policies that address obesity at the structural level;

6) Whether perceptions of societal responsibility about obesity significantly mediate the relationship between exposure to alternative frames of obesity or value statements and support for health policies and;

7) Whether exposure to value statements or alternative frames is more effective in influencing health policy support than the other.

1.3. IMPLICATIONS

The dissertation offers important contributions to public health research and practice on obesity. First, I am unaware of any studies to date that have attempted to experimentally test whether exposure to new frames of obesity or exposure to a specific frame element – value statements – can influence public opinion about the causal attributes, perceptions of responsibility about obesity, and public support for obesity policies. Since framing as experiment is necessarily reductionist [36], the value statements and alternative frames of obesity will be tested in isolation from each other to provide a better understanding of how a frame element specifically contributes to the entirety of an alternative frame that might ultimately be used by advocates in the field.

Second, this research flows out of the intersection of public policy, public opinion, health communication, and the social determinants of health. Using mixed methods, this research employs strategic frame analysis, a method of increasing importance in public policy and political science, to study how the public understands major health issues and how public health can effectively address them. Frame analysis is a methodology through which to improve understanding of how the public perceives particular health care issues, both controversial and non-controversial in nature, resulting in a more sophisticated public health framing process necessary to develop effective approaches to health care.

Third, the dissertation informs studies of the life-course perspective. Proposing the life course perspective as an alternative frame of obesity requires an initial examination of how obesity experts and the public perceive the relationship between biological and social exposures in the early life-course and later adult health. Although using the life-course perspective to understand obesity may be familiar to the health care community, especially those working in maternal and child health, both the concept of the life course perspective and its use in understanding obesity may be unfamiliar to the public. This dissertation provides an initial assessment of the usefulness of contextualizing obesity within the life course perspective. This is useful for health researchers and advocates interested in using a life-course perspective to understand and prevent disease, and for policymakers trying to enact life-course policies.

Fourth, the dissertation proposes a new frame in which to understand and address obesity, the manipulation frame, with which to identify causal and solution attributes to obesity. This frame deconstructs the popularly referenced "environmental" frame so that causal attributes and responsible agents are more easily identifiable and proposed policies and public health interventions more salient. Reframing obesity within the context of the manipulation frame also challenges the commonsense notion of obesity solely as the result of rational, individual choice. Instead, the

manipulation frame calls attention to recognizing and remedying structural constraints that may disempower children and adults from making healthy decisions in regards to diet and exercise or maintaining a healthy weight.

Fifth, the dissertation sheds light on how the use of values functions to influence health policy and health initiatives. Emphasizing underlying values, which are often unstated, is important for driving public discourse and policy formation and can help to better understand both the ethical foundations and the ethical implications of public health policy and interventions for researchers and practitioners. Finally, the findings from this study are translational since advocates and policymakers can use effective frame elements within new promotional material.

1.4. CHAPTER DESIGN

The following chapters are organized to tell a core story about the current use of frames and values in obesity discourse, which entails examining the differences or gaps that exist between expert understandings of the causal attributes and solutions to the obesity problem and the general public's understanding; examining the ways in which experts discuss and how the public debate about the causes and solutions to obesity; identifying and articulating new frames as well as applying social values in which to contextualize obesity, and testing the extent to which these alternative frames and values can shift public support of policies that address obesity at the structural level. **Chapter 2** details the theoretical foundation for this research and provides extensive background on frames, including how frames are defined, how they are used by the media, politicians, and special interests, how they operate to influence public opinion, and how they are used in public health. **Chapter 3** provides a closer inspection of the obesity problem and the multiple ways in which frames have been used to communicate causal attributes and solution attributes, including those frames most dominant throughout obesity discourse as well as frames that have recently emerged. **Chapter 4** discusses the potential to redirect the conversation about how obesity is caused as well as how

obesity can be addressed through the identification and application of new, alternative frames and values. **Chapter 5** summarizes key findings obtained from expert interviews that investigate how experts discuss obesity within the context of frames and the extent to which values are used throughout obesity discourse. **Chapter 6** examines how the public discuss obesity in response to online news stories, including whether frames and values are used, and summarizes key findings obtained from the quantitative content analyses of online news stories about obesity and online readers' comments in response to these stories. **Chapter 7** details the results of an online population survey experiment that tests whether public support for structural-level policies can be influenced by exposure to alternative frames and values statements. **Chapter 8** discusses the overall results and implications of the dissertation research and concludes by offering suggestions for future research.

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CHAPTER 2:
THEORETICAL BACKGROUND

2.1. INTRODUCTION

This research posits that new alternative frames and a particular frame element, values, can influence public opinion about the causal factors of obesity and the parties responsible to prevent obesity, as well as shift public support towards policies that aim to remove structural constraints. This supposition is supported by two principal arguments:

- First, public opinion and the policy-making environment can shift in response to reframing the causation of disease;
- Second, values significantly influence beliefs about the public responsibility for preventing disease

The following discussion focuses on how frames and values can influence support of public health policies targeted to prevent disease by shifting public opinion about the causation of disease and perceptions of responsibility about addressing disease.

2.2. FRAMES DEFINED

Although the concept of framing was introduced as early as 1954 [(1)], anthropologist Gregory Bateson comprehensively defined the concept of framing in his 1972 book *Steps to an Ecology of Mind* [(2)]. A frame, Bateson wrote, is "a spatial and temporal bonding of a set of interactive messages" and theorized that "no communicative move, verbal or nonverbal, could be understood without reference to a metacommunicative message, or metamessage, about what is going on – that is, what frame of interpretation applies to the move" [(1, 3)]. Another recognized pioneer in the field of framing, sociologist Erving Goffman (1974), described frames as something that helps classify and allow

users to "locate, perceive, identify, and label a seemingly infinite number of concrete occurrences defined in its limits" [4].

A common way in which to understand frames is by using the 'frame as a package' or 'frame as a file cabinet' metaphor. Menashe and Siegel (1998) note, for example, that some scholars define frames as a way of "packaging and positioning an issue so that it conveys a certain meaning" [3, 5-7] and as "the process by which someone packages a group of facts to create a story" [8]. Likewise, Kim et *al.* (2002) refer to frames as "easy to understand interpretive packages" that captures and distills factual content, and then presents that factual content in a way that prompts the receiver to make inferences about causality or assignment of responsibility [9].

Among several scholars, one of the most shared understandings of frames is its distinctive ability to "pinpoint" and "to organize" the issue at hand [10]. For example, Kaufman et al. (2005) defines frames as "cognitive shortcuts that people use to help make sense of complex information" [11]. Edelman (1993) argues that it is this ability to organize and classify observations that gives frames power [12]. In this way, frames have the ability to make relevant certain aspects of a story, while simultaneously making other aspects irrelevant. Hall (1982) states that frames define the situation and provides the criteria by which all subsequent contributions are labeled as relevant or irrelevant [13]. Gamson and Modigliani (1989) also suggest that frames are "central organizing ideas...for making sense of relevant events, suggesting what is at issue" [14]. Similarly, Chapman (1993) defines frames as "the emphasis placed around particular issues that seeks to define 'what this issue is really about'" [15] and Hertog and McLeod (1995) argue that "the frame used to interpret an event determines what available information is relevant " [16]. Tankard (1991) identifies the media's use and generation of frames as extending this power and states that frames are "a central organizing idea for news content that supplies a context and suggests what the issue is through the use of selection, emphasis, exclusion, and elaboration" [17].

The cultural relevance and underpinnings of frames has also been emphasized throughout the literature. For example, Schon and Rein (1994) define frames as "the broadly shared beliefs, values, and perspectives familiar to the members of a societal culture and likely to endure in that culture over long periods of time, on which individuals and institutions draw in order to give meaning, sense, and normative direction to their thinking and action in policy matters" [18]. Similarly, Reese (2001) points to the communal nature of frames stating that "frames are organizing principles that are socially shared and persistent over time, that work symbolically to meaningfully structure the social world" [10].

Other definitions have called attention to the ability of frames to produce effects or outcomes. Entman (1993) notes that the act of framing is to "select some aspects of a perceived reality and make them more salient… in such a way as to promote a particular problem definition, causal interpretation, moral evaluation and/or treatment recommendation" [5].

Finally, some scholars emphasize the ability to routinize patterns of cognition in their definitions of frames. Gitlin (1980) for example, defines frames as "persistent patterns of cognition, interpretation, and presentation, of selection, emphasis, and exclusion, by which symbol-handlers routinely organize discourse" [19]. In turn, this emphasizes the routine organization that transcends any given story and is "persistent" over time or resistant to change [10]. Only when frames become ineffective are they rejected, whereupon new, alternative frames are sought. However, frames are durable, such that even when emerging facts and data are misaligned with the dominant frames, the facts and data are discarded as opposed to the dominant frames [14]. For the purposes of this research, frames will be defined as "a set of internalized concepts and values that allow us to accord meaning to events and information" [20].

2.3. How Frames Work

It is important to recognize how frames work to influence public opinion and policy support. One understanding of how frames work relates to the concept of "cues", which are emitted from new experiences and information. Lippman (1921) first described cues as the "pictures in our heads" [21] which some scholars describe as "vividly labeled storage boxes - filled with pictures, images, and stories from our past encounters with the world" [20]. When faced with a new experience or piece of information, people search for and rely upon those cues to essentially signal to them how they should encounter or process that new experience or information. The immediate transmittal and subsequent assessment of this new experience quickly, and rather unnoticeably, occurs primarily because of these cues. This can be extremely useful for everyday functioning since people tend to have limited cognitive space in which to quickly and easily process large amounts of information [20].

The issue of how frames are operationalized has also been extensively examined throughout the literature. Chong (2007) notes that frames work in communication by "organizing everyday reality" [15, 22] by providing "meaning to an unfolding strip of events" [22, 23] and by promoting "particular definitions and interpretations of political issues" [22, 24]. In order to make sense of complex conditions, human beings rely on "conceptual categories" or "mental models" that guide how information is received and interpreted. These models are mental shortcuts based on prior experience and expectation that help organize the vast amount of information that is provided [20].

Tannen (2003) argues that frames work primarily because people encounter the world "as experienced and sophisticated veterans of perception who have stored their prior experiences as an organized mass" [1]. Instead of approaching new experiences in an independent and objective way, people rely on prior experiences to establish expectations about the world [20]. When these expectations are confirmed, most individuals then allow themselves to circumvent the need to figure out new situations most of the time [20]. Frames are powerful, therefore, not only because people

adopt and internalize them from the media, but because frames become habitual and allow information to be processed efficiently, freeing cognitive space for the individual [20]. In other words, a limited number of frames can store and organize a wealth of new information and experiences.

2.3.1. Frame Elements

Frames include many critical elements that work to influence public opinion [20]. For example, a frame may consist of numbers (facts, data, and statistics), messengers (the people who become the physical symbol of the issue or convey authority on the issue), visuals (which trigger mental models without words), metaphors (which simplify a complex problem into a clear picture) and simplifying models (which succinctly capture the essence of a scientific concept). Frames also include context (i.e a focus on issues and trends that are common to groups versus individuals) and tone (how the frame is stated) [20].

2.3.1.1. Values

Another critical frame element is values. In his seminal work, *The Nature of Human Values*, Rokeach (1973) defined values as "enduring beliefs that a specific mode of conduct is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence" [25]. Values, like frames, have also been defined numerous ways throughout the literature [26]. For example, Zaller (1991) defines values as "relatively abstract and durable claims about virtue and the good society" [27]. Jennings (1991) extends this definition by concretizing values' role in public policy: "values are core beliefs that serve as standards we use to judge our own behavior and are also a basis for organizing our political views and positions on public policies" [28]. More recent definitions emphasize the orienting function of values [26], including Maio et *al.* (2003) who defines values as "abstract ideals that function as important guiding principles" [29].

For purposes of this dissertation, values will be defined as "enduring beliefs, which orient individuals' attitudes and behaviors. As such, effective values form the basis for social appeals that pull audiences' reactions in a desirable action" [26].

2.4. How Frames Are Manipulated

The act of framing has important implications for individuals' opinions and attitudes [3]. As Entman (1993) states: "To frame is to select some aspects of perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation" [5]. Consider for a moment the effect that questions might have on people's responses to surveys and public opinion polls measuring attitudes and beliefs [30]. Tversky and Kahneman (1982) showed that minor changes in the way decision problems are framed may influence people's decisions: "Systematic reversals of preference are observed when a decision problem is framed in different ways" [31]. The same holds true for politics since how questions are worded is associated with how policy advocates and opponents shape and present policy options to legislators and other opinion leaders, as well as to the general public [32]. Therefore, in addition to defining the issue, frames also have implications for solutions to address the issue. In other words, if the definition of the problem is altered through a frame, then the solution to that problem changes in response [3, 8].

Thaler and Sunstein (2008) offer the following example as a way in which subtle manipulation of the frame can influence public opinion [33]:

> Energy conservation is now receiving a lot of attention, so consider the following information campaigns: (a) If you use energy conservation methods, you will save $350 per year; (b) If you do not use energy conservation methods, you will lose $350 per year. It turns out that information campaign (b), framed in turns of losses, is far more effective than information campaign (a). If the government wants to encourage energy conservation, option (b) is a stronger nudge.

This example illustrates the effectiveness of what is known as prospect theory, which posits that people react to a loss more significantly than they do to the equivalent gain [31].

Another example involves the method of 'anchoring and adjustment', which is a cognitive bias that describes the common tendency to rely too heavily on the first piece of information offered (i.e. the "anchor") when making decisions. Consider the following scenario [34]:

> For instance, imagine your 11:00 AM flight is canceled and you need to be in Cleveland tomorrow morning. There's an evening flight that's open. Where most reps would simply say "I can put you on a flight leaving at 9:00pm" other reps, knowing full well the 9:00 PM flight was available but seeking to manipulate the customer's reaction, might say "well, I know I can put you on the 7:00 AM flight tomorrow, but let me see what I can do to put you on the earlier flight, which is at 9:00 PM tonight." This technique of experience engineering is more commonly called anchoring. A less-desirable option creates a mental anchor, making the best alternative seem more acceptable. Rather than be irritated that the 11:00 AM was canceled, you'd probably be pleased that the rep has secured a seat for you on the evening flight.

All in all, according to Thaler and Sunstein (2008), "Framing works because people tend to be somewhat mindless, passive decision makers" [33], suggesting that the effect of frames on people's behavior and thought are indeed, quite powerful.

2.4.1. Episodic vs. Thematic Frames

Iyengar (1991) argues that how individuals assign responsibility for political issues and societal concerns greatly depends on whether news outlets use either "episodic" or "thematic" frames. Thematic framing tends to elicit societal rather than individualistic attributions of responsibility whereas episodic framing has the opposite effect. However, since episodic framing tends to be more dominant throughout television news coverage, perceptions of responsibility for the issue are directed towards the individual rather than to a range of social agents [6]. These distinctions are particularly important for public health, which attributes both social and individual factors as causes of social health concerns, changes moral judgments to focus on both society and

individuals, and suggest shifts in both public policies and in individual behavior [5, 35]. Whether thematic or episodic frames are used to depict social health concerns is also important to influence public opinion. For example, if people can identify social structures or the social environment as contributing to social health concerns such as obesity, willingness to support changes in public policies increases [35, 36].

Thematic and episodic frames can also be understood as *systemic* and *individualizing* frames respectively. As Lawrence (2004) notes, systemic frames broaden the focus of the social concern by assigning responsibility to government, business, and larger social forces, while individualizing frames minimize causal factors of a problem to particular individual, who often are those afflicted with the problem [37]. As with episodic themes, contextualizing a problem with individualized frames constrains governmental intervention, while systemic frames (similar to thematic frames) compel governmental intervention.

Take the following example offered by the FrameWorks Institute to better understand episodic (individualizing) versus thematic (systemic) frames. Episodic frames reduce life to a series of disconnected episodes, random events or case studies. Therefore, an episodic story might begin with the following: *"Betty Jones and her family of four are braving the elements tonight because the homeless shelter was full"*[20]. While this episodic news story might go on to describe how the children miss their toys, how cold it is, when they last ate, etc, the story will not describe how many people are homeless in this city, whether the numbers are increasing or decreasing, or the root causes of homelessness [20].

In contrast, thematic frames provide details about trends, not just individuals; they identify lack of resources at the community or systems level that have contributed to the problem. Therefore, a thematic story, in contrast to the episodic story, might begin with the following: *"The homeless shelter at 4th and Q was full again tonight because of drastic reductions in city allocations, and this situation is taking its toll on families like Betty Jones'. But the mayor says the Jones family will have to brave it because there is*

no more money in the city to pay "[20]. Citizens are less likely to attribute responsibility of a social problem to the government if the story or frame used to communicate the story is episodic. On the other hand, citizens are more likely to attribute responsibility to the government if the frame used to communicate the story is thematic [20].

2.5. FRAMES AND THE POLICY AGENDA

Chapman (2004) notes that the use of frames in politics is a way to "develop and shape news stories in ways that build support for public policies and ultimately influence those who have the power to change or preserve laws, enact policies, and fund interventions that can influence whole populations" [38] Framing has widespread consequences from a political perspective. Kingdon (1984) argued that how issues are framed influences which policy approaches are adopted or even whether a topic reaches the legislative agenda [39]. This relates the concept of framing closely to agenda-setting, whereby politicians who consistently invoke a particular frame on an issue consequently control both perception and discussion of that issue. Research has shown that certain episodes become political crises through the conversion of sequential factual events into a narrative that includes both public and political lessons by political actors [40]. This process includes calling greater attention to certain aspects of the problem rather than others, resulting in the formation of beliefs regarding social health concerns such as obesity. Through the narrative, a wider array of individuals can relate to social phenomenon in ways that are more memorable and sustainable than other forms of data presentation. Stone (1989) attests that there also exists a politic of claims-making about events, with political actors and other interests aligned and ready to "deliberately portray" conditions and issues "in ways calculated to gain support for their side" [41].

The literature of social movements suggests that the prudent choice of frames, and the ability to effectively contest the opposition's frames, may lie at the heart of successful policy advocacy [14]. Chapman and Lupton (1994) emphasize the need to understand "how issues need to

be reframed in order to steer public and political support in the desired directions" [15]. As the authors articulate, "Political battles are seldom won only on the elegance of logic or by those who can best assemble rational arguments. These are mere strategies within a wider battlefront. The real issue is which are the overall frames of debates that best succeed in capturing public opinion and political will" [15].

In regards to public policies, Menashe and Siegel (1998) attest that the framing of an issue forms "the basis by which public policy decisions are made" [3, 8]. There is a considerable amount of research that evidences the effects of framing on public opinion and policies [3], including studies of public opinion on mandatory seat belt laws [42], environmental policy [43], alcohol policies [32], affirmative action [23, 44], welfare policy [45], and attributions of responsibility for the obesity epidemic [37, 46-50]. The use of frames in communication about various has also been researched [22], including opinions about stem cell research [51], cynicism toward government [52], and support for war [53].

2.6. FRAMES AND PUBLIC HEALTH

Debates over public health policy issues represent a battle for framing the issue in the eyes of the public and policy makers [3, 8]. It is not necessarily the quality or soundness of arguments for and against policy proposals that most influences whether they will be adopted, but rather it is the ability of proponents and opponents to effectively frame the policy debate [3]. Values and ideologies precede and shape the decisions along every step of the policy process since those who participate in policymaking are also driven by their belief systems and ideology [20]. Therefore, the main point to understand is that because the process of policymaking is also a human endeavor, it is susceptible to subjective and biased standards [20].

This has direct implications in terms of gaining public consideration for a social health concern. The manner in which a health issue is framed signals to the public what is at stake and why they should care. Most importantly, framing moves people either toward action or away from it,

particularly frames that are used throughout the media. Higgins et *al.*, (2006) argue that the use of frames throughout news stories designates the media as a critical resource for the public in determining the level of attention that a social health issue receives [54]. By giving meaning to a social health issue by defining what is important and what is relevant about a social health issue, the media influences public perception, particularly in regards to who is responsible for its cause and who is responsible for its solution [54, 55]. Accordingly, the media, as a purveyor of framing the news, also ultimately determines what policies are best to address that social health issue [54]. The frame, therefore, should be measured by whether it pushes the public toward supporting policies and programs that advance the social good [20].

2.6.1. Values and Public Health

Guttman (2000) explains that certain public-health policies and interventions are not always selected according to their level of effectiveness, but because they have robust associations with particular social values over others [20, 56]. For instance, health promotion interventions that target individuals through persuasive techniques may elicit concerns about privacy and individual autonomy since these sorts of interventions tend to limit an individual's ability to freely select among options [56]. Conversely, governmental intervention such as regulations on industry invoke values such as justice and equity, as well as the social responsibility to provide people an opportunity to live in environments that promote healthy living [56]. Accordingly, strategies that simultaneously promote behavior modification and governmental intervention are intrinsically associated with values such as self-actualization, self-determination and the promotion of the public good [56].

2.7. Causal Attributions and Perceptions of Responsibility

Resistance among the public to policies that address the systemic causes of disease is based within broader notions of individual and societal responsibility [37, 50]. Attribution theory posits that

individuals make sense of their surroundings primarily based on whether they attribute the cause of events, conditions, or the status of people to either internal (individual) or external (societal) factors [50]. Likewise, the theory of perceived responsibility and social motivation posits that beliefs about what causes a social problem influence beliefs about who is responsible, which in turn influence willingness to support public policies to address the problem [57, 58].

Fritz Heider was the first to develop a theory of attribution, which proposes that people understand their environment by attributing the causes of events as either internal or external [59, 60]. As implicit and explicit causal explanations for behavior, causal attributions are fundamental to how people understand illness [60]. Research has also found that models of illness often include interdependent causal attributions [61]. For example, a person will often understand their illness as the result of a number of causes that are interconnected, thus resulting in a more complex causal structure of understanding [60, 61]. Studies have shown that between seventy and ninety-five percent of patients make causal attributions about their illness [60].

The theory of perceived responsibility proposed by Weiner (1993, 2006) explains the relationships between causal attributions and support for public policies to reduce a social problem [57, 58]. In this model, the causal attributions of a social concern or problem have direct influence on the solution attributes, or rather, beliefs about who is responsible for addressing the social concern (perceptions of responsibility) [50, 57, 58]. As a result, individual behaviors and support for proposed governmental interventions to address the social concern are influenced [50].

2.7.1. How Frames and Values Influence Causal Attributions and Perceptions of Responsibility

One of the most important consequences of the way a public health issue is framed is the solution to the problem that the frame implies [3, 6, 8]. As Menashe (1998) points out therefore, framing not only defines the issue, but it also suggests the solution: "If we alter the definition of

problems, then the response also changes" [3, 8]. Throughout this research, solutions to the problem as well as agents identified to solve the problem will be referred to as 'perceptions of responsibility'.

Values have been identified as one particular frame element that is effective in stimulating public reconsideration of a social concern [62]. Evoking the right values can significantly increase support for more inclusive policies that target systematic-level change. As a communications tool, framing works by conveying conceptual constructs that are able to tap into people's deeply held values and beliefs [63]. This approach, or value framing, is a process in which a value or set of values publicly held in high esteem is invoked within the context of the frame [64]. For example, opponents of motorcycle helmet laws are likely to appeal to the value of autonomy in the framing of their argument. For political elites, advocates, and private industry, influencing public opinion by invoking values is an attractive option since the public can easily understand and base decisions about political or social issues depending on how that issue connects with their personal values or beliefs [64, 65], which are then used to build universal frames of reference on a particular issue [22, 64].

Values also operate by redirecting people's thinking about social concerns. This is extremely useful in discourse-based social change efforts. As Simon (2012) writes, "changing the values in discourse, and its embedded frames, can lead to the activation of different cultural models and thereby redirect people's thinking" [26]. By redirecting people's thinking, values influence decision-making, reorient attitudes, and shift policy predispositions [26].

2.7.2. Anti-Tobacco vs. Big Tobacco: A Battle of Frames

One prominent example of the effect of frames and values on public policy is tobacco prevention and cessation. Tobacco companies incorporated frames in opposition to the anti-tobacco movement. This was especially witnessed in the way in which the tobacco industry used various symbols and imagery [3] to present itself as "defender of the First Amendment, protector of free choice, and friend of the family farmer" while depicting its opposition as "zealots, health fascists,

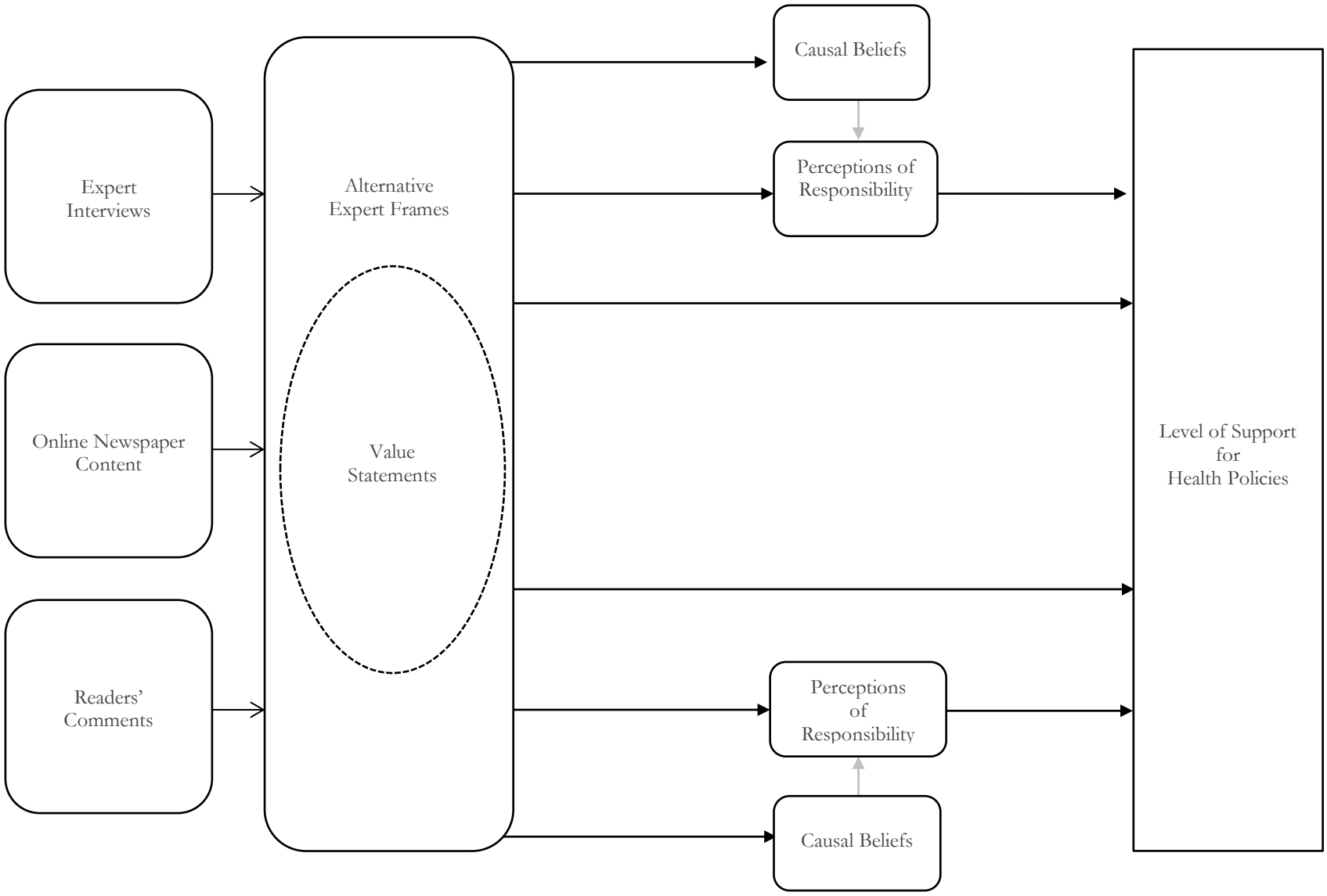
paternalists, and government interventionists" [8]. Anti-tobacco strategists also incorporated the use of frames throughout its efforts. Advocates worked diligently to "widen the frame and communicate a thematic story of tobacco that focused on community and other external influences" [62]. Various actions contributed to this "re-framing" of tobacco as a health hazard, including a series of Surgeon General Reports, the banning of tobacco advertising, and the development of effective tobacco cessation programs. Re-framing tobacco use within the context of a "thematic" frame enabled advocates to make systemic changes in policy and practices versus changes in individual behavior alone. In addition, reframing health risks and responsibilities was essential to altering the opinion environment [37] and accomplishing the types of structural policy changes made by the anti-tobacco movement.

2.8. CONCLUSION

This chapter presents an overview of the theoretical constructs supporting this research. Frames are complex in that they can operate in various ways, be manipulated in various ways, and be defined in various ways. Yet for all their complexity, frames are ever present, either in our thoughts or throughout communication set forth by the media, policymakers, and special interests. Frames also consist of many elements, including values, which are essential to influencing public support for health policies. One way in which frames and values operate to shift public perception on a social health concern, for example, is by shifting the public's perception of who is responsible for causing a social health concern (causal attributes), which, in turn, influences the public's perception on who is responsible for addressing that social health concern (perceptions of responsibility).

Figure 2.1. provides an overview of the conceptual model guiding this research. Using Strategic Frame Analysis to identify alternative 'reframes' and value statements in which to contextualize obesity (via expert interviews, content analyses of online news stories about obesity

Figure 2.1. Conceptual Model



and readers' comments in response), this research tests whether exposure to alternative frames and value statements significantly influences support for structural-level health policies to address obesity. The theory is that by influencing causal attributes, the public's perception about who is responsible to address obesity is influenced, resulting in support for health policies. Further discussion about the model will be presented in subsequent chapters.

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CHAPTER 3:
OBESITY AND OBESITY FRAMES

This chapter discusses the current state of obesity in the United States, particularly among children, and provides a detailed discussion regarding the frames and values used throughout obesity discourse, including dominant frames (personal responsibility and the environment), less dominant frames (genetics and biomedical), and emerging frames (fatalism and food addiction). A discussion about how values within the dominant frames of obesity operate to perpetuate the frame is presented. In addition, the chapter examines how the dominant frames influence causal beliefs and perceptions of responsibility and discusses recent studies regarding the associations between level of support for obesity policies and causal beliefs and perceptions of responsibility.

3.1. INTRODUCTION

The public health implications of obesity, including increased morbidity, mortality, social consequences and health care costs, are well documented. Excess weight is identified as a major risk factor of metabolic syndrome, type 2 diabetes, hypertension, coronary heart disease, stroke, heart failure, and several types of cancer [1]. Obesity is projected to either slow or reverse current trends in increasing life expectancy [2]. Obese persons also face severe social and psychological consequences including discrimination in employment, health care and educational settings [3, 4], and increased depression and low self-esteem [5]. Medical expenditures for obese persons are 36 percent higher per year than normal-weight persons, and total annual medical expenditures due to overweight and obesity account for 9.1 percent of all health-care spending [6].

Among children and adolescents, rates of overweight and obesity has more than doubled in children and tripled in adolescents in the past 30 years in the U.S. [7, 8]. In 2010, over one-third of children and adolescents were overweight or obese [7, 8]. The highest rates of obesity occur among groups most disadvantaged in terms of poverty and education [9, 10]. Overweight children are more

likely to become overweight or obese adults [11]. Childhood obesity has both immediate and long-term effects on health and well-being [7].

Short-term health effects include:

- Obese youth are more likely to have risk factors for cardiovascular disease, such as high cholesterol or high blood pressure [12].

- Obese adolescents are more likely to have prediabetes, a condition in which blood glucose levels indicate a high risk for development of diabetes [13].

- Children and adolescents who are obese are at greater risk for bone and joint problems, sleep apnea, and social and psychological problems such as stigmatization and poor self-esteem [14-16].

Long-term health effects include [7]:

- Children and adolescents who are obese are likely to be obese as adults [17] and are more at risk for adult health problems including heart disease, type 2 diabetes, stroke, several types of cancer, and osteoarthritis [15].

- Overweight and obesity are associated with increased risk for several types of cancer, including breast, colon, endometrium, esophagus, kidney, pancreas, gall bladder, thyroid, ovary, cervix, and prostate cancer, as well as multiple myeloma and Hodgkin's lymphoma [18].

Once present, obesity is extremely difficult to reverse; therefore, prevention in early life is fundamental to curbing increasing rates. The recent decision by the American Medical Association (AMA) to identify obesity as a disease [19] has been lauded as a way in which to promote access to prevention, treatment and comprehensive coverage determination by health insurance companies.

Current strategies to prevent and treat obesity are broad, at both the individual level and environmental level. At the individual level, regular physical activity and exercise, and consumption of nutritional foods such as fruits and vegetables are popular recommendations. Health education campaigns discourage families from consuming genetically modified foods, foods that are high in fat and salt, and foods that contain high fructose corn syrup. Medical treatment of obesity has also risen, with the number of persons undergoing bariatric surgery increasing ten-fold throughout the past 15 years. At the environmental level, strategies focus on reducing obesogenic environments, such as improving neighborhood walkability, limiting the number of fast food restaurants, restricting the use of trans-fat in restaurants, and mandating menu calorie labeling. Many states have adopted legislation banning the sales of carbonated, sugary beverages in public schools, requiring or increasing physical education, and improving the nutritional value of school meals. Since the rise in obesity rates has simultaneously occurred with the inundation of overly processed foods into the food environment [20, 21], especially foods high in fat, sugar, and caffeine, the Food and Drug Administration (FDA) recently launched an investigation into the safety of caffeine in food products, especially the effects of caffeine on children and adolescents [22].

3.2. FRAMES USED IN OBESITY DISCOURSE

The following discussion details the findings from previous research, such as content analyses and review of public opinion surveys [23-30], to examine how a social concern is being covered in a wide variety of news outlets, determine thematic patterns within news reporting, and identify dominant frames, and describes the dominant frames of obesity, the impact that these frames have on the public's general attitudes towards obesity, and the public's policy preferences in addressing obesity.

Policymakers and popular media predominantly frame obesity in one of two ways – as an issue of personal responsibility or as an environmental, societal issue [25, 27, 31]. The first and most

dominant of these two frames is the personal responsibility frame, which emphasizes the individual's responsibility for his or her obesity status, and the second is the environmental frame, which emphasizes the effects of the natural, built, and social environment.

Far from being politically neutral, the personal responsibility frame is ideologically charged and politically consequential [32, 33], and exemplifies episodic frames, which focus on discrete events happening to specific people at particular places and times and contextualizes social concerns solely within the realm of the individual [34]. Such a frame places a special emphasis on the individual and his or her ability (or rather inability) to make rational choices and exercise willpower and restraint to avoid becoming obese [26]. In other words, those held responsible for their obesity are those who make poor choices. The personal responsibility frame is especially used by market individualists and libertarian politicians wishing to confine governmental interventions only to the provision of information to help individuals improve lifestyle habits[3]. The personal responsibility frame is not conducive to the exploration of the disproportionate exposure to and burden of the harmful social, structural and environmental forces that affect obesity [3], thereby casting full responsibility onto individuals [35] while deflecting the role of institutions [33].

Located at the opposite end of the continuum of obesity discourse is the environmental frame, which broadens the focus of the obesity problem by assigning both causality and responsibility to government, business, and larger social forces [26]. As opposed to the personal responsibility frame, the environmental frame exemplifies thematic frames, which contextualize social concerns within the realm of the environment, policies, and systems [34]. Similar to other social health concerns, there is a great amount of cultural and political resistance to the idea of environmental causation of and responsibility to address obesity [26]. Although media coverage of obesity as an environmental concern has increased, news stories tend to promote individual behavioral change as a solution more often than changes in social or economic policies [25, 36].

The disjuncture that exists between these two frames has resulted in extreme sets of policy recommendations [23], presenting challenges to advocates wishing to engage in more useful dialogue about obesity and to the public attempting to discern an assortment of conflicting messages. Intractable allegiance to these opposed frames has thus far resulted in a zero-sum game for advocates and policymakers on either side, evidenced primarily by the inability of current efforts to hamper obesity rates significantly. Consequently, both the personal responsibility and environmental frames undermine the full scope of the problem by either exclusively emphasizing the role of the individual while ignoring complex, ecological aspects of obesity; or, exclusively emphasizing environmental factors but in a way that often succumbs to the doctrine of personal responsiblilty [32]. The continued reinforcement of the two primary existing frames could foreclose other opportunities to advance different perspectives of obesity. Lambert et *al.* (2007) found that media research suggests that the coverage of obesity policy is solidifying into contrasting environmental and individual-choice perspectives [37, 38], which is closing off opportunities to advance additional views, even those in evidence among the public.

3.2.1. Less Dominant Frames Used in Obesity Discourse

Two other, less dominant frames exist: *mixed* frames, which consider personal responsibility within the context of the social environment; and *disease* or *biomedical* frames, which attribute obesity to physical and psychological conditions such as genetics and depression [29]. Solutions to obesity within these frameworks focus on supplementing public health education regarding the avoidance of unhealthy foods, an increase in consuming healthy foods, and an increase in physical activity, and the recognition of health consequences related to obesity. While responsibility is not directly placed on the individual, at the very least, cooperation is required to address the problem of obesity [3]. Though these frames have received less media attention than the personal responsibility frame, public policies in response to the mixed and disease frames have been enacted, including policies

that require calorie menu-labeling, and expanded Medicare coverage of bariatric surgery [29]. These policies may indicate that policymakers and the public are willing to support health policies to address obesity within different contexts besides the dominant frames.

3.2.2. Emergent Frames

Recent findings on framing patterns of obesity in news media coverage reveal new patterns of thought about obesity. Shugart (2011) found that current news coverage departs from the previous individual/environmental attribution dichotomy. Instead, the dominant theme characterizing obesity is *fatalism*, signaling "an overarching *Zeitgeist* frame that destabilizes the heretofore widely recognized binary of episodic and thematic frames that undergird framing theory and analyses" [33]. For example, stories that depict technology as a culprit in childhood obesity simultaneously depict attempts to change individual behavior as futile given society's dependence on technology. Although the use of fatalism appears as a divergence from the personal responsibility frame towards a mixed frame of obesity, it does not conclusively indict individuals or the environment [33]. Rather, the fatalism frame distinguishes obesity as an unavoidable reality that is beyond control, irrespective of whether its causal factors are individual, environmental, or both [33]. Thus, the use of fatalism could hinder future health policies and interventions.

Another frame gaining momentum in the literature is the food addiction frame. As Brownell and Gold (2012) attest, "terms such as 'chocoholic' and 'carbohydrate addict' are common" and underscore the extent to which the concept of food addiction is recognized throughout public discourse [20]. Although at first glance the food addiction frame appears to be closely related to the biomedical frame, the frame uniquely draws attention to the confluence of biological, psychological, and social factors that are inherent contributors to food addiction, such as food marketing. In a content analysis of news articles focusing on childhood obesity, Barry (2012) found that while fifty-three percent of news stories focused on individual behavior as the main cause of obesity, only one

percent of news stories mentioned food addiction as a potential cause [39]. However, results from an associated opinion poll suggests that seventy-one percent of Americans interviewed (N = 1,009) view food addiction as an important explanation of obesity among Americans, and sixteen percent viewed it as a very important explanation [39]. These results suggest that the public is willing and able to consider obesity as a more complex and dynamic social concern than the personal responsibility frame promotes.

3.3. The Role of Values in Frames

The efficacious communication of American values, such as self-determination and self-reliance, largely accounts for the endurance of the personal responsibility frame. Personal responsibility values serve as the ideological template in which other frames and values struggle to compete. As a value, individual responsibility is fundamentally linked to the concept of autonomy and choice, which reinforces American beliefs that the individual is exclusively responsible for his/her health [40]. Personal responsibility as a value can also evoke a language of blame, weakness, and moral vice [23, 41]. Operationalized within the context of a frame, personal responsibility venerates individual choice regarding what to eat, how much to eat, whether to exercise, and where to exercise, while absolving external forces such as the food industry of any responsibility for the accessibility of those choices [40]. By discounting the context in which choice is made, the personal responsibility frame reinforces deep-seated, American values of individualism among the public, and cauterizes the public's ability to perceive obesity through the lens of other frames or values.

A key observation about the personal responsibility frame is that it automatically references its own embedded values. One does not exist without the other. To be most effective therefore, alternative frames of obesity must clearly articulate and readily invoke values that are held in high and equal esteem among the public. For example, widely cherished norms of equal opportunity and the dignity of the individual could be creatively harnessed to build the needed political support to

improve the health of all Americans, including those that currently live shorter and sicker lives than the rest of the population.

3.4. Causal Attributions and Perceptions of Responsibility

The more an issue is framed in terms of involuntary, universal, environmental, and knowingly created risk, the more likely people are to support policies that burden powerful groups [42]. In other words, if disease is perceived not to be the result of an individual's actions (involuntary); if a larger group is more vulnerable for disease risk (universal); if the environment is overburdened with disease risks (environmental); and if it can be confirmed that the disease risk was meaningfully created by an external force (knowingly created risk), then demands for government intervention to address the disease risk will increase [24, 42]. These last two risk domains may have significant implications for recent studies on the influence of aggressive food advertising and marketing practices on obesity [43, 44], and for policies that aim to restrict marketing of processed snacks and sugary beverages while increasing pronutritional marketing of fruits and vegetables [43].

However, arguing that structural changes need to be made so as to truly allow individual choice is not sufficient enough to shift current public opinion. Because the usual starting point among conservative audiences begins with individual choice on diet and exercise [27, 45], shifting the public's habits of mind or "fixed beliefs" [46] about the causal attributes of obesity to produce structural change requires an assemblage of compelling reasons for abandoning the personal responsibility frame.

Using thematic frames of obesity results in greater societal attribution of responsibility than episodic frames [47, 48], while stressing uncontrollable causes of obesity such as physiological impairment can increase philanthropic support than emphasizing controllable causes of obesity, such as inability to adhere to a healthy diet or exercise regimen [47, 49].

3.4.1. How Causal Attributions & Perceptions of Responsibility Influence Policy

Policies that aim to address systemic factors related to obesity will strongly depend on the support of public opinion and policymakers [50]. Previous opinion polls suggest, however, that there is a limited amount of support for policies to reduce obesity, particularly broad-based policies that target system-oriented, or upstream factors [47]. Research also suggests that many Americans reject the idea that government, employers, or other institutions bear some responsibility for adult obesity [47] and believe obesity is a private matter that should be individually resolved [26, 51, 52].

More specifically, Lawrence (2004) found that although popular understanding of the causes of obesity has moved from the medical realm of biology and personal behavior toward the realm of environmental causation in news discourse, the role of personal responsibility for one's health has been strongly articulated in response to claims about unhealthy food and activity environments. This has serious implications for systemic-level public health policies [26]. Oliver and Lee (2005) found that most Americans are not seriously concerned with obesity, have relatively low support for obesity-targeted policies, and view obesity as resulting concerned from individual failure rather than environmental or genetic sources [27]. Building on these findings, Barry et *al.* (2009) examined how demographic characteristics, political attitudes, and agreement with obesity metaphors affect support for policies to reduce obesity rates. The types of metaphors used to understand rising obesity rates (e.g. obesity as sinful behavior, obesity as eating disorder, etc.) are strong predictors of support for public policy, and have varied influence across different types of policy interventions [53]. Puhl (2010) found that message frames had no effect on support for laws with specific provisions to prohibit weight discrimination in the workplace, and that public support for these particular legal measures is consistent and high regardless of how the issue of weight discrimination is framed [54]. Lund (2011) found that public support for government-funded obesity treatment was best predicted by the belief that individuals are not personally responsible for their own obesity [55]. People seem willing to

support policies prohibiting discrimination no matter the cause of obesity, but their endorsement of publicly supported obesity treatment is conditional on a frame that exonerates the obese from a causal role in their condition. Finally, Niederdeppe et *al.* (2011) found that narrative frames emphasizing environmental causes of obesity significantly increased the belief that societal actors (including government and employers) were responsible for addressing obesity [(47)]. This finding though, applied only to liberals. Overall, these results suggest an opening for using frames to further support obesity prevention.

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CHAPTER 4:
REFRAMING THE OBESITY PROBLEM USING ALTERNATIVE FRAMES AND VALUES

This chapter details the two proposed, alternative frames, the *Life Course Perspective* frame and the *Manipulation* frame, and details why these new proposed frames have the potential to influence critical thinking about the causes of obesity as well as perceptions regarding who is responsible to address obesity. The chapter also examines the values that are inherent within these frames as well as corresponding health policy proposals related to these frames.

4.1. INTRODUCTION

The findings from previous content analyses and public opinion research provide the foundation on which to identify new, alternative frames that can effectively counter the dominant frame of personal responsibility. These proposed, alternative frames are intended to elicit new understandings of obesity that encourage increased public support for policies that address the structural constraints that exist. Moreover, these frames situate obesity risk within the context of social norms and policies on breastfeeding [(1)], early child care and preschool food nutritional standards [(2)], physical activity opportunities for children, adolescents, and adults [(3)], and the food marketing environment [(4, 5)]. These frames do not obviate individual agency but instead identify those constraints that limit people's ability to freely choose the type and amount of food to eat.

4.2. ALTERNATIVE FRAME NO. 1: THE LIFE COURSE PERSPECTIVE

The life course perspective can be studied within the milieu of various disease epidemiologies, including chronic disease, infectious disease, and broader notions of health and well-being [(6)]. Understanding disease through a life-course perspective requires identifying *critical* (biological) and *sensitive* (social) periods throughout the lifespan and the effects of accumulation of risk over time [(7-9)]. Within the context of obesity, critical periods are occurrences of biological

programming in which environmental influence causes permanent metabolic consequences that alters susceptibility to later adverse outcomes [7, 10]. For example, low birthweight is associated with risk factors for metabolic syndrome, insulin resistance, and later central adiposity [11-13] while high birthweight is associated with adiposity in adulthood [10, 14]. Sensitive periods are occurrences of social influence that can modify behavior or metabolism long-term [10]. Determinants of obesity, such as physical activity, eating and sleeping habits are established during the sensitive periods of infancy, childhood or adolescence, for example by the type and duration of infant feeding, by early exposure to food marketing, or by habituation to low levels of physical activity [15]. While the focus of life course epidemiology has been to understand how early-life experiences shape adult health, it also systematically emphasizes the interplay between social and physical context along with biological factors over time [8]. Therefore, when applying a life course perspective to understand disease etiology and prevalence, it is important to note that although early life experiences can significantly influence the trajectory of health development, they are not necessarily deterministic [9].

There are three central themes included within the life-course perspective that have significant relevance to the incidence and prevalence of obesity [16]. The first theme maintains that "human lives are linked through a network of shared relationships and lives are interdependent across generations." Lee (2009) notes for example, that parental choices about lifestyle have a direct effect on the lives of their children [16], including eating behaviors and parenting practices [17]. The second theme emphasizes the "timing and sequencing of life events that can be conceptualized as a trajectory." In other words, the order in which events occur can result in later health conditions and risks. For example, childhood obesity can significantly increase the risk of adult obesity [16, 18]. The third theme focuses on the issue of the role of agency in decision making, decisions which, must be made "within the constraints of a social, historical and economic context, family backgrounds and

stage in life course" [16, 19]. Decisions such as nutrition, diet and exercise can all be considered under this theme. The life course perspective frame proposed in this research considers all three themes.

4.2.1. Values Embedded within the Life Course Perspective Frame

There are several values inherent within the proposed alternative frames that could appeal to the public. One value central to the life-course perspective is *fair equality of opportunity*, an expansion on the notion of equal opportunity, a cherished value within American culture. Borrowing from Rawls' *justice as fairness* principle, Daniels (2008) describes the transitive relation between health and fair equality of opportunity: "Since meeting health needs promotes health (or normal functioning), and since health helps to protect opportunity, then meeting health needs protects opportunity" [20].This account has important implications for the life-course perspective as an alternative frame. Biological impairments that occur *in utero* or infancy resulting from unmet health and social needs of the mother (such as improper pre-natal care and inability to breastfeed), may determine normal physical functioning of the child throughout the life-course, including increased risk of childhood obesity or obesity later in life. Emphasizing equality of opportunity as a value could increase public support of policies and interventions in early life to improve health prospects, including improved pre-natal care and increased breastfeeding. Likewise, since decisions related to nutrition, diet and exercise are made "within the constraints of a social, historical and economic context, family backgrounds and stage in life course" [16], a value of fair equality of opportunity could also increase public support of policies and interventions in early childhood that increase access to healthy food options and safe, accessible physical exercise space.

The value of making the future better for our children involves *investment* and *prevention, which* relates to the life-course principle that "timing and sequencing of life events can be conceptualized as a trajectory" [16]. Childhood obesity can significantly increase the risk of obesity in adolescence, which in turn significantly increases the risk of obesity in adulthood. Conveying the message that

investment in the living conditions of children is a wise strategy for preventing health disparities across the entire life course [8, 9] could also be an effective strategy in influencing public support of policies.

4.3. ALTERNATIVE FRAME NO. 2: MANIPULATION FRAME

Reframing obesity to be understood as a consequence of manipulation challenges the belief that individual choice leads to obesity. In direct opposition to the traditional, rational choice model, which considers individual preferences as pre-determined and immutable [21], this frame details the level and type of manipulation exercised by the food industry to subvert individual volition. The frame consists of three manipulation types– physiological, cognitive, and environmental.

Physiological manipulation seeks to foster physical-dependency on food and non-alcoholic drink. This type of manipulation can be seen with food and beverage products that exploit the dopamine and opiate systems [22]. Interdisciplinary research suggest there are parallels between how the human brain responds to classic drugs of abuse (e.g. morphine, alcohol, nicotine) and to sugar [23]. This work has raised the question of whether food is purposefully manufactured to elicit an addictive response. For example, the food industry adds caffeine to potato chips, candy, and sunflower seeds, and nicotine to fruit juices and bottled water. Although the industry claims that these substances are added to enhance flavor, independent studies have shown no detectable impact on flavor [23-25]. Gearhardt (2012) argues that by increasing the fat, sugar, salt, and caffeine content, food companies can amplify the reward value of products and thus increase food sales [26-28].
The quantity of salt and sugar added to products is titrated to different sociocultural tastes. For example, a recent report found that otherwise identically marketed yogurt products contained twice the sugars when sold in lower-income French overseas territories than when sold in metropolitan France [29].

Cognitive manipulation, achieved through aggressive advertising and marketing of processed snacks and sugary beverages, establishes lifelong habits and dietary preferences [4]. By increasing the saliency of product brands in the mind, marketing leads to increased preference for and consumption of those brands, which in turn changes people's eating behavior [4]. Food is advertised in more than half of all ads targeting children, and children see an average of one food ad for every five minutes of Saturday morning TV they watch [30], which influences children to prefer and request high-calorie and low-nutrient foods and beverages [31]. More subtle manipulation occurs by way of food marketing promotion such as in-school advertising, product placement, and licensing deals[4]. Food product development itself is an important component of marketing, and processed foods such as chicken nuggets and many snacks are engineered to minimize chewing, which allows for quicker and greater consumption [4].

Related forms of marketing engage in environmental manipulation to change social norms, expectations, and relative incentives. Its primary purpose is to influence what you eat and how much you eat by inundating the social and physical environment with cues that increase the desire for and consumption of large portions of unhealthy food and beverage [32]. Lack of grocery stores (food deserts), low availability of fresh fruits and vegetables, perverse incentives to eat more to save more (i.e. money), and a disproportionate share of fast food chains and small grocery stores that sell processed snacks and sugary beverages in low-income and racial/ethnic neighborhoods represent environmental manipulation[33].

4.3.1. Values Embedded within the Manipulation Frame

A manipulation frame prioritizes values such as *respect for volitional autonomy*. Going beyond autonomy's traditional definition as the ability of rational individuals to make informed decisions, volitional autonomy emphasizes the ability of the individual to make conscious decisions about the type and amount of food they eat. In this sense, volition serves as a "mediating executive mental

process that bridges the gaps between a person's deliberation, decision and voluntary bodily action", a process known as executive control [34]. To exert executive control, a person must be able to begin and carry out her/his intentions, make changes as appropriate (particularly when the environment changes), and suppress distracting processes [34]. However, in an environment where food marketing is not only aggressive but driven by profits, it is difficult for individuals to freely choose the type and amount of food to consume [4].

The manipulation frame also prioritizes the values of *honesty* and *non-maleficence*, particularly as they relate to the value of *respect for human dignity*. The food industry manipulates the trust of the consumer by providing financial donations to schools and youth sports clubs to promote physical activity, and makes public promises to self-regulate to demonstrate corporate social responsibility, while simultaneously lobbying against policies that aim to improve children's health. Manipulation also occurs through the excessive advertisement of safer or healthier products (health washing) [23]. These and other efforts aim to distract the public's attention away from the food industry's promotion of soft drinks, snacks, and fast food as daily fare [35].

Similar to the tobacco industry [36], these acts of manipulation, be it manipulation in the way food is processed and engineered, marketed and advertised, made available or not, has effectively transformed the purpose of the food industry from one of providing a product, to one that ensures that individuals lose their ability to control consumption of that product. Contextualizing obesity through these values could influence public support of policies requiring the food industry to establish 'no harm' practices such as removing addictive ingredients from food, restricting the amount of food advertising (particularly among children), and marketing the benefits of foods in accordance with their actual health profile.

Another value related to the manipulation frame is closely tied to a social justice perspective – *social responsibility*. Adler and Stewart (2009) maintain that if holding people accountable for things

that they have little to no control over seems unjust, then a just concept would be one where people are held accountable only for those things over which they do have control. Applying this just concept to obesity and behaviors associated with healthy eating and living then would result in holding people responsible for participating in healthy behaviors "only when they have full access to the conditions that enable those behaviors"[37]. In turn, therefore, the bulk of the responsibility to provide full access to the conditions that enable healthy eating and living to the entirety of the population, is placed on society. This value not only shifts the conversation and policy efforts away from blaming the individual and individualized approaches, but towards understanding that it is society's responsibility to provide opportunities to all people so that people are able to make the healthier choices (a frame of justice) [37]. It is critical to note that the value of social responsibility does not necessarily stand in opposition to personal responsibility (i.e. individual responsibility is null and void) but rather, social responsibility enables individuals to exercise freedom of choice.

4.4. Policies Relevant to the Life Course Perspective and Manipulation Frames

This section explores potential, corresponding public policies in which to measure the effectiveness of the proposed alternative frames and value statements. The three main selection criteria for these public policies are 1) the strength of relativity between the policies and the proposed, alternative frames; 2) whether significant research supporting the policies exists; and 3) the likelihood of being adopted and enacted. The following is a discussion about policies that fall under the proposed, alternative frames of obesity and the criteria used to determine whether the policy was used in the experimental survey component of this research.

4.4.1. Life-Course Perspective Policies

The proposed policies categorized under the life-course perspective frame are also sub-categorized by a particular life cycle in human development: infancy, early childhood

childhood/adolescence, and adulthood. These recommended policies aim to increase healthy living opportunities throughout the lifecycle by establishing healthy eating and exercise habits.

The first policy – *increase support for breastfeeding in the workplace* – targets opportunities in infancy, such as breastfeeding, that can serve as protective factors against obesity. Research has shown that breastfeeding provides a significant degree of protection against childhood obesity [38]. Although there is strong evidence on the advantages of breastfeeding, many women are forced to bottle-feed their infant due to work settings that do not provide the time or space to breastfeed or pump breast milk [38]. In the U.S., mothers overall have less support for continuing to breastfeed after returning to work. In 2009, only fifteen states required that employers support breastfeeding employees when they return to work [39]. Policies that require governmental facilities to accommodate breastfeeding or that provide incentives to accommodate breastfeeding in the workplace can be offered to private businesses by state and local governments.

The second policy – *implement statewide nutrition standards within licensed childcare and pre-school settings* – addresses concerns about the quality of the nutritional environment of child care centers. Given the reality that many children spend several hours per day in child care and thus receive the majority of their meals there [40], the CDC recommends that a comprehensive, coordinated effort to improve the quality of the child care environment could have a significant impact on preventing early childhood obesity [2]. A 2009 assessment of nutrition environments of licensed child care settings in California found gaps across all settings and recommended that state and local policies be enacted to improve the nutrition environment such as policies that would create or raise standards for the nutritional quality of meals and snacks [41]. Some states such as New York and Wisconsin have implemented policies and regulations to provide healthy nutrition standards. In early 2013, Connecticut legislators proposed healthy beverage standards (S.B. 651) for child day care centers to provide beverage options including water accessibility and limitations on juices and milk [42].

The third policy - *increase government funding for schools to provide physical education and activity programs* – addresses children's need to exercise and provides the opportunity for children to establish lifelong physical exercise habits. Provision of quality physical education (PE) is recognized as the most widely available tool for promoting physical activity among children and adolescents [(43)]. School-based PE has been found to effectively increase the duration of physical activity and physical fitness, as well as reduce blood cholesterol and time spent watching television [(44)]. In California, schools are required to provide 200 minutes of PE instruction by a qualified teacher every 10 school days for students in grades 1 through 6 and 400 min of PE instruction by a qualified teacher every 10 days for students in grades 7 through 10[(45)]. However, a 2012 study found that only six states in the nation mandate the appropriate guidelines for elementary school physical education, only two states mandate the appropriate amount of physical education instruction for middle school, and none require adequate physical education at the high school level [(3)].

The fourth policy – *provide incentives to non-profit and corporate organizations that adopt physical activity practice* – is based within the meta-volition model, which provides a theoretical basis on which to transform the physical environment so that the status quo changes from sedentarism to physical active living [(46)]. Physical activity promotion interventions could have a considerable impact on population health given the inordinately low levels of physical activity observed through self-reporting [(47)]. Structurally integrating brief bouts of physical activity into organizational routine is not intended to change individual attitudes towards physical activity but rather, make physical activity a regular habit that becomes second nature [(46)]. In early 2013, legislation was introduced (Harkin, D-IA) to expand public health interventions including incentives such as the provision of tax credits to businesses that offer comprehensive workplace wellness programs to their employees [(48)].

4.4.2. Manipulation Policies

The proposed policies categorized under the manipulation frame are sub-categorized under three different types of manipulation: physiological, cognitive, and environmental. The policy identified to address physiological manipulation – *require food manufacturers to disclose the amount of additives in food products, such as sugar and caffeine, on food packaging* – specifically addresses recent findings related to research that suggests that food companies add caffeine to food products such as potato chips, candy, and sunflower seeds, while nicotine has been added to fruit juices, bottled water, and lollipops [23, 25]. Food manufacturers are also free to add as much caffeine to certain products such as "energy drinks"(a product typically advertised to adolescents) without warning and there are no requirements or limits on how much sugar can be added to products [49]. Indeed, food labeling has been a topic of public debate and conflict for over a century in the United States. Federal laws with labeling implications were first promulgated in 1906 with the passage of the Pure Food Act after decades of consumer activism and the exposure of unsafe food processing conditions [50]. While the Food and Drug Administration (FDA) has the primary authority over the safety and labeling of food and added ingredients, state and local governments also have the authority to act to protect public health using policy approaches [49]. State and local strategies to enforce disclosure could borrow from advocacy efforts regarding menu calorie-labeling. For example, since 2003, many states had legislative proposals related to nutrition information or menu labeling for nutrition or calorie information in regards to saturated fat, carbohydrates and sodium [51]. Policies could extend disclosure to include the amount of sugar and caffeine as well as require warnings to be placed on billboards and signs posted at the point of purchase [49].

The policies targeted to address cognitive manipulation are based on significant evidence that shows that marketing works by increasing the availability of product brands in the mind, which leads to increased preference for those brands and consumption of those brands, which in turn

changes people's eating behavior [4]. The first policy – *prohibit all high fat, high-sugar food advertising on television programming watched primarily by children* – can be introduced and enacted at various levels, including the federal, state, and local level. Extensive research has shown that both food and beverage advertising significantly contributes to childhood obesity [52] and affects children's requests and preferences for advertised products and likely contributes to less-healthful diets. Yet restricting advertising of certain food products is sure to be met with constitutional challenges [49]. Public health advocates, the food and media industries, and U.S. policymakers could reduce the number of TV ads for nutritionally poor foods and beverages viewed by children through various policy actions [53] Research suggests that the Federal Trade Commission (FTC) could regulate food advertising during child-directed programming under its jurisdiction over unfair and deceptive acts [54, 55]. In addition, the U.S. Congress could legislate such restrictions without infringing on companies' right to communicate with adults [53].

The second policy – *restrict unhealthy food and beverage advertising on public school buses* – also aims to decrease the amount of unhealthy food advertising to children. Budget deficits and the need to generate revenue have led to a number of states (including Arizona, Colorado, Massachusetts, Nevada, New Jersey, New Mexico, Tennessee, Texas, and Utah) allowing school districts to sell advertising space on the exterior sides of school buses [56]. Similarly to television advertising, policies aimed to restrict advertising on school buses must also address First Amendment concerns. However, many legal advocates believe that strongly developed policies banning the advertisement of certain types of products on the sides of school buses could overcome a First Amendment challenge based on schools' designation as a "nonpublic forum" in which governments have more latitude to restrict certain types of speech [57]. For example, states and local governing bodies could justify advertising restrictions based on its desire to promote good health habits among students and raise revenue without undermining the educational mission of its schools [57]. In 2005 for example,

the Mercedes Independent School District in Mercedes, Texas, adopted a policy that states that schools will promote healthy food choices and not allow advertising that promotes less nutritious food choices [58].

Policies that fall under environmental manipulation intend to reshape the physical environment so that individuals can truly make a free choice in the type of food to consume. The policies identified within this frame are based on significant evidence that shows that environments have a powerful influence on eating behaviors [59]. The first policy – *remove soft drink vending machines from public schools* – aims to re-establish the school environment as a positive influence on students' food choices. Consumption of sugar-sweetened beverages such as carbonated soft drinks and energy drinks has been associated with significantly increased energy intake and body weight [60]. Research has also shown that the availability of less healthy foods in schools is inversely associated with fruit and vegetable consumption and is positively associated with fat intake among students [61]. Schools can restrict the availability of less healthy foods by setting standards for the types of foods sold, restricting access to vending machines, banning snack foods and food as rewards in classrooms, or prohibiting food sales at certain times of the school day [38].

The second policy – *establish a statewide sales tax on sugary beverages with tax dollars only going towards educational campaigns about healthy eating and exercise* – examines the use of taxation as a method to to alter the food environment by increasing the cost and decreasing consumption of sugary beverages and use the generated revenue to increase consumption of more healthy foods. Public health advocates have long focused on sugary beverages as the subject of state or local tax interventions because the health risks associated with sugary drink consumption are better established in the research than the risks from any other food [62, 63]. Several taxation strategies have emerged in the health and economic literature to raise revenue, deter consumption, and address food prices and obesity directly [64]. In April of 2013, two Senate committees in California approved

SB 622 (Monning, D-Carmel) that would add a penny to every ounce of sugar-sweetened beverage sold in California. The goals of SB 622 are to discourage consumption of sugary drinks and generate income to fund programs aimed at reducing childhood obesity [65].

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CHAPTER 5:
HOW WE THINK & TALK ABOUT OBESITY MATTERS: EXPERT VIEWS

This chapter presents findings from the first empirical component of the dissertation – qualitative content analysis of semi-structured expert interviews. The primary objective of this research was to examine how experts discuss and explain obesity prevention, creating a core story based in shared scientific discourse about the primary role of environmental causes and solutions. Another objective was to identify the dominant frames and values that experts use in communicating the expert core story to the public. Intertwined with this core story that guides their research activity and policy expertise is experts' ambivalence about explicitly using values in public discourse. The end product is 100 percent consensus in expert's core story that personal responsibility only partially explains the obesity problem, but wariness and difficulty in knowing how to move the public away from this common cultural explanation.

5.1. INTRODUCTION

One-on-one, semi-structured interviews with U.S.-based experts within the field of obesity were conducted to approximate a natural conversation about obesity while also prompting discursive reasoning about obesity within the context of frames and values. This data gathering, and the analysis of transcripts from these conversations, yielded valuable insights not available from standard interview, polling, or focus group techniques. Rather than just examining familiarity with the issue of obesity, these interviews were conducted to examine long-standing, default reasoning patterns about obesity, to better understand how experts communicate about obesity prevention, and to determine the basic content of the messages experts want to advance with the public and policymakers.

Using the data from these interviews, the objective was to draft the core story that lays out the central problems associated with obesity prevention and the evidence- or science-base that

supports this core story. Another objective was to identify the set of values used by experts, both implicitly and explicitly, in their discussions about the core story and in regards to the policy and program solutions that will help resolve the issue. As a fundamental component of frames, values are not only effective in influencing the public's opinion on important social concerns but in influencing support of public policies aimed at addressing those social concerns.

The expert interviews also provided opportunities to explore how proposed alternative frames in which to understand and address obesity, namely the life-course perspective and the manipulation frame, might be used by experts in their discussions about obesity prevention.

5.2. METHODOLOGY

A total of twenty-nine (29) obesity experts in the United States were identified and invited to participate in the study. Subjects were identified through two separate, nonprobability processes including *purposive sampling* and *snowball sampling*. The first method, purposive sampling, is a technique that relies on the investigator's personal judgement to select subjects that are representative or typical of the population based on characteristics or variations in that population [(1)]. Candidates were selected based on their professional expertise in obesity. Approximately 79 percent of the potential study subjects were identified through purposive sampling. The second method, snowball sampling, is a technique that uses a process of chain referral that first begins with identifying key stakeholders and then uses recommendations from these stakeholders to find other subjects with the specific background predetermined by the investigator to be useful [(1)]. Approximately 21 percent of the potential study subjects were identified through snowball sampling.

Potential subjects were invited, via email correspondence, to participate in the study (please see *Appendix 5.1: Introductory Letter to Expert Interviewees* and *Appendix 5.2: Study Information Sheet* for more information). Approximately two weeks after initial contact, potential subjects were sent a follow-up email and/or telephone call to confirm participation. At the end of the recruitment

period, fifteen (15) subjects agreed to participate in the study. Each of the study subjects held expertise in a variety of areas related to obesity prevention including diet and nutrition, physical exercise and education, policy, and advocacy. Nine (9) subjects held faculty appointments at major research universities, three (3) of whom were pediatricians; five (5) subjects were associated with policy institutions; and one (1) subject was associated with a legal advocacy institute. Thirty-three percent of the subjects were male and 80 percent were non-Latino White.

Study subjects consented to participate in a 60 minute, audio-recorded, semi-structured interview. Each of the interviews was recorded and transcribed for later analysis. All participants were assured that their comments would be anonymous and that no identifying information would be included in the final report. The study received approval from the UCLA Institutional Review Board in July of 2012. Interviews were conducted in August and September of 2012.

Subjects were asked questions that encouraged reasoning about obesity from different perspectives, including some that were unexpected and deliberately challenging. The questions also elicited patterns of thought about obesity within the context of alternative frames and values. For example, experts were asked to imagine having a conversation with policymakers who believed that the only cause of obesity was lack of personal responsibility. Other questions pertained to early childhood prevention of obesity, food addiction, and food advertising.

A total of twenty (20) questions directed the interview conversation (for more information about the interview questions, please see *Appendix 5.3: Expert Interview Protocol*). Interviews ranged from 49 minutes to 75 minutes. The mean amount of time for the interviews was 63 minutes. Any remaining questions were skipped if the designated time allotment was exceeded. Since the protocol was semi-structured, emerging questions were posed as appropriate according to the interview conversation. Conversely, some of the questions may not have been posed according to the conversation. On average, each of the questions was posed over 88 percent of the time with the

exception of 3 questions (q. 12, q. 13, and q.16), each of which were posed 27 percent of the time. At times, interviewees engaged in the subject matter related to these questions prior to the question being asked, while at other times, the question(s) were skipped either due to the nature of the conversation or because the expert verbally acknowledged that they felt limited in addressing a particular area.

In general, the interview consisted of the following discussion topics:

- *(General obesity)* Participants were asked to discuss their perceptions of obesity.
- *(General obesity interventions and policies)* Participants were asked to discuss their views about current obesity interventions and policies.
- *(Environmental*) Participants were asked questions about environmental factors relating to obesity.
- *(Advertising/Marketing)* Participants were asked questions about the role of advertising/marketing in relation to obesity.
- *(Physiological)* Participants were asked questions about processed foods and food addiction.
- *(Choice)* Participants were asked questions about food and exercise choices.
- *(Life-Course Perspective)* Participants were asked questions about obesity and the life course perspective.
- *(Role-Play Scenario #1)* Participants were asked to respond to a series of questions regarding obesity prevention policy.
- *(Role-Play Scenario #2)* Participants were asked to respond to a series of questions regarding community perspectives on obesity.
- *(Future policies)* Participants were asked to discuss potential new obesity prevention policies.

The interview protocol went through several re-iterations before it was finalized and was pretested in May 2012 with four UCLA health services researchers in obesity prevention to clarify question wording, question sequence, length of time required, and overall comprehension.

Interviews were conducted by telephone via Skype and were digitally-recorded using Pamela for Skype. Each interview was transcribed using Express Scribe. The average length of time for each transcription was approximately five (5) hours. A grounded theory approach was used to extract themes from the interviews. Interview transcripts were first manually coded and entered into QSR Nvivo data analysis (version 10) through identification of nodes and themes. Three phases of coding occurred, the first being manual coding where the interviews were read and notes were taken and nodes were extracted and imputed. NVivo coding was applied to the interview transcripts, with both broad general searches for word usages and imputed nodes. This method generated varied themes and sub-thematic areas that captured the essence of the debate. Interviews were iteratively read until thematic saturation was reached.

5.3. RESULTS

Four overarching themes emerged from contextual analysis of the interviews: 1) the environmental frame is the dominant model used by experts in communications with the public and policymakers; 2) personal responsibility (both as a frame and as a value) obstructs progress in obesity prevention efforts; 3) opportunities exist to 'reframe' discussions around obesity using the life-course perspective and manipulation frame; and 4) social responsibility and equality of opportunity are the values used most frequently by experts. In explaining these themes, selective quotations from the subjects are used to help clarify the discussion and to allow subjects to express views in their own words.

The following discussion expands on these areas by identifying subthemes contained in each broad theme (please see *Table 5.1: Key Points from the Expert Interviews*). It should be noted that

Table 5.1. Critical Themes, Sub-Themes, and Key Points from the Expert Interviews

Theme	Sub Theme(s)	Key Points
Personal Responsibility	*American traditionalism, moral fabric of America; individualism*	Although personal responsibility should be valued, the flip side is that if one fails it is because of one's own fault
		Having personal responsibility as the default frame weakens the probability of implementing population-based policies to address obesity
		People's natural way to think about health is through an individual lens
	Self-determination and willpower	Health behavior can often be influenced by something other than sheer willpower
	Choice	There is an illusion of 'free choice' and autonomy when it comes to making healthy food choices; choices are made within the context of the food environment
Manipulation	*Environmental manipulation*	Imbalance of access - more affordable opportunities to eat junk food and less affordable opportunities to eat healthy food that tastes good; unhealthy food as the default option
		Built environments are not conducive to physical exercise and activity
	Physiological manipulation	Research demonstrating that certain foods can be physically addicting is going to be the 'game-changer'
		One of the implications of food addiction research is that people may not be as in control of their food consumption as they would like to think
	Cognitive manipulation	Omnipresence of advertising and marketing of unhealthy food establishes obesogenic cultural norms
		The four "P's" of food marketing: product, price, place and promotion yield harmful effects on food consumption, particularly among children
Life-Course Perspective	*Foundations of health are built early*	How to communicate the LCP to the public in a way that does not remove agency or that is too deterministic
Values	*Social responsibility*	There doesn't need to be a clash between 'personal' responsibility and 'social' responsibility; how do we as a collective society make it possible for individuals to practice personal responsibility?
	Equality of opportunity	Giving people the same opportunity to eat well and exercise also affects their ability to practice personal responsibility

although these themes are presented as separate they are all interrelated, reflecting the complexity of communicating the core story about obesity prevention.

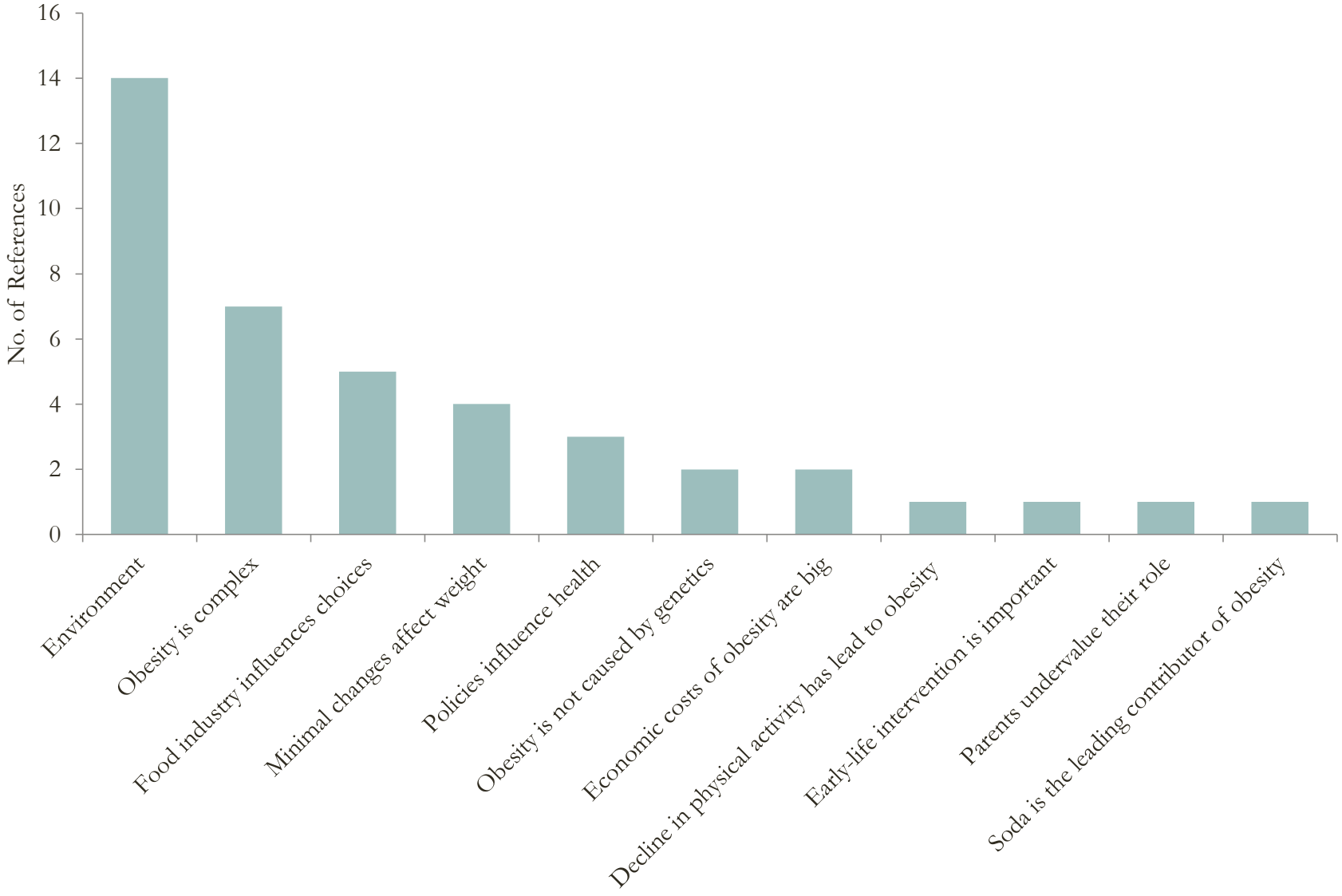
5.3.1. Where Experts Start

Each of the expert interviews began with the question *"What are the top 3 things that are important for the public to know about obesity prevention"*. For some, the question was challenging given the "enormity of the obesity problem" and struggled with identifying "only 3 things." Other experts however, were quick to respond in almost a bullet-point fashion, concisely listing a prioritized list of issues. When asked a follow-up question about how best to communicate these issues to the public and policymakers, reactions varied from assuredness, to tentativeness ("Now in terms of how I would convey that, I don't know, that's what's really challenging"), to reservation ("Gosh! I'm not your best person to do that!").

In response to the question posed above, experts revealed the following as the top three issues the public should know about obesity prevention: 1) *the environment has a bigger influence on obesity than the public realizes*; 2) *obesity is a complex problem tied to other societal problems*; and 3) *the food industry significantly influences our food choices* (Figure 5.2). It became clear during their interviews and throughout the data analysis that while these three themes are important, their useful transfer into the public domain might be limited due to their density and lack of detail, which stands in stark contrast to the dominant frame used to discuss obesity, personal responsibility.

At best, the question of how to communicate the prioritized list of concerns to the public was answered succinctly and assuredly. At worst, it was met with a general sense of hesitancy or trepidation. At times, ideas about communication to the public were just as broadly packaged as the issue itself. In other words, some experts tended to have broad thoughts about what they would like the public to know (e.g. "the environment determines our choices"), but because the themes were so broad and vague in detail, it became nearly impossible to devise a clear communication message that could be delivered with the same level of effectiveness that a message communicating personal responsibility, for example, might convey.

Figure 5.1. Top 3 Things Public Should Know about Obesity Prevention



The challenge therefore was to unpack the content contained within the black box known as the "environment" or the "environmental frame." One goal was to draw out experts' numerous opinions about obesity prevention and then synthesize these as a set of coherent themes and values. While drawing out experts' own ideas, another goal was to see how expert thought corresponded to other potential frames, such as the life-course perspective or the manipulation frames. The remainder of this discussion presents the results from this process. Using the experts' responses to this question serves as somewhat of a jumping point in which to explore and unpack the wide-ranging environmental frame that is heavily relied upon to communicate the core story of obesity prevention.

5.3.2. Personal Responsibility

Examining how experts discuss personal responsibility is helpful in that it clarifies thought patterns about the dueling nature between the environmental frame used among experts and the personal responsibility frame used in popular discourse. Moreover, detailing experts' opinions on personal responsibility in a number of contexts may help to deconstruct broad statements such as "obesity prevention is much less about personal responsibility than it is about the environments in which we live."

The topic of personal responsibility was explicitly discussed by all experts in response to the question *"Why do you think the value of personal responsibility resonates with the American public?"* At times, some of the experts preceded criticisms about personal responsibility as the dominant frame used to discuss obesity prevention with descriptors that praised personal responsibility as a value. For example, personal responsibility was described as a "wonderful characteristic" and "a defining narrative of America's great identity." One expert in particular contextualized personal responsibility within American history and expansion:

> There is a theme running through America since the Monroe Doctrine, I guess of sort of getting out there, taking up a square plot of land and turning it into something more than dirt and dust. And I think individual vigor and vitality does flow through the veins and the perception that we're all responsible for our destiny and can make something of it like our ancestors did. I think that's a deeply rooted value in American history.

Perceptions of the use of personal responsibility as the default frame in obesity prevention are similar among the experts. But if many of the experts acknowledged the role of personal responsiblilty in obesity prevention, several also shared the concern that focusing exclusively on personal responsibility as both the root of and solution to the problem of obesity diminishes other critical, structural-level influences such as the access and availability of affordable and healthy food options and the ubiquitous amount of advertising and marketing of unhealthy food. One expert threaded the needle this way:

> Well I think you can try to play on personal responsibility and acknowledge it. Say 'yes of course personal responsibility is important but there are other things that also influence food choices and people's ability to exercise personal responsibility, which could be addressed to make it easier to do what they want'.

Among the experts, the primary discussion of personal responsibility as the dominant frame of obesity revolved around three central sub-themes. The first was that the personal responsibility frame apotheosizes individualism and autonomy. The second related to the concept of 'rational choice', which some experts either believed does not exist or if it does, is dictated by the food industry and should be recognized as an 'illusion of choice'. The third related to the values that the personal responsibility frame routinely invoke, including self-determination, realization, and restraint, which some experts argue only serve to hamper efforts to implement population-based prevention policies and programs. These three sub-themes of personal responsibility can be understood as individualism and autonomy, freedom of choice, and willpower.

5.3.2.1. Individualism and Autonomy

Throughout their discussions, experts would often use the terms individualism and autonomy to underscore their thoughts on personal responsibility, particularly in relation to personal responsibility as a value. In this regard, many experts recognized individualism, autonomy, and personal responsibility, as comprising a sort of American 'trifecta' of values and moral sentiment:

> I think that it [personal responsibility] stems from the traditional American value of individualism. I think that the source of that comes from something that is inherent in our society. I think that's an important undercurrent that cannot be underestimated, this notion of being autonomous, of pulling yourself from your bootstraps and taking responsibility for your own health and for your own well-being and your own social-status. And that's held to be a true American 'ideal'.

Several experts note that this 'trifecta' of values is often referenced by opposition to policies that aim to address structural-level factors of obesity, such as trans-fat bans and menu calorie-labeling. Often used in defense of consumer sovereignty, these values also establish defining cultural norms and expectations of what it means to be an American:

> We're up against a cultural sentiment…almost a maxim about what it means to be American. It runs deep—this notion of individual responsibility, autonomy and personal choice, and the self-made man and the rational decision-maker. It's so ingrained.

Although there is broad consensus among the experts that autonomy should be preserved in the fight against obesity, there is a danger in promulgating this frame above others since, as one expert deftly notes, "the flip side is that if one fails it is because of one's own fault":

> So you're provided with all the opportunities and if you don't succeed, there has to be individual failure that takes place. It's not only obesity; it's actually across everything. If you don't succeed in school, it's your individual failure that causes you to not take full advantage of an individual, capitalistic society.

A few experts raised the concern that the issue of autonomy has been "politically exploited" and that autonomy and personal responsibility has become somewhat of a rallying cry for those who want small or limited government. Similarly, some experts recognized the present political climate and a heightened, broad distrust of government as having severe implications on population-based obesity prevention policies:

> I think one of the biggest barriers to obesity prevention now is basically people's distrust of government. People in the US have a very sort of freedom and 'individual right' sort of a mentality and they don't always think of the common good. And so when you think about a broader governmental or policy solution to a problem, in some segment of the population there's a sort of a knee-jerk, backlash against it that says 'keep the government out of my life and people ought to be entitled to do what they want to do.'

These discussions underscore the relegation of aggregate social benefits in the name of individualism and individual welfare. Oppositional forces – ranging from lobbyists representing the food and hospitality industries to the American tradition of individualism – have impeded the implementation of obesity-related legislation. For example, state and federal efforts to regulate the nutritional content of the food supply have at times been quite contentious because they are perceived as interfering with the market economy and infringing upon the autonomy of individuals by narrowing the range of available options [(2)].

5.3.2.2. Freedom of Choice

Some of the experts ardently spoke to the dynamic between choice and individualism and between choice and autonomy. In these discussions, experts reflected on the power that individualism, as an American ideal, had on the public's perception of the effects of governmental policies to address obesity on personal freedoms and choice, particularly regulations against food advertising and food marketing. One expert posited that because American society is "rooted in

individualism" there is a perception among the public that "companies are able to do anything they want because individuals have choice". Another expert explained:

> We have this kind of fixation on the rational man who makes educated decisions based on concrete information provided by companies that are marketing their wares. It's just a fallacy. And in fact, we are extremely vulnerable as well to all of the various techniques that companies use to persuade us to choose them.

Experts also shared concerns about the level of public sympathy given to the food companies in regards to governmental regulation. One expert posited that the food industry's ability to garner public support was due to its messaging strategies that essentially equate governmental restrictions on companies to governmental restrictions on personal freedoms:

> I don't know how industry has convinced people to think of regulations of McDonalds as the same as regulations of their own personal freedom. But I think that people, for whatever reason, identify with the companies. I think maybe somehow it's pushing a button…it's calling into question people's ability to make rational choices for themselves because it's circumscribing what corporations can offer them and how corporations can offer it. And if people really were rational, self-determined decision-makers, they wouldn't need government to do that. People aren't comfortable with that.

Although the metaphor of the 'slippery slope' was not explicitly used by any of the experts, comments such as the ones above suggest that the general public is suspicious of legislation against industry because it somehow foreshadows the enactment of future legislation that restricts citizens own private behavior. Or, legislation that aims to restrict food industry behavior might be construed by the public as undermining or questioning consumer rationality and capability to maximize personal welfare. In terms of who or what might perpetuate this misperception among the public, experts often identified the food industry and American tradition:

> Partially this notion comes from the food industry who wants you to believe that it's all your choice and it's all up to you. Partly it comes from just our American culture that we're so individualistic, we're just focused, and we think of everything as individuals.

Some experts questioned whether there was true 'freedom of choice' in the food environment:

> I think that—do we really have freedom of choice? To some extent yes and to some extent no. I think generally speaking, people who have more resources have more bandwidth to apply rational choice to their food habits, or to their food purchases. I think at large, Americans are very susceptible to the kind of choice architecture if you will that has been set up by the food and media in advertising industries.

When asked to describe how they might communicate to the general public the idea that true freedom of choice regarding food consumption is an illusion, several experts said it would be "extremely challenging", especially given that "our political, social, and legal cultures presumes that we are rational decision makers who act on concrete information to make conscious decisions in our daily lives." One expert thought that the best strategy would be to describe and familiarize the public with both the implicit and explicit ways in which the food industry influences food consumption behavior. Others suggested that instead of trying to convince the public that "true freedom of choice is limited," the best strategy would be to emphasize the potential gains of obesity policies to consumers' autonomy. This way, public suspicion about governmental coercion and interference in personal behavior could be preempted by reframing policies as a way of "leveling the playing field" for consumers:

> I think the market is organized in a way that is really manipulating people. The market isn't being neutral on this. The market is encouraging people to buy unhealthy products. And soda's the unhealthiest product of them all. I think we need to balance out the market in a way that will at least keep things neutral and if not, then move people toward supporting policies that help them make healthier choices.

In a similar vein, others argued that rather than being viewed as intrusive, policies could instead be framed as a way of reinforcing freedom of choice, especially in the area of parental rights and decision-making about their children's food consumption. In this scenario, the food industry is depicted as the transgressor upon people's autonomy, not the government:

> Policy is not a matter of interfering with personal choice; it's a matter of allowing parents to make their own choices for their own kids, rather than having someone interfere with it.

Finally, in a hypothetical scenario involving a debate between themselves and a member of the public who was adamantly against governmental regulation of food marketing and advertising, one expert suggested challenging their viewpoint by theorizing about the potential consequences of the absence of regulation in other critical areas such as food safety and road conditions:

> I might say 'you are arguing for the government to stay out of this issue because it's only about personal responsibility' and I would respond by saying 'yet you would be very unhappy if the government removed regulations on food safety and you contracted the E.coli virus. You would say where is the government when I need it?' We need to start looking at the obesity epidemic in the same way, this is something that is bigger than us and we need help on changing the forces that are causing it.

In other words, experts believe there is extreme value in reminding the public about the long-standing role of the government in maintaining the public's health, such as fluoridation of water and vaccination campaigns. This could serve as an important part of building and maintaining public trust in obesity prevention efforts, particularly around obesity prevention policies.

5.3.2.3. Willpower

Experts used varied terms when discussing willpower and the use of willpower in obesity prevention, including "the ability to self-regulate and monitor", "exercise self-restraint", "control temptation" and "apply personal strength" in regards to food consumption. As a cognitive resource, willpower has been documented in the literature as being susceptible to depletion and overuse [(3)]. In conversations with experts, the issue of willpower was often discussed within the context of misconception and incomprehension about obesity:

> I think that the biggest misunderstanding that people have is that they determine their own health. When it comes to obesity the way that translates into misunderstanding is that obesity is determined by whether or not somebody has willpower, or perhaps genetic predisposition. And while those factors might be important to a certain degree, they are dwarfed in importance by the environment that either fosters health and activity and good access to nutritious food or an environment that does the opposite.

Some experts were also attuned to the role that willpower plays in the everyday commonsense reasoning of the public in regards to obesity, especially in its use in metaphors such as "eat less/exercise more" or "calories in/energy out". For example, one expert stated that when communicating to the public "we have to get beyond the 'eat less and be more active' mantra, which is too simplistic." Another expert shared a similar viewpoint:

> If you're trying to lose weight and all you're thinking is 'okay I just have to be stronger, I just need to have more willpower, I just need to eat less and exercise more', you're bound to fail, and most people do. Yes some people are successful but they're really the exception rather than the norm.

The use of "metaphorical commonsense reasoning" to understand how to deal with obesity is in actuality, an "elaborate conceptual metaphor"[4]. In this metaphor, the individual makes unhealthy decisions about his/her diet and level of activity. The individual is lacking in self-discipline; they choose to indulge their appetite irresponsibly and be physically inactive. This is not simply a story of calories consumed and expended; it is a story with a moral. The moral is that the individual will have to learn self-denial (*"just say no"* to poor food choices) and self-discipline (*"just do it"* in regards to exercise). Only then, after willpower triumphs over temptation, can obesity be truly resolved. Many experts also discussed this sort of metaphor in the context of media messaging and television programming:

> I think that phenomenon is really confusing to people right now, because they turn on the TV and they watch the Biggest Loser and they ask 'see it's feasible, right?' Yeah if you leave your house for six months and you have a group of people that are

> your social support and you have professionals who are working with you all of the time, you can make that change. But it points to how difficult it is to do that. I think that piece is confusing to people. It reiterates that change is easy.

Several experts argued the ability to invoke values such as willpower and self-control is one one the primary reasons why the personal responsibility frame is such a threat to implementing population-based policies. As one expert surmised, "So if the default frame is essentially about willpower, why would you need a policy of any sort—people should just try harder." Others also reflected on the issue of willpower within the context of American tradition and idealism:

> The people just don't get how influenced they are by what goes on around us. And they think it's all up to me. It's my fault. Policymakers think that. This is not about us doing any regulation or passing legislation. People ought to just stop eating so much, they ought to get more exercise. And I think that's the hardest thing because it sort of feeds into that whole great American ideal of the rugged individual and we have complete control of over what goes on in our lives.

When asked how they would communicate the concept that people may not possess as much willpower as they might think in regards to food consumption and eating behavior, the primary response among experts was that it would be very difficult. Others suggested using evidence from previous research such as "Brian Wansink's work which shows that we just subconsciously eat what's in front of us" and sharing personal experiences:

> I think that what I would do I guess is try to tell stories that people can relate to, that point to their own experiences and maybe cause them to second-guess the idea that they're as in control and that they have the degree of self-determination than they may think that they have.

5.3.3. Manipulation

Experts identified the influence of the food industry on food choices as an important issue to communicate to the public. However, more detailed perspectives about the food industry's influence occurred during conversations about the environmental factors that constrain people's

ability to eat well and regularly exercise, the effects of advertising and marketing on food consumption, and the association between food additives such as caffeine, sugar, and salt on food addiction. Together, these areas constitute an alternative frame – manipulation – that coalesces current expert opinion and knowledge about the role of the food industry. This new frame could be useful in developing obesity prevention efforts and increasing support for policies that target and minimize the factors that situate the population at-risk for obesity.

During the course of the interviews, experts often used the terms "control", "used", "taken advantage of" and "undermined" interchangeably to refer to the manipulation strategies employed by the food industry and to illustrate the misalignment between the public's desire and ability to eat healthy and the "corporate objective to increase profit to their shareholders" by guaranteeing overconsumption of their food products. Some experts argued that the public is "regularly undermined by the food environment" through factors such as "giant portions, by the way food is priced, by the advertising, by the added ingredients." One expert likened the physical and mental energy needed to eat healthily to "swimming upstream" while another expert pointed out the incongruity between the best interests of the food industry and those of the consumer:

> I want the public to think a lot about the role that corporations play and to know what the true purpose of corporations are, which is to make money and to sell as much of their product as they possibly can and so there's an inherent contradiction in a company saying 'we care about your health' when they are marketing and selling processed junk.

Another expert mentioned the need to raise public awareness about the revenue and profit-making goals of the food industry at the expense of the public's health:

> Food sales are competing for mutual fund and private-equity investment dollars with defense, oil, energy stock and all sorts of traditionally higher priced performing sectors of the economy and therefore the expectation is that the various industrial producers, manufacturers, distributors, points of sale, are going to be generating a much higher degree of revenue and profit. They're competing across a broad range

> of economic sectors than ever before. And the only way they could ever possibly generate returns that would compete with Apple is to get people to buy more food they don't need to eat.

The issue of food industry manipulation can best be understood within three distinct realms: *Environmental*, *Cognitive*, and *Physiological*. The following discussion highlights each one.

5.3.3.1. Environmental Manipulation

As discussed at the beginning of this chapter, each of the experts, with the exception of one, identified the environment as one of the top three things important for the public to know about obesity prevention. While generalized statements were initially made, the significance of the environment on obesity was explicated throughout conversations about environmental constraints on people's ability to eat well and get regular exercise.

One specific aspect of the role of the "environment" focused on the difficulty for persons to lose and/or maintain a healthy weight within an "obesogenic environment", which some experts maintain, is deliberately structured to encourage unhealthy eating:

> So it's like going to a doctor, or a dietician and you're having them counsel you on how to eat a healthy diet and then throwing people back into this food environment where it's so incredibly difficult and nearly impossible to have a healthy weight.

Throughout their conversations, experts routinely referred to obesogenic environments as those that lacked access to fresh and tasty healthy foods, lacked grocery stores, and were teeming with an overabundance of convenience stores and fast-food eateries selling cheap, processed snacks and meals and sugary beverages. The comment above illustrates the futility of a person's attempts to lose weight when thrown into the lion's den of obesogenic pitfalls.

Other experts emphasized the constraints that existed not only within the food environment but the physical and built environment as well. For example, a few experts brought up the issue of safety as a real concern within certain communities and for parents in particular. One expert described recognizing that increasing physical activity involved more than instructing parents and children to engage in physical activity:

> [We] were doing this environmental study and were constantly wondering why these moms and families couldn't provide more physical activity, why they didn't let their kids out more often. And one year we had to visit their homes. And that was shocking. Many of the kids lived in high-crime areas, and the reason they were kept inside to watch television was because of safety. And so it's so easy for us middle-class folks to say 'parents you can't do this' or 'you can't do that', but for them, it's a clear choice. I would make the same choice if I was in that situation.

The built environment was also recognized by experts as a barrier to engaging in physical activity. The "walkability of communities" for example, was cited by one expert as being especially critical to the integration of physical activity in people's lives:

> I think there are also environmental constraints that exist because of the way our communities are designed. Every place we want to go to, whether it's the grocery store or the drug store or schools, are too far away to walk to as opposed to an integrated community where you can walk to the things that you want to. And I think labor-saving devices have cut a lot of physical activity out of our life.

The mention of "labor-saving devices" relates to the issue of "convenience" identified by some experts, who primarily discussed it as a steadfast hallmark of American lifestyle both in regards to food consumption and exercise routines. As one expert commented:

> I think mainstream US culture kind of promotes convenience for both physical activity and dietary intake. And it has been for a very long time and in every aspect of our lives. Convenient foods tend to be processed and less healthy. And then likewise, convenience for physical activity, meaning that you don't have to exert very much physical activity.

This "dominant culture of convenience in America" was perceived by some experts to be "one of the biggest barriers to obesity prevention". Another expert argued that the value placed on convenience, in addition to a biological propensity to conserve energy, provides an unfair advantage to the food industry in promoting and selling their products:

> We all have an innate craving for fat and sugar and salt, and so given the choice between anything else and fat and sugar and salt, we just biologically move toward it. And physical activity works the exact opposite way. Which is if something can be done easier rather than with more physical energy, we're going to do that. So both of those factors are going against our biology and so it's a no-brainer for people to make money getting people to eat junk and not exercise. That's like a no-brainer, that's rolling the ball downhill. Getting us to do the other is hard work.

One expert argued that there is an overemphasis on the physical environment on food choice. Instead of having the bulk of attention going towards changing neighborhood or environmental factors, they suggested addressing the affordability issue instead could prove to be more fruitful:

> I think that there are a variety of affordability factors. I think the environment or neighborhood is probably overplayed. I think affordability is a much more powerful probably, affordability in terms of time and cost of food and cost of purchasing equipment, gym membership and all that.

Concerns around affordability of healthy food were also shared in regards to pricing structure and profit-making by the food industry.

In further detailing the role of the "environment", some experts raised the issue of changing the status quo and establishing optimal defaults as possible strategies to combat the deleterious effects of the food environment. One expert noted that "people tend to stick with the default option" and pointed to the success of changing the default options in other critical areas such as organ donation. In these conversations, experts argued that the current defaults within the food environment "are not based on health considerations" but instead established "by food companies"

and restaurants" who ultimately determine beverage sizes and "whether certain foods such as potato chips and French fries are automatically served as side dishes". As one expert clarified, the accumulation of these "default options for food have a really big effect on weight". One expert contextualized the overall impact of unhealthy food defaults within the school environment:

> We're waiting on the USDA regulations on competitive foods and the real change on environmental optimal defaults associated with that would be if the government said vending machines are not allowed in schools and no food with x amount of fat and sugar will be sold on a school campus, get the pizza out and you know, we've already lost the battle on french fries, but that kind of optimal default of really making the foods healthier.

Experts had a number of ideas about how to communicate to policymakers and the public about the issue of environmental manipulation and strategies to address environmental constraints. For example, one expert thought it best to tell policymakers "that the overwhelming majority of Americans want to be healthier and they want to eat better but they just find it really difficult to do." Some experts again, stressed the importance of transforming public opinion of health policy by framing policy objectives as increasing people's volition in food choices and "helping those people who want to eat better to do it more easily", versus restricting personal freedom and limiting choice. Others experts emphasized the need to develop and enforce policies around optimal defaults and changing the status quo in food environments:

> I would ask them to consider that making a healthy choice the easy choice ought to be a rule not a voluntary option. And that everything from government cafeterias to school cafeterias to workplaces to the preferential treatment that various restaurants and businesses have trying to open up in neighborhoods, ought to be structured around trying to make healthier choices easier. And that folks ought to have to pay more in permits, fees, and taxes if they don't, and they ought to pay less and have various advantages if they do.

5.3.3.2. Cognitive Manipulation

Whereas the discussion on environmental manipulation focused on food access, food affordability, and restrictions within the physical and built environment, the discussion of cognitive manipulation focused primarily on the ubiquitous nature and harmful effects of food advertising and marketing. In addition to addressing the issue of advertising and marketing to children, several experts raised other areas of concern such as the effects of marketing and advertising on cognitive thought and habits on adults, the underlying objectives of corporate social responsibility, the food industry's use of the first amendment as a line of defense against advertising restrictions, and the ability of the food industry to self-regulate marketing practices.

In regards to advertising and marketing to children, several experts cited past research findings, for example, discussing the inability of children to make distinctions between what they see in a television commercial as advertising versus education [(5)]. However some experts recommended that advertising to children should be looked at from another angle. For example, one expert suggested that arguing that marketing to children essentially contradicts the ideals of the free market could also strengthen arguments to restrict advertising. More specifically, the expert raised the issue of information asymmetry:

> What I learned in ninth grade economics was that the free market is based on the buyer and the seller having full information about the transaction. And kids are incapable of having full information about it. So I actually think that basic economic understanding should suggest that kids should never be marketed to buy anything. It is just really contrary to basic free-market understanding of what a transaction is.

Several experts also discussed the effects of advertising and marketing on daily decision-making among adults, noting that the "bombardment of advertising" and the barrage of "images and smells of attractive, tasty foods, of opportunities to eat 24/7"makes it difficult for even well-

informed adults, let alone children, to "make healthy food decisions". Another expert shared this point of view in regards to making daily healthy food choices:

> The science shows, and anybody who takes a few minutes to be introspective knows that that's really a sort of impossibility in real life because we're bombarded with information and with data and with the need to make choices constantly and so we have to rely on, I guess the technical term is heuristics, to get through the day!

In addition to television, many experts also discussed the copious amounts of marketing and advertising on the internet, cell phones, and product placement in movies and television shows. Another expert argued that "food advertising does not belong in the public domain such as schools and school buses", which in some cities advertise fast food and other unhealthy food items. This level of advertisement, many experts argued, undermined parental authority and parental relationships with children:

> Food marketing interferes with parental responsibility and parental choice. Parents should be able to choose what they want to feed their child and if the company markets to parents that's one thing but if they're marketing to kids, they are purposefully trying to turn the child against the parent and have children nag them for food that parents don't want them to have.

There was a continuum of perspectives on the issue of corporate social responsibility (CSR). For some, CSR was a point of contention, with many questioning whether philanthropic efforts were genuine or in fact a "clever disguise" for marketing, which is "done at the expense of children's health." The ire of one expert was especially drawn while discussing CSR: "I don't think I've seen any corporate response to the obesity epidemic that is other than a PR ruse." Uncovering the true intentions of CSR was the main concern for some experts:

> I mean it's just marketing disguised as philanthropy. And the point is to cultivate a positive feeling of, if it's a physical activity event, maybe a health halo effect or just generally a corporate social responsibility halo around the company. So sponsorships

> and corporate social responsibility is all marketing. And it doesn't make up for what the product is.

At the opposite end of this continuum, some experts expressed confidence in the food industry's efforts to invest in local communities via corporate sponsorships of events and other charitable donations:

> I've had plenty of opportunity to think about this and I don't think that. I think that if a company in whatever the industry is, if a company wants to make an investment that is likely to produce positive change or enhance the body of knowledge of how to make positive change related to some problem, I personally don't see why they shouldn't be able to make those investments.

In any case, each of the experts who expressed support for CSR among the food companies recognized the "double-edged sword" of promoting corporate responsibility while maintaining practices that harm the community. No matter the philanthropic goal, CSR still "doesn't take away from the primary way they're making profits in the first place."

Across the board, experts agreed on marketing restrictions in regards to food advertising to children, not only food advertising on television, but also food advertising on the internet and on cell phones. Because of children's vulnerability to marketing, one expert notes that advertising to children is "actually being done very specifically" to increase brand loyalty and sales:

> I think that the food and beverage industry needs to be regulated in terms of what they can market and advertise to children. It's a first amendment issue for adults obviously but there are a lot of studies on marketing to kids and you know the beverage industry and the cereal and fast food industries are just going to town with this advertising. And it does have an impact. So I think that we need to change the environment by reducing the amount of advertising in schools and on TV and on the websites and messages that get to cell phones of kids.

This comment raises the question of whether the first amendment can be applied within the context of children's well-being. Other experts focused on the food industry's strategy of using the first amendment to impede governmental regulation:

> Industry sort of invokes the first amendment in absolute defense against any potential restrictions on any type of marketing or promotion. They've been somewhat successful in the courts and they've been pushing the bounds of first amendment protection for corporate activity.

The notion of protection for the food industry by the courts was referenced in other conversations about food marketing and in particular about policies that would be most effective in redressing the food advertising environment:

> If you're asking me what policies are the most effective I would say major restrictions on junk food marketing especially to children. But then we can have the kind of conversation about how politically viable that is and legally as well given the current supreme court and how they've been interpreting the first amendment.

The question about the impact of public-private partnerships in obesity prevention generated a number of comments regarding food industry self-regulation. In general, although most experts were receptive to the prospect of alliances between public health and the food industry, some expressed skepticism at the idea that the food industry is capable of imposing self-regulations on marketing and advertising efforts. In any case, although experts expressed their openness to private-public partnerships some experts also suggested that the primary reason why food companies were willing to collaborate with the public was because they "see the writing on the wall" in regards to governmental regulation on advertising:

> I have nothing against having private industry participate in supporting efforts to make healthier food options, because as they go further down the path they're going to have to anyway. So getting them engaged and having them involved is important.

Others felt that "it remained to be seen whether food companies can self-regulate." Some also stipulated that public health couldn't really afford to sideline food companies since they could "have a very powerful impact in a healthy way for our children if they make science-based changes to their products."

5.3.3.3. Physiological Manipulation

The issue of physiological manipulation completes the triad of the manipulation framework. As a social phenomenon, physiological manipulation calls attention to the lengths to which food companies will go to maximize consumption of their products. The issue of physiological manipulation was implicitly referred to in earlier discussions on important issues to convey to the public, particularly in comments suggesting that the environment "was conspiring to add pounds" or that "people are unintentionally, accidentally gaining weight." Comments such as these were clarified during conversations about two primary issues associated with physiological manipulation - food addiction and food labeling.

The topic of food addiction spurred commentary that varied from excitement about the possibility of demonstrating the physiological effects of certain foods on overconsumption and weight gain, to caution about applying labels such as "food addict" or "food addiction" in a society that has little tolerance for perceived self-inflicted suffering.

At one end of the spectrum, some experts explicitly identified food addiction research as a "game changer" in obesity prevention. Some experts also argued that the biological evidence on food addiction could serve as a communications bridge to the public about obesity prevention. The emphasis is placed on the ability of the message, 'biologically addicted to food', to strongly resonate with the American public. As one expert noted:

> I think the complexity of what drives us to what we eat, or what the drivers are around what we eat are way more complex than we've known and are way more physiological than most people have any idea.

From this perspective, some experts believed that the message could "soften the public's resistance to the kinds of policies that would reshape the environment and make it a healthier place." Other experts noted that food addiction research could be a way to convey knowledge about structural level forces that can unknowingly lead to weight gain, such as the added increase in sugar throughout the food system.

Other experts stated that the concept of food addiction could "help people understand that once again there's much more going on than willpower and that those kinds of factors need to be taken into account if we want to have a population effect here." For some, one of the most important values of food addiction research is that it provides an invaluable opportunity to engage the public in conversation about how certain external forces, such as food products, can obstruct autonomy and self-control.

> What I think is useful in the physiological thing is to try and be able to demonstrate that people may not be as in charge as they think they are of their gluten health. And therefore the industry needs to be curtailed, along the lines of the reality shows, which say you're in charge, you want to lose weight-you can lose weight.

A few experts reflected on food addiction research as having the potential to shift the conversation about obesity causality and prevention similarly to the way in which evidence regarding nicotine addiction shifted the conversation for tobacco control. Experts focused primarily on how food addiction research could influence not only the public discourse, but have strong effects on the types of policies that could be implemented to counter addiction:

> I think if you think in terms of food as being addictive, then it's kind of like nicotine, it's about time we start to regulate it. And the regulation may not come in the same way they regulated tobacco but it may come more in terms of advertisements and commercials and stuff like that. I mean our school-age children were exposed until recently, and still in many other states, they're totally exposed to sodas. They're not only exposed to it, but it's almost promoted as something desirable.

While experts recognized the similarities between tobacco addiction and food addiction, others contemplated the practicality of applying the sorts of strategies that were applied in tobacco control. On the one hand, using nicotine addiction as a parallel example to food addiction could help define certain food products, such as processed foods, as defective products, which was an important step in the fight against big tobacco [6]. In so doing, policies could restrict the types of food products available to the public, or a specific population, such as children. On the other hand, however, strategies for decreasing the consumption of certain food products such as soda, prove to be more challenging since, after all, "a sugared beverage is not the same thing as tobacco":

> I think the really hard thing is we know what the answer is to tobacco – it's don't do it. And in general the kind of popular understanding of what you do in the face of an addiction is you stop, you go to AA and you never drink again. Or you quit smoking and you don't put a cigarette in your mouth. And that's just not a feasible option when it comes to food, I mean we have to eat and we probably have to eat packaged food and fast food and processed food at least some of the time—going back to the whole environmental determinants of health, that's just what our choices are a lot of the time. So that's challenging. I don't know. I don't know.

Finally, some experts expressed concerns about the futility of using the label of addict as was done in tobacco education and prevention:

> If you deem something addictive, like cigarettes are viewed as addictive, I think people still blame people who smoke. They don't deem them blameless. So if it's addictive, is there going to be a change—I think there's still a perception that some people are weak-minded and some people are strong, and some people are not susceptible to certain things even if they're addicted.

The second issue that was raised in regards to physiological manipulation was food-labeling and food-labeling policies. Experts heavily stressed that the conversation about food-labeling should be framed by public health in a way that recognizes the importance of consumer decision-making

and autonomy. In so doing, policies such as menu-labeling and package labeling can be proposed to as a way of increasing public knowledge and strengthening consumer sovereignty:

> People have the right to eat whatever they want—and nobody's trying to change that at all. They're just trying to make it easier for people to eat foods that would make them healthier should they choose to. And some people seek nutrition information and want to make sure it's available to them, but you don't have to pay attention to it if you don't want to.

A few of the experts noted that current food labeling policies are useful only to a certain degree and need to be reconsidered in order to have the kind of impact food labeling can have on the public's health:

> Current food labeling policies need some modification. For instance right now all you get are the total grams of sugar and people can't distinguish whether the sugar is naturally occurring or whether it's added. And I think that the nutrition facts panel needs to separate those out and specifically say how much of the product contains added sugar. So the people can understand that they are eating 140 calories worth of nutrition-less added sugar and it's not doing anything good for your body. But they can't do that now because they don't have that information.

The big challenge, experts warned, was not just to have food companies agree to food labeling, but to require food companies to promote their food products in a way that is consistent with the actual health benefits of the food. As one expert stated:

> The fight right now, the way I understand it on front-of-package labels is that the companies want to be able to include the health positive things about the food along with whatever warnings there might be about ingredients that people should avoid. And so that then turns it into less of an educational tool and more of a marketing tool.

Other experts echoed this concern noting that the "nutritional content of food can be manipulated," particularly in regards to packaging. Terms such as 'reduced sodium' or 'reduced fat' are misinterpreted by the public to mean 'low sodium' or 'low fat'. Other strategies such as replacing

sodium with sugar are considered "manipulation tactics by the food industry to get people to eat more food."

5.3.4. Life-Course Perspective

The issue of childhood obesity is a critical social concern to address given the extensive attention it receives as a public health crisis by the media and governmental health agencies; the considerable quantity of political discourse and legislation targeting childhood obesity; the uncertainty regarding childhood obesity's etiology; and the ongoing debate about who is most responsible for the prevention and treatment of childhood obesity.

The "environment" served as the backdrop of several discussions about children's health. Throughout these discussions, experts repeatedly stressed the importance of the early prevention of childhood obesity and identified the environment as having the biggest influence on children's health. As in the preceding sections, the construct of the environment was analyzed to better understand how it is operationalized within the context of childhood obesity and in the prevention of childhood obesity. Although the subject of children was discussed by the experts throughout various parts of the interview, detailed discussions about the role of the environment on children's health, nutrition, and physical exercise opportunities occurred in response to questions about the impact of childhood experiences on later adult health, how well a job the public health community was doing in applying a life-course perspective (LCP) to obesity prevention, and what specific life-course perspective policies would be most salient for obesity prevention.

In regards to the importance of applying a life-course perspective to understand obesity, some experts were direct in recognizing the consequences of ignoring obesity prevention opportunities in early childhood:

> If we don't catch the obesity problem early in children, we're setting them up for lives being overweight and lives dealing with all of the accompanying chronic disease

> that goes along with overweight. And that we need to start focusing as early as possible in changing the environments in pre-schools even so that we start kids out in the right way, with the right messages, eating the right foods, that kind of thing.

This comment is a good example of a strong message that can be easily communicated to the public about the life-course perspective. There are several reasons why. First, the comment clearly states the consequences of not appropriately dealing with obesity in childhood – being overweight and dealing with the accompanying chronic disease. Second, the comment identifies the specific type of 'environment' that influences children's health – the pre-school environment. Finally, the comment offers solutions to influence children's health within the context of that environment – healthy messages and good nutrition. This pattern of thinking was also shown by another expert in regards to potential life-course policies that could be implemented to address these environmental influences and within the context of values related to obesity prevention, namely equality of opportunity. For others, they felt that in general, public health had not done a good enough job in applying a life-course perspective to address obesity:

> We're not doing a good enough job. And you know it's not to say that there are not a lot of people in public health beginning to pay attention to it, but here's where the government can step in more. The government is beginning to make better regulations for the food that's sold in schools - middle, elementary and high schools. But we're not yet mandating that pre-schools and the people that run the preschools have to follow certain nutritional standards in order to be licensed.

In other discussions about the 'environment', some experts identified the home environment as having a strong influence on a child's lifelong eating habits:

> But the reality is that taste does drive a lot of what we eat. And then taste does get nurtured over childhood and it does affect what we choose as adults too. So frankly I think a lot of our efforts in terms of obesity prevention need to target young children and families because it's really hard to change people's food habits when they're adults. Not impossible but it's much harder.

Other experts cautioned about the 'fatalistic' overtones that the life-course perspective can sometimes carry:

> I don't know what the solution is about the life course except for perhaps really rather than making people feel like 'oh my gosh, the intrauterine environment, that's the end—that happened and now I can't do anything about it', that fatalism—that can happen with that message as well. I think it's almost more like we need to be thinking trans-generational in the more concrete sense. Where you've got grandparents thinking about their grandchildren and their children and nurturing them along the way.

One expert felt that the life-course perspective might be too narrow of an approach to tackle the challenges of obesity. Mainly, this expert felt that only investing in a single critical period or 'life-stage' precluded opportunities of investment throughout the entire lifespan:

> So to my mind it is very much a cycle and there again with that coordinated, comprehensive approach, I couldn't say to you, 'oh we must focus on the babies' or ' we must focus on pregnant women', or 'we must focus on school-age kids', or 'we must focus on adolescents'. Because they all contribute.

In discussing ways in which to communicate the life-course perspective to the public and policymakers, experts felt that the concept may be too difficult to convey for a few reasons. On the one hand, if the life-course perspective is explained within the milieu of the 'life-trajectory', then you risk minimizing the effects of public health intervention throughout other critical points throughout the lifespan. On the other hand, if the life-course perspective is explained as having consequential health impacts on children and grandchildren, then it becomes too difficult for the public to contextualize their own immediate health care concerns. One expert notes this particular dilemma for the life-course perspective:

> I think that's an enormous difficulty. It is a very deterministic point of view if you communicate it simply and people are likely to dismiss that because it removes agency. What's difficult about this or any public health issue is that it's very hard to

> explain the difference between population health and personal health. The effects that you're talking about, whether it's the life-course or the nutritional origins of health and disease, no matter which of those you decide to champion, you have the same problem of population effect – trying to describe that to individuals who don't understand how to interpret a population effect and can really only think about things through an individual lens. So things immediately get translated into "where was my grandmother when she was pregnant" in thinking about the life-course and that's not really the appropriate response. That's the first place even educated people go.

Finally, others expressed concern about both the public's, as well as policymakers' ability to invest in prevention strategies that may not immediately payoff:

> I think people are less moved by the idea that many years down the line something might happen if they do something now. So I'm not sure even if that -- even if we know this whole kind of life course perspective is important and we know it to be true -- I'm not sure that's the one I would choose to try to convey to the public and policy folks.

5.3.5. Values

The discussion of values in relation to obesity prevention was prompted by the following two questions, *"Why do you think the value of personal responsibility resonates with the American public?"* and *"What other values would you tell them need to be protected in the prevention of obesity?"* The objective of these questions was to capture experts' thoughts and opinions on what specific characteristics about personal responsibility were so appealing to the American public. In other words, is it the historical context in which personal responsibility is steeped in this country? Or rather, are people drawn to the value of personal responsibility because it reinforces the concepts of individualism, autonomy, and self-actualization? Experts were then asked to consider other values besides personal responsibility that should be recognized and equally upheld in the prevention of obesity. The exercise was intended to allow experts to consider values within a broader context, particularly in relation to the concept of the environment.

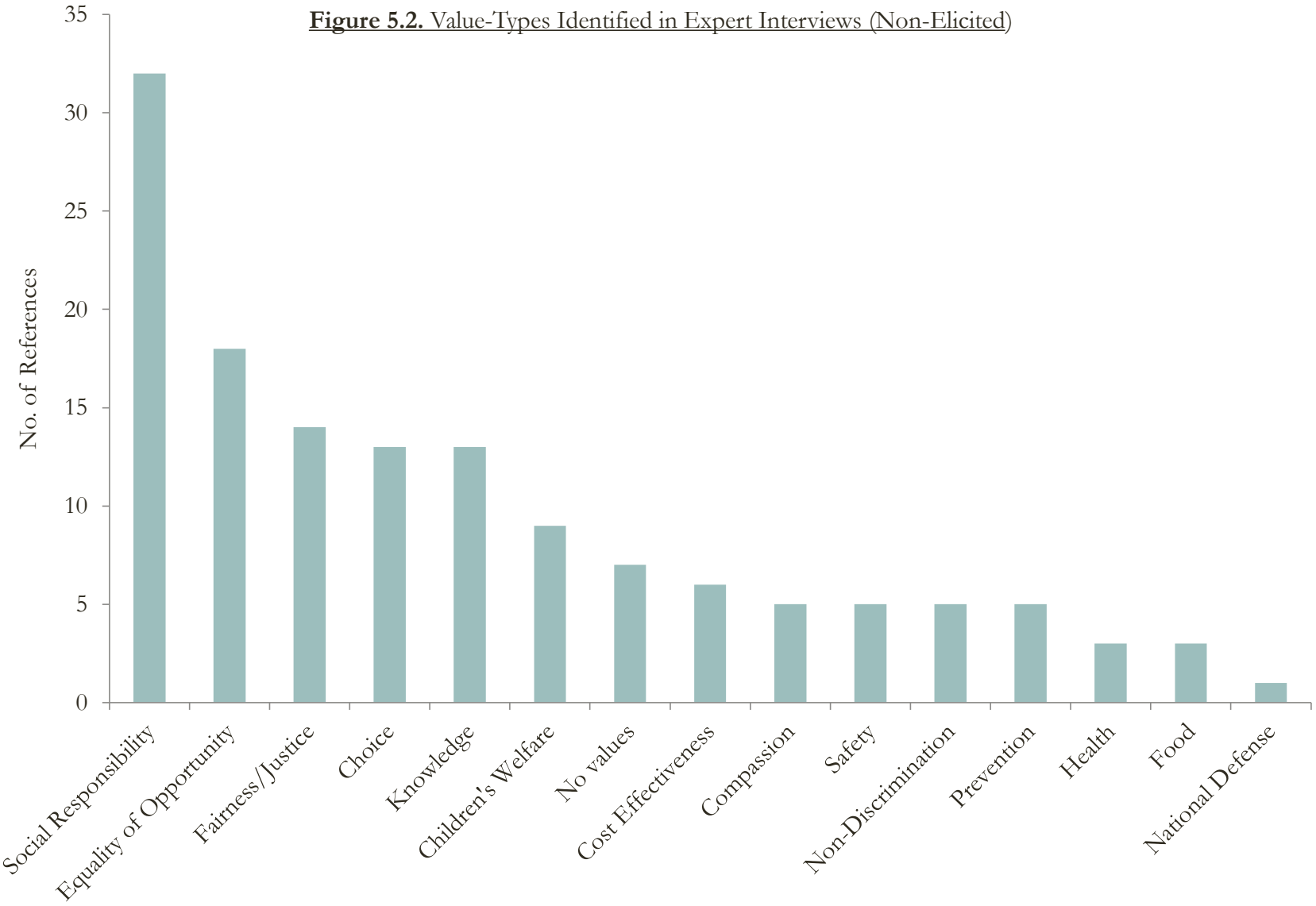
Yet little of the following discussion about values was directly obtained from the responses to this second question. In fact, many experts found it challenging to respond when directly asked to identify the values that exist in the core story of obesity prevention. Two experts had similar, immediate responses, "is there anything else other than personal responsibility?" The good news is that throughout their interviews, experts use values all the time when talking about the core story of obesity prevention. Some experts were more attuned to their use of values in their conversations about obesity prevention, while others not so much.

Two values in particular appeared throughout these discussions (Figure 5.3). The first value, social responsibility, is the antithesis of personal responsibility and at times, just as wide-ranging as the concept of the environment. The second value, equality of opportunity, tended to be discussed within the context of policy solutions. The following discussion details experts' thoughts on these two values.

5.3.5.1. Social Responsibility

Many of the experts discussed social responsibility within the context of addressing intervening mechanisms that link obesity to disease, such as access to healthy food options and opportunities to participate in physical activity, which in turn could help mobilize a broader alliance around other risk factors. For instance, vast evidence links poverty to diabetes, yet more emphasis is placed on the effects of obesity and individual, "lifestyle" decisions about diet and exercise. Applying a social responsibility framework to obesity could simultaneously address the effects of poverty by improving neighborhood conditions, increasing availability of healthy food, and removing harmful environmental exposures.

Figure 5.2. Value-Types Identified in Expert Interviews (Non-Elicited)



Generally, experts stated that the discussion about whom or what is responsible to address obesity has become too polarized, with individuals and personal responsibility at one end of the spectrum and society and social responsibility at the other end. For several experts, this is disheartening since in their opinion, obesity prevention strategies "ought to be framed as both."

> So what I mean by social and collective responsibility is what do you and your neighbors in your neighborhood, what kind of food outlets do you want there? What will you support, where will you shop? So it's not necessarily just governmental agencies. It's really we as communities, we as collections of families, what are we doing? It could mean a neighborhood association that helps to keep up the park so that it's usable by children in the neighborhood. So it's not just that limited definition that you're talking about, it's a much more broad meaning.

Other experts agreed with this notion but felt that it was critical to emphasize that social responsibility should extend beyond communities to the agents that dictate the environmental conditions that make eating healthy and exercising regularly difficult. As one expert noted:

> So I would respond that this is not about government taking over food issues or telling anybody what to eat but that this is a shared responsibility in addressing obesity—so individuals, companies, employers, community organizations and the government can do this. We're not saying that government is the solution; we're just saying that government should do its part, just like everyone else should do their part.

When pushed towards thinking about how to respond to criticisms that the bulk of responsibility lies with the parent, experts responded accordingly:

> The parents who are trying to do well by their kids didn't stock the grocery shelves, they didn't put the beverages with cartoon characters at eye-level in the grocery store, they didn't make the toys that come with the happy meals, and they didn't make the commercials and cartoons that have the characters that appeal to the kids. So I think that there's no question here that parents have responsibility but the parents need help. And one of the ways we can help them is by putting into place some of these policies that make the environment a little bit more family-friendly, a little easier to navigate, a little more likely to foster health.

When considering the role of parents within the context of the community, some experts felt that American individualism and the close-knit 'family unit' can be misconstrued to mean that families are individual islands, each left to survive according to their own devices. For families with limited income, support, or other social resources however, the effects of obesity can be far-reaching:

> If we rely on solely looking at it as individual responsibility and not more community or 'it takes a village' kind of responsibility, more like a social responsibility, or we owe it to our kids to improve the school food environment, and to change policies so that once they again have recess and physical education, not just once a week or several times a week or even daily. I think that's one of the big misconceptions that people have regarding the obesity epidemic and it also could be a cause of inaction because if you think it's solely due to individuals and the individual doesn't care or just can't do anything about it, then why should we do anything to help them. Taking a very narrow view of the determinants of obesity can lead to that.

Finally, some experts suggested that instead of trying to convince people to take sides in the personal vs. social responsibility debate, it was best to acknowledge the value of personal responsibility and improve the environmental conditions so as to allow people to exercise personal responsibility in obesity prevention:

> Rather than changing people's mind about whether its personal responsibility or collective responsibility, because I think that's such an overarching train, it's a clash of values argument, I think sometimes it's worthwhile staying with the personal responsibility argument and then talking about how we can help people take personal responsibility.

5.3.5.2. Equality of Opportunity

Equality of opportunity was identified by experts in a number of ways, including "equity", "equality", "opportunities", "unequal conditions", and "lack of opportunities as injustice." While the bulk of the discussion around equality of opportunity centered on children's health, many of the experts raised concerns about "the environment not providing equal opportunities to be healthy." In this sense, healthy extended beyond whether or not a child was obese, but whether children had

equal access to other opportunities as well. One expert recognized these sorts of inequalities, particularly among low-income children:

> It's not an even playing field for low-income kids especially. And they don't often have opportunities for education, or health, or physical activity or a whole host of things that we know are connected with future success. So it's really not fair and there is an injustice to the kids.

Earlier comments regarding improving environmental conditions so that people could exercise personal responsibility were similarly echoed in discussions about equality of opportunity. For example, some experts drew upon the 'you can lead a horse to water but you cannot make them drink' metaphor to explain that providing opportunities to people to eat well and exercise is only one part of the formula:

> Of course there's individual responsibility and if you give people the incentives and you give them the equal opportunity to be healthy, and they still choose to be unhealthy, then there may be nothing else that you can do. But if you don't have that opportunity, it's hard to say that they're having a lot of choice in it.

The idea that "we have the right to live healthy lives so that we can all be the best that we can be" was heavily promoted among experts. For some, this rights-based argument was deeply connected to the environment and the life-course perspective, particularly in regards to the pre-school environment. Using the "equality frame to set the prevention in motion in the childcare and preschool world", as stated by one expert, "is the missing piece to improving children's health".

Experts also talked about equality of opportunity within the context of social responsibility:

> We do have that collective value and we need to come together around maybe making it more equal, fair and just for a larger sense to be healthy.
>
> Society has a collective responsibility, at least in terms of the food environment, to ensure equity.

> Well there's an equality frame that has been the basis for the government spending $80 billion a year on food stamps and $10 billion a year on child nutrition programs and that's worked pretty well.

Lastly, one expert concluded their discussion about equality by invoking American traditionalism, much in the same way as those who espouse personal responsibility:

> And if equity is a value and it's a great American value, we're all equal, obesity is not—the things that feed into the obesity issue are about inequity and we don't live in an equitable society.

5.4. DISCUSSION

This analysis began by first examining what experts stated when asked what were the most important things for the public to know about obesity prevention. To reiterate, these three things were: 1) *the environment has a bigger influence on obesity than the public realizes*; 2) *obesity is a complex problem tied to other societal problems*; 3) *the food industry significantly influences our food choices*. What is important to know is that experts tend to talk about these issues in a way that advances obesity prevention efforts, and, simultaneously, in a way that impedes obesity prevention efforts. This discussion highlights aspects of experts' communication as well as the themes that are a part of that communication.

5.4.1. The Dynamics of Expert Talk

One of the purposes of this research was to examine how experts talk about the core story of obesity prevention. Examining expert understanding of the core story is important given the gulf that exists between the experts' knowledge about obesity prevention and the public's knowledge about obesity prevention. As an important step in strategic frame analysis, these expert interviews provide the scientific basis of the core story of obesity prevention. While experts do provide this scientific knowledge, when asked, they are hesitant to identify values that are important to population-based obesity prevention efforts, including policies and public health interventions.

However, experts discussed the importance of population-based prevention efforts using values more often than they realized.

Some experts have the tendency to first talk in striking overtures (e.g. "the environment is toxic") about obesity prevention. Some of the experts admittedly recognized the grandiosity of statements such as these and questioned the validity of their use. This issue was raised especially in the hypothetical role-play scenarios where experts were asked to address a community group and explain the most important things about obesity prevention in five minutes. One expert began their hypothetical presentation with just such a statement ("the environment is a powerful force in shaping the way we live our lives"). When a hypothetical member of the community told the expert they didn't understand what that meant the expert then shifted to using very detailed, clear, and concise language about the implications of soda on obesity. Another expert, when put in the same scenario, was less grandiose, but yet succumbed to presenting a laundry list of environmental factors that contributed to obesity. This response overwhelmed the hypothetical community member who asked, "if it's everything, then what can I possibly do to prevent obesity?" The expert later admitted that many of the messages put forth by public health about obesity to the public can be overwhelming, and when one feels overwhelmed, immobilization tends to follow.

In addition to pulling out the scientific "core story" of obesity prevention, the analysis focused on identifying both the explicit and implicit values that the experts used in the interviews. The analysis revealed that experts discuss the core story of obesity prevention using values more often than they realize. At the end of the day, two values appeared most frequently in expert interviews: social responsibility and equality of opportunity. Though it was important to identify the primary values used in expert communication, what was even more important was uncovering the level of caution experts' expressed in talking about values when directly asked about them. Several experts found this extremely challenging. Some became completely stumped by the question. This

was surprising given that, throughout their conversations about obesity prevention (including the environmental constraints, the role of the food industry, and the impact of the personal responsibility frame on obesity prevention, etc.), values were implicitly used quite consistently by most experts.

It is unknown whether some experts perceive values such as equality of opportunity as something other than values. Perhaps experts are so rooted in the lexicon of the core story that distinguishing values from the rest of the narrative is difficult. Perhaps, as one expert noted, "maybe there aren't any other values besides personal responsibility to draw upon."

Whatever the reason behind the stutter, the good news is that most experts do use values in communicating the core story and, even more, they can communicate quite clearly about how to operationalize them. This ability to convey a value such as social responsibility strengthens the value's ability to overcome the doggedness of the personal responsibility value, or at least, challenge it head on.

5.4.2. The Problems of the Environmental Frame

This analysis also found that some experts' use of environmental talk, stunts their ability to communicate to a public that is used to hearing over and over again that obesity is a moral failure, that it stems from the lack of willpower, and that it is the result of laziness and inability to exercise personal responsibility. Indeed, using the term "the environment" to challenge personal responsibility is like fighting fire with bubbles. The term encompasses everything, yet if it encompasses everything then it stands for nothing since all things at all times cannot possibly be cognitively appreciated by the public or effectively addressed by society. What is needed, as the expert interviews showed, were other ways in which to communicate the core story.

Through the interview questions and analysis, it was shown that the core story of obesity prevention can be compartmentalized into 'sub-frames' of the environmental frame. This analysis

specifies two in particular, the life-course perspective and manipulation frame. These two sub-frames provide clear tales about causality, agency, external forces, and remediation. Providing a clear story is important because the environment construct often becomes an abstract tumbleweed, picking up a range of story elements that have no coherency or logic. Overall, identifying and applying these sub-frames is important because they specify otherwise vague ideas about the 'environment' and 'environmental' casual factors of obesity. By breaking down the all-encompassing environmental frame, obesity prevention efforts are better served by the clear identification of causal agents and targeted interventions.

5.4.3. Personal Responsibility

In telling the core story, experts' use of personal responsibility is complex. For a few experts, personal responsibility is the ever-constant thorn in the side that will not go away. For others, personal responsibility is perceived as sort of the unwelcome dinner guest who must nonetheless be welcomed. For most, the personal responsibility frame embodies everything that the environmental frame is not – focused, detailed, and succinct. Yet, surprisingly, it is through their discussions about personal responsibility that experts are most able to be clear about what they mean by the "environment". The main take-home points about personal responsibility are: 1) it is a valuable tool in obesity prevention; 2) it should be used alongside other values such as social responsibility and equality of opportunity in obesity prevention efforts; and 3) values entrenched within personal responsibility should be extracted and used to 'reframe' obesity prevention policies. In regards to this last point, obesity prevention efforts can stand on the shoulders of autonomy and agency by reframing, discussing, and promoting health policies as a way to strengthen choice, increase information symmetry, and ensure consumer rights.

5.5. CONCLUSION

These expert interviews elicit and illuminate the ways in which experts use frames and values in discussing their work and in conversations with both the general public and policymakers. Prior to experimental testing, previous research on the use of values in shifting public opinion strongly recommends the identification of shared values commonly used among public health advocates and researchers working in obesity prevention. This research offers the first close examination of those values that are used by experts. The results found in this study lay the groundwork for the remaining empirical studies in this dissertation, the quantitative content analysis of online news articles and readers' comments and the population-based survey experiment.

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CHAPTER 6:
HOW WE THINK & TALK ABOUT OBESITY: QUANTITATIVE CONTENT ANALYSIS OF ONLINE NEWS STORIES AND READERS' COMMENTS

This chapter presents the results of the second empirical component of the dissertation – quantitative content analyses of online newspaper stories and readers' comments. The overall purpose of the study is to gain knowledge about the current use of frames in recent news coverage of obesity and in associated public discourse about obesity. First, the study investigates the extent to which online news stories use frames or values in their coverage, as well as the types of frames or values used. Second, the study examines online readers' comments in response to news stories to gain understanding about recent views and opinions of the public regarding obesity and to examine whether readers use frames or values in response to news stories that use particular frames or values.

6.1. INTRODUCTION

The American public holds mixed views about how best to address obesity, both among children and adults [1]. This is not surprising given that the mass media significantly influence people's knowledge, perceptions, and behaviors [2, 3]. Some suggest that the media serve as a bridge, between science and the public, framing social reality and public consciousness about health issues into soundbytes easily received and understood by the public [4-7]. Others argue that the media is not only critical to how the public learns about social concerns, but that it also constructs them [8].

Recently, scholars have turned their attention to the media in the social construction of the obesity epidemic [8]. For example, a large body of research shows that news coverage gives more emphasis to individual behavior and personal responsibility as the primary solutions for obesity and curtails the effects of societal and environmental contributors and solutions [8-15]. Given the media's influence on both public perceptions and discourse of important social health issues[16] and policy

agenda-setting [17, 18], this framing has implications for media advocacy, public debate about obesity, and policies to address obesity [4, 19, 20].

Extant research has also primarily focused on one dimension of analysis – the framing of obesity in printed news articles – precluding insights into other avenues of obesity communication [21]. Since a multitude of people express their feelings and opinions regarding specific news stories in readers' comments sections online, the focus on print does not capture the online interaction between readers and news stories [21, 22]. As news sites increasingly provide opportunities for readers to contribute comments to specific news stories, online newspapers may be considered as a type of social media posing new challenges, and provide untapped opportunities, to understand how readers respond to obesity news stories [21].

A 2008 study conducted by the Pew Research Center revealed that sixty-one percent of American adults reported accessing most of their news online, including both national and international news [23]. This finding supports recent claims about the importance of expanding research on media frames to online news outlets. In a recent review of social science writing on the representation of obesity in the media, Boero (2013) recommends that research should address the construction of obesity in social media and online media locations, such as analyzing "how a given article is read and shared" as well as "patterns of comments about obesity" [21]. Atanasova et *al.* (2012) also argues that current research on media and obesity is one-dimensional given its primary focus on the problematization of obesity in news coverage [22]. Instead, the authors propose a "multidimensional approach" that allows for greater understanding of how obesity stories are produced and received by readers and recommend approaches that include "analysis of journalistic news values, emotion-eliciting language, and readers' comments" [22].

In response to these suggestions, a few scholars have begun to transcend print media to investigate the way in which obesity is portrayed. For example, Puhl et *al.* (2013) conducted a video

content analysis to examine portrayals of obese persons in online news reports about obesity. The authors found that the majority of overweight/obese adults and youth were portrayed in a negative, stigmatizing manner across multiple obesity-related topics covered in online news videos [9]. Yoo and Kim (2012) examined YouTube video clips to investigate how topics of obesity were framed and how obese persons were portrayed. Their results showed that responsibility and solutions for obesity were assigned to individuals and individual behavior, much as in traditional print media [24]. Finally, Gearhart (2012) found that obesity-related news stories were thematically framed, or rather, framed within the context of the social environment in television network news coverage, a departure from the episodic-framed news stories found in print [4].

The framing of coverage by online news media may affect readers' views about the causes and prevention (solutions) of obesity. As discussed in previous chapters, the way in which obesity is framed can influence the public's perception of causality (causal attributes) and perceptions of responsibility to address obesity (solution attributes).

This exploratory, quantitative content analysis examines how causal attributes and solution attributes are framed as well as whether values are used in online news stories about obesity. It also examines whether frames and values are used in online readers' comments and if so, what types of frames and values are used. Finally, the study examines whether the use of frames and values in news stories influences the use of frames and values in readers' comments. At the *level of sampling*, online media content and readers' comments are reviewed. At the *level of analysis*, the existence of three frames – personal responsibility, life-course perspective, and manipulation – and three types of value-oriented statements – personal responsibility, equality of opportunity, and social responsibility are explored. Additional story-level and comment-level characteristics are also examined.

6.2. RESEARCH QUESTIONS AND HYPOTHESES

This study explores the use of frames and values in online news stories about obesity and in corresponding online readers' comments. The following eight (8) discrete research questions are examined to investigate this issue:

RQ1: To what extent are causal attributes and solution attributes discussed within the context of the following frames: a) life-course perspective; b) manipulation; and c) personal responsibility?

RQ2: To what extent do online news stories discuss obesity within the context of the following values: a) equality of opportunity; b) social responsibility; and c) personal responsibility?

Because other characteristics of stories may influence the use of certain types of frames, the study also examines the following research question:

RQ3: What particular story characteristics (including news story type, population focus, and primary news story topic) are significantly associated with the use of frames and values in news stories?

The following research questions were also asked in regards to online readers' comments in response to online news stories:

RQ4: To what extent do readers discuss obesity within the context of the following frames: a) life-course perspective; b) manipulation; and c) personal responsibility?

RQ5: To what extent do readers use the following values to discuss obesity: a) equality of opportunity; b) social responsibility; and c) personal responsibility?

` The research also examines whether certain individual-level factors are significantly associated with the use of frames and values in readers' comments:

RQ6: What reader characteristics (gender) or characteristics about the readers' comments (whether personal weight, governmental distrust, business distrust, or hostility towards obese people are mentioned in the comment) are significantly associated with the use of frames and values in readers' comments?

Since a consistent finding throughout previous research is that the media invokes the personal responsibility frame in obesity news coverage more than any other frame of obesity [12, 25-27], the following research question and related hypotheses are posed:

RQ7: Does the use of frames in online news stories influence the use of frames in online readers' comments?

H_1: Online news stories using a frame to discuss causal and solution attributes of obesity will have a higher percentage of readers' comments that also use a frame of obesity, compared to news stories that do not use a frame.

H_2: Online news stories using the personal responsibility frame will have a higher percentage of readers' comments that also use the personal responsibility frame, compared to news stories that use another type of frame.

RQ8: Does the use of values in online news stories influence the use of values in online readers' comments?

H_3: Online news stories using values to discuss obesity will have a higher percentage of readers' comments that also use a value, compared to news stories that do not use values.

H_4: Online news stories using the value of personal responsibility will have a higher percentage of readers' comments that also use the value of personal responsibility, compared to news stories that use another type of value.

6.3. METHODOLOGY

This research uses a quantitative content analysis methodology to examine the research questions and test the stated hypotheses. Quantitative content analysis is defined by Riffe et *al.* (2011) as being "the systematic and replicable examination of symbols of communication, which have been assigned numeric values according to valid measurement rules and the analysis of relationships involving those values using statistical methods, to describe the communication, draw inferences about its meaning, or infer from the communication to its context, both of production and consumption" (pg. 25)[28]. Systematic refers to the identification of critical concepts related to a phenomenon (e.g. the framing of causal attributes and solution attributes of obesity), specification about possible relationships among these concepts (e.g. whether the use of one type of frame predicts the use of another type of frame in obesity media coverage), and the generation of testable hypotheses (e.g. testing whether the use of a personal-responsibility frame will be used in a reader's comment if the news story uses the personal-responsibility frame). Replicability refers to the process of defining and operationalizing concepts (such as personal responsibility); symbols of communication refers to a set of pre-determined words, terms, and phrases that evidence the concepts (e.g. 'willpower' evidences the concept of personal responsibility), and the assignment of numeric values to represent measured differences[28].

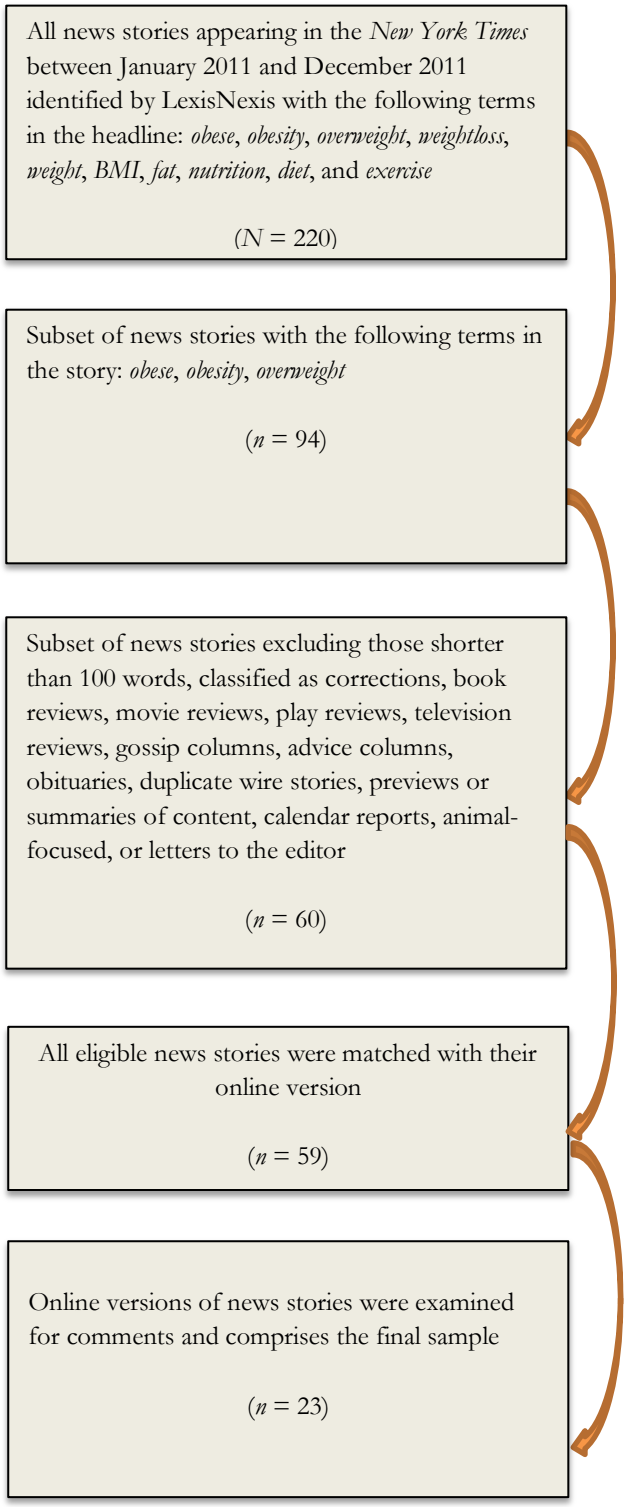
6.3.1. Sampling Procedures

LexisNexis was used to identify and collect news stories appearing in both print and online editions in the *New York Times* in 2011. The *New York Times* (*NYT*) was chosen because of its strong reputation for health and science reporting and because it is considered a top national media source for policy makers. The *NYT* is a national publication with a daily circulation of 1,865,318 and Sunday circulation of 2,322,429. The *NYT* website is America's most popular news site, receiving more than 30 million unique visitors per month[29].

News stories having one of the following key terms in their headlines: *obese*; *obesity*; *overweight*; *weight loss*; *weight*; *BMI*; *fat*; *nutrition*; *diet*; and *exercise* published between January 1 and December 31, 2011 were identified (N = 220). A subset of these news stories that included at least one of the following terms in their content: *obese*; *obesity*; or *overweight* were then selected for further review (n = 94). This further selection was necessary because several news stories use terms such as "fat" or "weight" in headlines regardless of the primary focus of the news story. For example, one article focusing on corporate crime used the term "*fat cats*" in its headline, while another article about a baseball player's lackluster performance used the phrase "*pulling their weight*" in its headline. Please see *Figure 6.1. Sampling Procedure for Online News Stories* for more information

Stories were defined as all non-advertising matter in a news product. This definition includes all staff-produced news stories found in the first and "local" section, and may include relevant features produced by local staff reporters and syndicated and wire services stories relevant to the issue being analyzed. The final sample of printed news stories (n = 60) excludes news stories shorter than 100 words, classified as corrections, book reviews, movie reviews, play reviews, television reviews, gossip columns, advice columns, obituaries, duplicate wire stories, previews or summary of content, calendar reports, exclusively animal –focused content, or letters to the editor. A subjective determination to screen all news stories to exclude those not focusing on overweight/obesity was

Figure 6.1. Sampling Procedure for Online News Stories



also used. For example, one news story had the term "exercise" in the headline and the term "obesity" in its content. However, the subject of the news story focused on brain research and chemistry and discussed the various contexts in which the pleasure centers of the brain can be activated, including gambling, exercise, sexual activity, the use of narcotics, and overeating, both in humans and laboratory mice. Thus, although the news story initially met the inclusion criteria, it was eventually excluded from the final sample.

The final sample of printed news stories identified via LexisNexis was matched with their online version (n = 59). Searches by headline, author, and/or story content were conducted both within the online website of the newspaper and the Google search engine (since a headline for a printed story often did not match the headline of its online version). When an online match could not be identified, the news story was labeled as "lost" (n = 1) and excluded from the final online sample of new stories.

Each of the matching online versions was examined for reader's comments. When reader's comments did not exist for a particular news story, the story was labeled as "no reader comments" and excluded from the final online sample of news stories. The final online sample of news stories with reader's comments was 23 (please see *Figure 6.1. Sampling Procedure for Online News Stories*).

The total number of reader comments from these 23 stories was 1,554. For each story, the first comment of a news story was included in the study (n = 23) as well as a random selection of the subsequent comments. Only "stand alone" and "parent" comments were included in the randomization process using a computer-generated[1], simple randomization technique (n = 317). "Stand alone" comments included comments that were unique in their point of view while "parent" comments included comments that were also unique in their point of view and generated additional "child" comments.

[1] Computer randomization was conducted using Kutools for Excel computer software

A comment was classified as a child comment if and only if it referenced another (i.e. "parent") comment without providing any detail about the parent comment and did not extend a unique point of view. These comments were excluded since there is no perspective to examine. For example, the following types of comments were classified as child comments and excluded from the analysis:

Example 1: @ #1KnicksFan: I totally agree with your view!

Example 2: @ #1KnicksFan: Your comment about the food industry was interesting and should be taken into consideration in this debate. I totally agree with your view!

All child comments that were attached to parent comments randomly selected into the final sample were also included in the final sample (n = 14).

A comment that appeared to be a child comment (e.g. it references another comment), was re-classified as a "stand alone" comment if and only if it directly quoted the parent comment or referenced the parent comment and extended a unique point of view. Because they provide a perspective that can be examined, whether it be their own or another's, these comments were included in the randomization process.

Example 3: @ #1KnicksFan: You write, "The food industry's main concern is profits for its shareholders, not the health of the population." I totally agree with your view!

Example 4: @ #1KnicksFan: Your comment about the food industry was interesting and should be taken into consideration in this debate. I totally agree with your view! The food industry should be heavily invested in the health of the population, not only its bottom line.

The total number of readers' comments randomized into the final sample was 354.

6.3.2. Coding Strategies

A content analysis protocol was developed to help govern and organize the study's coding rules. The protocol also serves as the archival record of the study's operations and definitions and helps to strengthen the ability of other researchers to replicate the study. There are three parts to the protocol. The first part is an introduction to the goals of the study and provides a general introduction of the main concepts examined and explains how they are defined. The second part specifies the actual procedures that govern how the content was to be processed. The final part of the protocol specifies each variable used in the content analysis. This protocol includes a 35- item coding instrument which was pilot tested and adjusted according to item wording and response coding (please see *Appendix 6A: Content Analysis Coding Protocol* for more information).

The primary purpose of the coding was to explore the content of obesity articles found online and within readers' comments to examine whether frames and values were used. In an analysis of frames used by journalists, the unit of analysis was each news story on obesity appearing online in the *NYT* in 2011 (N = 23). In a separate analysis of frames used by the public, a random sample of online readers' comments related to these news stories was the unit of analysis (n = 354). The sampling of news stories occurred in June 2012 and the sampling of readers' comments occurred in December 2012. The coding protocol was developed during a pilot study with ten randomly selected *NYT* articles in June 2012. These obesity-focused news stories were printed in 2012 and, therefore, were not included in the final sample. During the pilot stage, although previous research provided a basis for coding, new codes were allowed to emerge to ensure relevant data were not omitted. A quantitative content analysis was conducted on the sample to examine the use of frames and values in news stories and readers' comments. Because the content used in the analysis is publicly available, no prior approval from the UCLA Institutional Review Board was required.

6.3.2.1. Primary Measure No.1: Frames per Attribute Type

In the first analysis, online news stories were coded for the presence (1) or absence (0) of frames within the context of causal attributes or solution attributes. A causal attribute was defined by whether the news story mentioned a cause or set of causes of obesity while a solution attribute was defined by whether the news story mentioned a solution or a set of solutions to address obesity (including obesity prevention or treatment). In the second analysis, online readers' comments were coded for the presence (1) or absence (0) of frames only (i.e. frames were not categorized by whether they were used within the context of discussing causal factors or solutions to obesity).

The presence of four specific types of frames was measured: the personal responsibility frame, the environmental frame, the life-course perspective frame, and the manipulation frame. As noted in the literature review, the first two frames (personal responsibility and environmental frames), were examined based on their level of dominance throughout current news media (please see *Chapter 3: Obesity and Obesity Frames* and *Chapter 4: Reframing the Obesity Problem Using Alternative Frames and Values*). The second two frames, the life-course perspective and manipulation frames, were examined because of their presence in public health literature, their appearance throughout expert interviews, and their potential to shift public opinion (please see *Chapter 5: How We Think and Talk about Obesity Matters: Expert Views).*

Personal Responsibility

The personal responsibility frame emphasizes the individual's behavior and responsibility for his or her obesity status and promotes individual behavioral change or individual medical intervention (e.g. diet, exercise, bariatric surgery) as the primary solution. Some words and phrases used within a personal responsibility frame are *individualism*, *individual choice*, *personal decisions*, *responsibility*, *responsibility for one's actions*, *individual responsibility*, *individual behavior*, *parental responsibility*,

consequences, *lifestyle choices*, *self-blame, less calories in/more energy out*, *eat less/exercise more*, *poor eating habits*, and *poor exercise habits*.

Environmental

The environmental frame emphasizes the effects of the natural, built, and social environment and broadens the focus of the obesity problem by assigning obesity causality and responsibility to government, business, and larger social forces. Some words and phrases used within an environmental frame are: *the general environment*, *the social environment*, *the food environment*, *food deserts*, *food swamps*, *affordability of healthy food*, *access to healthy food*, *fast-food availability*, *schools*, *school-food environment*, *neighborhoods*, *neighborhood safety*, *walkable communities*, *video games* and *television (particularly in relation to children)*, *the work environment*, *transportation, commutes*, *long commutes*, and *long-work hours*.

Life-Course Perspective

Interest in applying the life-course perspective to address obesity prevention is growing[30, 31]. The life-course perspective frame contextualizes obesity across the lifespan, which considers long-term biological, behavioral, and psychosocial processes that link adult health and disease risk to physical or social exposures during gestation, childhood, adolescence, early adulthood, or across generations. Some words and phrases used within a life-course perspective frame are: *in utero*, *infancy*, *bonding*, *breast-feeding*, *childhood obesity in relation to adult obesity*, *early-life experiences*, *early-life exposures*, *early-life influences*, *early childhood health*, *intergenerational*, *intergenerational influences*, *intergenerational relationships*, *life course*, *life trajectory*, *life span, long-term effects, family dynamics, family relationships, effects of socioeconomic status on childhood health, poverty,* and *poverty in childhood.*

Manipulation

The manipulation frame contextualizes obesity as the result of purposive manipulation strategies exacted by the food industry to increase the availability and over-consumption of

processed foods and sugary beverages. This manipulation occurs at the environmental, physiological, and cognitive levels. Some words and phrases used within a manipulation frame are: *food marketing*, *marketing to children*, *food advertising*, *advertising to children*, *food addiction*, *food prices*, *food labeling*, *food additives*, *lobbying*, *genetically modified foods*, *high-fructose corn syrup*, *food industry*, *food industry regulation*, *food industry self-regulation*, *portion size, school food,* and *corporate social responsibility*.

Three other categories were measured, including the presence and type of other frames, whether more than one frame was used, whether the personal responsibility in addition to another frame was used, and whether frames could be defined as causal frames or solution frames.

6.3.2.2. Primary Measure No.2: Values

News stories and readers' comments were also coded for the presence (1) or absence (0) of values. Three distinct types of values were initially measured: personal responsibility, equality of opportunity and social responsibility. These three values were selected based on the popularity of their use throughout current media (personal responsibility) and discourse among obesity experts (equality of opportunity and social responsibility). Please see *Chapter 3: Obesity and Obesity Frames* and *Chapter 5: How We Think & Talk about Obesity: Expert Interviews* for a more in-depth discussion of these values. Some words and phrases describing these values include the following: (1) personal responsibility: *individualism*, *willpower*, *hard work*, *self-control*, *self-restraint*, *self-discipline*, *individual choice, "just do it"*, *commitment*, *dedication*, *autonomy, laziness,* and *taking the blame*; (2) equality of opportunity: *equality*, *equity*, *equal opportunity*, *opportunity*, *fairness*, *chance*, *equal access*, *prospect*s, and *balanced* ; and (3) social responsibility: *broad responsibility* (i.e. *school responsibility, industry responsibility*, *governmental responsibility*, *employer responsibility*), *societal responsibility*, *together*, *all in this together*, *working together*, *collective*, *collective action*, *communities*, and *community responsibility*.

Three additional categories were measured, including the presence and type of other values, whether more than one value was used, and the use of the personal responsibility value plus one other value.

6.3.2.3. Supplementary Measures

Article characteristics were measured, including the date of publication of story (month and day), type of story (measured by four dummy variables: news article, blog post, editorial, other), story prominence (measured by four dummy variables: page one, section page one, inside page, or inapplicable), story origin (measured by five dummy variables: *NYT reporter*, state bureau, DC bureau, associated press, or other bureau or newspaper), story population focus (measured by three dummy variables: children, adults, general population), primary story topic (measured by ten dummy variables: nutrition, exercise, nutrition and exercise, food industry, marketing/advertising, obesity general, obesity prevention, obesity prevention, obesity treatment, other), whether a government program was mentioned in the news story (*1 = yes/0 = no*), type of government program mentioned if applicable, whether taxes were mentioned in the news (*1 = yes/0 = no*), whether policies were mentioned in the news story (*1 = yes/0 = no*), and type of policy mentioned if applicable. Each of the identified articles received a unique identification number.

Characteristics related to the reader as well as readers' comments were also measured including gender (measured by three dummy variables: female, male, unable to determine), geographic location of reader (measured by seven dummy variables: Northeast, Midwest, South, West, United States (not specified), outside United States, and unable to determine), comment date (day and month), agreement with news story (measured by 3 dummy variables: agree, disagree, neutral), whether personal weight was mentioned (*1 = yes/0 = no*), personal weight history (measured by five dummy variables: weight loss, weight gain, weight maintenance, weight loss and maintenance, and pregnancy weight gain), whether distrust of government was mentioned (*1 = yes/0*

= *no*), whether business distrust was mentioned (*1 = yes/0 = no*), whether hostility for obese or overweight people was expressed (*1 = yes/0 = no*), and the number of recommendations the comment received. Each of the readers' comments randomized into the final sample received a unique identification number.

6.3.3. Data Analysis

Descriptive statistics were run on all variables. Chi-squared tests of significance were used to examine if significant bivariate relationships existed between variables at the same level of analysis (i.e. news story level or reader comment level). Logistic regression was used to test 1) the association between the use of frames and values in new stories and the use of frames and values in readers' comments and 2) the association between the use of the personal responsibility frame and values associated with personal responsibility in news stories and the use of the personal responsibility frame and values associated with personal responsibility in readers' comments. Hypothesis tests were two-sided with pre-set alpha levels of $p < .05$. All analyses were conducted using Stata version 12.0 (StataCorp, College Station, TX).

6.4. RESULTS

6.4.1. Online News Stories

6.4.1.1. Frames

Table 6.1 displays the prevalence of frames per attribute type (causal or solution) in news stories appearing in the online version of the *New York Times* (*NYT*) in 2011. Among all 23 news stories reviewed, 57 percent ($n = 13$) used a frame to discuss causal attributes of obesity while 87 percent ($n = 20$) used a frame to discuss solution attributes of obesity. Among all news stories, 35 percent and 22 percent used either a single frame or multiple frames to discuss obesity causes

Table 6.1. The Use of Frames in Online News Story per Attribute Type

	Causal Attributes		**Solution Attributes**	
	# of news stories	*% of news stories*	*# of news stories*	*% of news stories*
	(N = 23)		(N = 23)	
Articles with frames	13	56.5	20	87.0
Articles with one frame only	8	34.8	17	73.9
Articles with multiple frames	5	21.7	3	13.0
Overall, how often are these frames used:				
Personal Responsibility	7	30.4	19	82.6
Environmental	3	13.0	3	13.0
Life-Course Perspective	4	17.4	0	0.0
Manipulation	1	4.3	1	4.3
Other (Genetics)	3	13.0	0	0.0
	# of news stories	*% of subset*	*# of news stories*	*% of subset*
	(n = 8)		(n = 17)	
Among stories with one frame only:				
Personal Responsibility	3	37.5	16	94.1
Environmental	0	0.0	0	0.0
Life-Course Perspective	4	50.0	0	0.0
Manipulation	1	12.5	1	5.9
Other (Genetics)	0	0.0	0	0.0
	# of news stories	*% of subset*	*# of news stories*	*% of subset*
	(n = 5)		(n = 3)	
Among stories with multiple frames:				
Personal Responsibility *plus**	4	80.0	3	100.0
Environmental *plus***	3	60.0	3	100.0
Genetics *plus****	3	60.0	0	0.0

* Includes combinations of Personal Responsibility and the following frames: (Environmental, Genetics)
**Includes combinations of Environmental and the following frames: (Personal Responsibility, Genetics)
***Includes combinations of Genetics and the following frames: (Environmental, Personal Responsibility)

respectively. In comparison, 74 percent and 13 percent of all news stories used either a single frame or multiple frames to discuss obesity solutions, respectively.

Overall, the personal responsibility frame was the most frequently used. Among all online news stories, 30 percent used a personal responsibility frame to discuss causal attributes while 83 percent used a personal responsibility frame to discuss solution attributes. This is in stark contrast to other frames that were used throughout online news stories. For example, among all news stories, the environmental frame, the life-course perspective frame, the manipulation frame, and the biomedical (genetics) frame, were used less often to discuss both causal and solution attributes of obesity, only occurring between 4 percent and 13 percent of the time.

Among news stories that used only a single frame, 38 percent used a personal responsibility frame to discuss causal attributes, compared to 50 percent and 13 percent that used a life-course perspective and manipulation frame respectively. The percentage of news stories that used only the personal responsibility frame to discuss solution attributes, however, was much higher at 94 percent, which stands in stark contrast to news stories that used only an environmental frame (15 percent) and a manipulation frame (5 percent) to discuss solution attributes. Finally, among news stories that used multiple frames, 80 percent used the personal reponsibility frame along with other frames to discuss causal attributes while all news stories that used multiple frames to discuss solution attributes used the personal responsibility frame along with one other frame.

Bivariate relationships between story characteristics and the types of frames used to discuss causal and solution attributes were examined (Table 6.2). Three story characteristics were examined in this study: story type (article vs. blog post); the population focus of the news story (children, adults, and general population); and the main or primary story topic (exercise, nutrition, or obesity).

No statistically significant differences were found at the $p<.05$ level in regards to the type of story used. For example, among articles and blog posts, 57.1 percent and 56.3 percent used a

Table 6.2. Bivariate Associations Between News Story Characteristics and Frame Usage

	Frames (%)															
	(N=23)		*(N=20)*													
	Use of a Frame		**Personal Responsibility**		**Environmental**		**Life-Course Perspective**		**Manipulation**		**Other (Genetics)**		**>1 Frame**		**Personal Responsibility plus**	
	Causal	*Solution*	*Causal*	*Solution*	*Causal*	*Solution*	*Causal*	*Solution*	*Causal*	*Solution*	*Causal*	*Solution*	*Causal*	*Solution*	*Causal*	*Solution*
Story Type																
Article	57.1	85.7	75.0	100.0	25.0	25.0	25.0	0.0	0.0	0.0	25.0	0.0	50.0	25.0	50.0	25.0
Blog Post	56.3	85.7	44.4	88.9	22.2	11.1	33.3	0.0	11.1	11.1	22.2	0.0	33.3	11.1	22.2	11.1
Population Focus																
Children	100*	100.0	20.0‡	80.0+	20.0	20.0	60.0‡	0.0	20.0+	20.0+	0.0+	0.0	20.0	20.0	20.0	20.0
Adults	42.9	85.7	100.0‡	100.0	0.0	0.0	0.0+	0.0	0.0	0.0	33.3	0.0	33.3	0.0	33.3	0.0
General	45.5	81.8	60.0	100.0	40.0	20.0	20.0	0.0	0.0	0.0	40.0	0.0	60.0	20.0	40.0	20.0
Primary Story Topic																
Exercise	100.0	100.0	0.0	100.0	100‡	0.0	0.0	0.0	0.0	0.0	100‡	0.0	100+	0.0	0.0	0.0
Nutrition	57.1	100.0	50.0	100.0	50+	50*	50.0	0.0	0.0+	0.0	0.0	0.0	50.0	50.0*	50.0	50.0*
Obesity (General)	40.0+	80.0	50.0	100.0	0.0+	0.0	50.0	0.0	0.0	0.0	25.0	0.0	25.0	0.0	25.0	0.0

**** p < .001, ** p < .01, * p < .05, ‡ p < .10, +p<.20*

frame to discuss causal attributes of obesity, respectively, while approximately 86 percent of both used a frame to discuss solution attributes. One noticeable difference that appeared between articles and blog posts was their use of the personal responsibility frame to discuss causes of obesity. Among articles, 75 percent used a personal responsibility frame to discuss causes of obesity compared to just 44.4 percent of blog posts. However, this finding was not statistically significant.

Statistically significant differences at the $p<.05$ level were found among news stories with a population focus on children versus news stories focusing on adults or the general population. Among news stories focusing on children, 100 percent used a frame to discuss causal attributes of obesity, compared to less than half of news stories focusing on adults or the general population. These stories were also significantly less likely to use a personal responsibility frame to discuss causal attributes. However, although 60 percent of news stories focusing on children used a life-course perspective to discuss causal attributes, none of these stories used a life-course perspective frame to discuss solutions to obesity. Instead, these stories used the personal responsibility frame to discuss obesity solutions.

Finally, in terms of primary story topic, although 100 percent of news stories focusing on exercise used an environmental and a genetics frame to discuss causal attributes of obesity, each one of these stories used a personal responsibility frame to discuss solutions. In fact, 100 percent of all news stories regardless of primary story topic used a personal responsibility frame to discuss solution attributes.

6.4.1.2. Values

The use of values throughout the entirety of the news story was examined (i.e. the use of values was not categorized by whether values were used in discussing causal attributes or solution attributes). Throughout all online news stories, 56.5 percent used values, with just over 39 percent

using a single value and 17.4 percent using multiple values (Table 6.3.). Personal responsibility as a value was predominately used and occurred in approximately 44 percent of all online news stories compared to other values, including social responsibility and connectivity, each of which occurred in 11 percent of news stories. This trend continued within online news stories using multiple values, with those that used personal responsibility occurring 75 percent of the time.

Bivariate relationships between story characteristics (including story type, the population focus of the news story, and the primary story topic) and the types of values used were also examined (Table 6.4). Similar to relationships between story type and types of frames used in news stories, no statistically significant relationships existed between story types and values. In regards to population focus, 33 percent of news stories focusing on children used the value of personal responsibility compared to 100 percent and 85.7 percent of news stories focusing on adults and the general population, respectively. This finding was significant at the $p<.05$ level. Finally, not a single news story focusing on exercise used a value, though this finding was not statistically significant.

6.4.2. Online Readers' Comments

6.4.2.1. Frames

Table 6.5 displays the prevalence of frames used in online readers' comments in response to news stories focusing on obesity in the online version of the *New York Times* (*NYT*) in 2011. Approximately 50 percent of all readers' comments included a frame ($n = 171$). In regards to frame types, nearly 75 percent included a personal responsibility frame while 21 percent included a manipulation frame. The life-course perspective frame was used the least, with less than 1 percent of all readers' comments including this frame.

Personal responsibility was also the most dominant frame among readers' comments using a single frame (74.2 percent) while the life-course perspective was used the least (less than 1 percent).

Table 6.3. Use of Values in Online News Stories

	# of news stories	% of news stories
	(N = 23)	
Articles with values	13	56.5
Articles with one value only	9	39.1
Articles with multiple values	4	17.4
Overall, how often are these values used:		
Personal Responsibility	10	43.5
Social Responsibility	5	21.7
Equality of Opportunity	0	0.0
Other (Connectivity)	1	4.3
	# of news stories	**% of subset**
	(n = 9)	
Among stories with one value only:		
Personal Responsibility	7	77.8
Social Responsibility	1	11.1
Equality of Opportunity	0	0.0
Other (Connectivity)	1	11.1
	# of news stories	**% of subset**
	(n = 4)	
Among stories with multiple values:		
Personal Responsibility and Social Responsibility	3	75.0
Social Responsibility and Equality of Opportunity	1	25.0

Likewise, among comments using multiple frames, personal responsibility was the most prevalent, appearing in over 83 percent of readers' comments using multiple frames. Throughout readers' comments, there are several instances which highlight a struggle between public recognition of external forces, such as the food industry, on healthful eating, and assigning responsibility to overcome these external forces primarily to the individual:

Table 6.4. Bivariate Associations Between News Story Characteristics and Value Usage

	Values (%)						
	(N=23)	*(N=13)*					
	Use of a Value	**Personal Responsibility**	**Social Responsibility**	**Equality of Opportunity**	**Other (Connectivity)**	**>1 Value**	**Personal Responsibility *plus***
Story Type							
Article	57.1	75.0	25.0	0.0	0.0	0.0+	0.0
Blog Post	56.3	77.8	44.4	0.0	22.2	44.4+	25.0
Population Focus							
Children	60.0	33.3*	66.7	0.0	66.6**	66.7+	20.0
Adults	42.9	100.0	0+	0.0	0.0	0.0+	0.0
General	63.6	85.7	42.9	0.0	0.0	28.6	28.6
Primary Story Topic							
Exercise	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nutrition	57.1	50+	75.0	0.0	25.0	50.0	16.7
Obesity (General)	60.0	83.3	33.3	0.0	16.7	33.3	28.6

****$p < .001$, **$p < .01$, *$p < .05$, ǂ$p < .10$, +$p < .20$*

Table 6.5. Use of Frames in Online Readers' Comments

	# of comments	% of comments
	(N = 346)	
Comments with frames	171	49.4
Comments with one frame only	159	46.0
Comments with multiple frames	12	3.5
Overall, how often are these frames used:		
Personal Responsibility	128	74.9
Environmental	10	5.8
Life-Course Perspective	1	0.6
Manipulation	36	21.1
Other (Genetics)	7	4.1
	# of comments	**% of subset**
	(n = 171)	
Among comments with one frame only:		
Personal Responsibility	118	74.2
Environmental	5	3.1
Life-Course Perspective	1	0.6
Manipulation	28	17.6
Other (Genetics)	7	4.4
	# of comments	**% of subset**
	(n = 12)	
Among comments with multiple frames:		
Personal Responsibility *plus**	10	83.3
Environmental *plus***	2	16.7

*includes combinations of Personal Responsibility and the following frames: Environmental (2), Environmental and Manipulation (1), Manipulation (5), Social Responsibility (1), and Genetics (1)

**includes combinations of Environmental and the following frames: Manipulation (1) and Genetics (1)

> Eating is such an emotional experience for humans. Big food businesses know this and have made their products part of peoples emotional lives. Feeling good while eating things that are essentially not really food will ensure the support of these industries until cooking from good, healthy basic ingredients in healthful ways gives you the same feelings as an over processed pseudo food item.

Another example illustrates the use of the personal responsibility frame even when the news story focuses on genetics and highlights the difficulties in maintaining a healthy weight when genetics are a factor:

> My whole family is fat except for me and my husband. Their problem: they eat too much! At holiday dinners, they eat 2 or 3 desserts each while I will have one small piece of something and enjoy every bite. I've always been slim and fit. It is all a matter of lifestyle. Maybe we all have the fat gene, but I, for one, suppress it.

Bivariate relationships between five (5) characteristics of readers' comments (including gender, whether personal weight was mentioned; whether governmental distrust was expressed; whether corporate business distrust was expressed; and whether hostility towards obese or overweight people was expressed) and the use of frames were measured (Table 6.6). The use of a frame in comments, as well as the use of the personal responsibility frame, was equal among females and males. Differences appeared in the type of frame used however. For example, females had a higher percentage of comments that used the manipulation frame (13.7 percent) than males. This was marginally significant at $p<.20$. Among comments made by males, 14 percent used the personal responsibility frame along with one other frame in comparison to only 2 percent of comments made by females. This finding was significant at the $p<.05$ level.

Among readers who mentioned personal weight, 81 percent used a frame compared to 43 percent of readers' comments not mentioning personal weight. In terms of frame types, over 93 percent of comments that mentioned weight used a personal responsibility frame compared to 68 percent of comments that did not mention weight. Both of these findings were highly significant at the $p<.001$ level.

Table 6.6. Bivariate Associations between Reader Comment Characteristics and Frame Usage

	Frames (%)						
	(N = 346)	*(N = 174)*					
	Use of a Frame	**Personal Responsibility**	**Environmental**	**Life-Course Perspective**	**Manipulation**	**>1 Frame**	**Personal Responsibility *plus***
Gender[1]							
Female	48.6	80.4	1.96+	0.0	13.7	2.0*	2.0*
Male	51.6	80.0	8.0+	2.0	20.0	14*	14.0**
Personal weight mentioned							
Yes	81.0***	93.6***	2.1	0.0	6.4**	6.4	6.4
No	43.1***	67.7***	7.3	0.8	26.6**	7.3	5.7
Distrust of government							
Yes	42.9	73.3	0.0	0.0	33.3	6.7	6.7
No	50.2	75.0	6.4	0.6	19.9	7.1	5.8
Distrust of business							
Yes	55.0	18.2***	4.6	0.0	90.9***	13.6+	9.1
No	48.7	83.2***	6.0	0.7	10.7***	6.0	5.4
Hostility towards obese/ overweight persons							
Yes	100.0**	81.8	0.0	0.0	18.2	0.0	0.0
No	47.8**	74.4	6.3	0.6	21.3	7.5	6.3

*** $p<.001$, ** $p<.01$, * $p<.05$, ǂ $p<.10$, + $p<.20$

[1] Note that $n = 101$ (sample excludes readers whose gender = "other")

At times, readers also acknowledged the difficulties in losing weight within the context of a judgmental society. One commenter stated that the approach to weight-loss and attitudes towards obese persons in the U.S. was "anti-human." Yet, the commenter prescribes personal responsibility as the solution to long-term weight loss:

> After 20 years losing and regaining, I lost 75 pounds and have maintained that loss for 12 years. I believe everyone who wants to lose weight can achieve it, but they have to take charge of their lives and work with the body's natural mechanism for survival. In order to lose weight/keep the weight loss, we need to change. I understand that some people don't want to do this; others simply don't know how to do it.

The use of the manipulation frame was also influenced by whether a reader mentioned personal weight. Among readers' comments that mentioned personal weight, over 26 percent used a manipulation frame compared to 6.4 percent of comments that did not mention personal weight.

The use of the personal responsibility frame also depended on whether business distrust was expressed. Among readers' comments that mentioned business distrust, slightly over 18 percent used the personal responsibility frame compared to over 83 percent of comments that did not mention business distrust. Moreover, almost 91 percent of comments that mentioned business distrust used a manipulation frame compared to 11 percent of comments that did not mention business distrust. Both of these findings were highly significant at the $p<.001$ level. No significant differences were found among readers' comments that mentioned governmental distrust.

The majority of comments that mentioned business distrust within the context of the manipulation frame often expressed a certain level of anger in regards to the effect of corporate advertising on individual's preferences:

> Expecting humans to act responsibly and make rational choices is absurd. People are easily manipulated by the media, easily seduced by appeals to their taste buds, libido or vanity. Until we accept this truth, we will continue to be a nation of addicts, a nation of super-sized consumers sold on every cheap corporate appeal to our fragile,

> insecure senses. Advertising works. It seduces people into choices that go against their self-interest.

Lastly, 100% of readers' comments that expressed hostility towards obese and overweight persons used a frame ($p<.01$), of which 82 percent used a personal responsibility frame. This finding was not significant at the $p<.05$ level however.

6.4.2.1. Values

While almost one-half of all readers' comments used frames, less than 40 percent used values (Table 6.7). As with the use of frames in readers' comments, personal responsibility was used most often compared to other values. Among readers' comments that referenced only one value, approximately 75 percent were personal responsibility. Among readers' comments that used multiple values, personal responsibility again was more often used than other values, appearing in 60 percent of readers' comments. An example of a comment that used a number of values associated with personal responsibility was in response to a news story about weight gain during the holidays:

> This is a valuable reminder to craft a preemptive strategy to prevent the holiday weight gain before the parties and treats start hitting. Get exercising now and you'll have a reliable routine in place to carry you through it all. Start being mindful of what goes in your mouth now, practice restraint now, decide on limits now and you'll be more likely to stick to them when faced with temptation.

This comment illustrates the amount of cognitive strength necessary to actualize these personal responsibility values: mindfulness, restraint, resisting temptation. The commenter also stresses the value of forward thinking in terms of developing a "preemptive strategy" to strengthen resolve.

Table 6.8 shows the results from bivariate analysis between comment characteristics and the use of values. As with frames, the use of a value in comments was equal among females and males However, among comments made by males, 81 percent used a personal responsibility frame ($p<.20$)

Table 6.7. Use of Values in Readers' Comments

	# of comments	% of comments
	(*N* = 346)	
Comments with values	138	39.9
Comments with one value only	118	34.1
Comments with multiple values	20	5.8
Overall, how often are these values used:		
Personal Responsibility	99	28.6
Social Responsibility	16	4.6
Equality of Opportunity	12	3.5
Other	30	8.7
	# of comments	**% of subset**
	(*n* = 118)	
Among stories with one value only:		
Personal Responsibility	87	74.7
Social Responsibility	11	9.3
Equality of Opportunity	5	4.2
Other*	15	12.7
	# of comments	**% of subset**
	(*n* = 20)	
Among stories with multiple values:		
Personal Responsibility *plus***	12	60.0
Equality of Opportunity *plus****	5	25.0
Education and Information	3	15.0

*includes Familism (1), Compassion (3), Comraderie (1), Enjoyment (1), Stewardship (3), Culture (2), Social Democracy (1), Informed Consent (2), Philanthropy (1).

**includes combinations of Personal Responsibilty and the following values:Social Responsibility (2), Social Responsibility and Education (1), Social Responsibility and Equality of Opportunity (1), Equality of Opportunity (1), Compassion (2), Validation (1), Mindfulness (1), Culture (2), and Perseverance and Humility (1).

*** includes combinations of Equality of Opportunity and the following values: Social Responsibility (1), Compassion (1), Power (2), and Power and Education (1).

compared to comments made by females. Among comments made by females, close to 8 percent used the equality of opportunity value, compared to comments made by males. This finding was significant at the $p<.01$ level.

In terms of whether personal weight was mentioned, results for the use of values closely resembled the results found for the use of frames. Significant differences in the use of values existed among those who mentioned personal weight (57 percent) compared to those who did not mention personal weight (36.5 percent). Among readers' comments that mentioned personal weight, 97 percent used the personal responsibility value, compared to fewer than 64 percent of readers' comments that did not mention personal weight. This finding was highly significant at the $p<.001$ level.

Business distrust was also found to be significantly associated with the use of values. Among readers' comments that mentioned business distrust, 23 percent used a value of personal responsibility compared to over 76 percent that did not mention corporate distrust ($p<.001$). In regards to other values, social responsibility and equality of opportunity were used in 54 percent and 23 percent of comments that mentioned business distrust compared to just over 7 percent that did not mention corporate distrust respectively. Both findings were highly significant at the $p<.001$ level (social responsibility) and the $p<.05$ level (equality of opportunity).

Among readers' comments that expressed hostility towards obese and overweight persons, close to 73 percent used a value compared to 38 percent of comments that did not express hostility ($p<.05$). Furthermore, 100 percent of readers' comments expressing hostility towards obese and overweight persons used a personal responsibility value; however, this finding was not significant at the $p<.05$ level.

Table 6.8. Bivariate Associations between Reader Comment Characteristics and Value Usage

	Values (%)						
	(N = 346)	*(N = 138)*					
	Use of a Value	**Personal Responsibility**	**Social Responsibility**	**Equality of Opportunity**	**Other Value[1]**	**>1 Value**	**Personal Responsibility *plus***
Gender[2]							
Female	37.1	71.8	7.7	7.7ǂ	23.1	10.3	10.3
Male	38.1	81.1	13.5	0.0ǂ	16.2	10.8	8.1
Personal weight mentioned							
Yes	56.9**	97.0***	3.0ǂ	3.03+	15.2	15.2	15.2+
No	36.5**	63.8***	14.3ǂ	10.5+	23.8	14.3	6.7+
Distrust of government							
Yes	51.4+	77.8	16.7	5.6	11.1	11.1	5.6
No	38.6+	70.8	10.8	9.2	23.3	15.0	9.2
Distrust of business							
Yes	32.5	23.1***	53.9***	23.1ǂ	30.8	30.8ǂ	15.4
No	40.9	76.8***	7.2***	7.2ǂ	20.8	12.8ǂ	8.0
Hostility towards obese/ overweight persons							
Yes	72.7*	100.0ǂ	0.0	0.0	0+	0.0	0.0
No	38.8*	70.0ǂ	12.3	9.2	23.1+	15.4	9.2

*** $p<.001$, ** $p<.01$, * $p<.05$, ǂ $p<.10$, + $p<.20$

[1] Other values include Familism (1), Compassion (6), Comraderie (1), Enjoyment (1), Stewardship (3), Culture (4), Social Democracy (1), Informed Consent (2), Philanthropy (1), Validation (1), Mindfulness (1), Perseverance and Humility (1), Education (2), and Power (3).

[2] Note that $n = 76$ (sample excludes readers whose gender = "other")

6.4.3. Hypothesis Testing

6.4.3.1. Associations between the Use of Frames in News Stories and Readers' Comments

Tables 6.9 display the results of the first hypothesis test – *Online news stories using a frame to discuss causal and solution attributes of obesity will have a higher percentage of readers' comments that also use a frame of obesity*. This hypothesis was partially supported by these data. Among news stories that used a frame to discuss causal attributes, 62.1 percent of readers' comments in response to those news stories also used a frame. This finding was highly significant (p = .006). This pattern was not observed in regards to the use of frames and solutions to obesity however.

Table 6.10 displays the results of the second hypothesis test – *Online news stories using the personal responsibility frame will have a higher percentage of reader's comments that also use the personal responsibility frame.* This hypothesis was also partially supported by these data. Among news stories that used a personal responsibility frame to discuss causal attributes, close to 55 percent of readers' comments in response to these news stories also used a personal responsibility frame. This finding was also highly significant (p = .005). This is a noticeable difference from readers' comments related to news stories that did not use a personal responsibility frame. Among these comments, approximately 30 percent used a personal responsibility frame.

6.4.3.2. Associations between the Use of Values in News Stories and Readers' Comments

The third hypothesis – *Online news stories using values to discuss obesity will have a higher percentage of readers' comments that also use a value* – was not supported. Table 6.11 shows that there is little variation between news stories that use a value and news stories that do not use values. Among news stories that use values, 38.7 percent of readers' comments in response to those news stories also use values. This is slightly lower than the percentage of readers' comments that use values, 41.5 percent, in response to news stories that do not use values. In addition, among news stories that did use a value, over 61 percent of readers' comments did not use a value.

Table 6.9. Association between News Story-Level Frame to Reader Comment-Level Frame

	% of Reader Comments That Include a Frame (N=346)		
News Story uses Frames to discuss Causal Attributes (N=23)	*Yes*	*No*	*Total*
Yes	62.1	37.9	100.0
No	36.6	63.4	100.0
			p=.006

	% of Readers' Comments That Include a Frame (N=346)		
News Story uses Frames to discuss Solution Attributes (N=23)	*Yes*	*No*	*Total*
Yes	49.4	50.6	100.0
No	50.0	50.0	100.0
			p=.948

Table 6.10. Association between News Story-Level Personal Responsibility Frame to Reader Comment-Level Personal Responsibility Frame

	% of Reader Comments That Include a PR Frame (N=346)		
News Story uses PR Frames to discuss Causal Attributes (N=23)	*Yes*	*No*	*Total*
Yes	54.8	45.2	100.0
No	30.4	69.5	100.0
			p=.005

	% of Reader Comments That Include a PR Frame (N=346)		
News Story uses PR Frames to discuss Solution Attributes (N=23)	*Yes*	*No*	*Total*
Yes	38.5	61.5	100.0
No	27.7	72.3	100.0
			p=.191

Table 6.11. Association between News Story-Level Value to Reader Comment-Level Value

	% of Readers' Comments that include a Value *(N=346)*		
News Story Includes a Value *(N=23)*	*Yes*	*No*	*Total*
Yes	38.7	61.3	100.0
No	41.5	58.6	100.0
			p=.765

Table 6.12. Association between News Story-Level Personal Responsibility Value to Reader-Level Personal Responsibility Value

	% of Reader Comments that include a PR Value *(N=346)*		
News Story Includes a PR Value *(N=23)*	*Yes*	*No*	*Total*
Yes	24.12	75.88	100.0
No	27.27	72.73	100.0
			p=.456

Likewise, the fourth hypothesis – *Online news stories using the value of personal responsibility will have a higher percentage of readers' comments that also use the value of personal responsibility* – was also not supported. Table 6.12 shows that no significant differences were observed among news stories that used a personal responsiblity value and those that did not use a personal responsibility value.

6.5. DISCUSSION

This study examined the use of frames and values through online news coverage about obesity and through online readers' comments associated with these stories found in the *New York Times* in 2011. In summary, news stories use frames differently when discussing causal attributes of obesity than when discussing solution attributes of obesity. The findings here also indicate strong associations between the use of frames in news stories and the use of frames in readers' comments, but weak associations between the use of values in news stories and the use of values in readers' comments. The study also found interesting patterns in regards to both story-level characteristics and comment-level characteristics and the use of frames and values. This section highlights some of the key findings in this research and offers further considerations.

6.5.1. A Framing Disjuncture

The results suggest a possible disjuncture between the way in which the causes of obesity are presented in news stories and the kinds of solutions offered. In news stories, the personal-responsibility frame is invoked 30 percent of the time, while other causal frames—involving the environment, the life-course, and genetics—are each invoked 13-17 percent of the time. Altogether, these alternative frames are invoked 43 percent of the time, substantially more than the personal responsibility causal frame. Yet, in articles referring to solutions to obesity, the personal responsibility frames the discussion in 83 percent of the articles, while the major alternative frames together frame the discussion in only 13 percent of the articles. It is as if the journalists who wrote

these articles recognize the multiple causes of obesity, yet cannot quite locate any solutions other than that of more personal responsibility, regardless of the cause.

The study found that although news stories used frames in some capacity, frames were more often used to discuss solution attributes of obesity than causal attributes of obesity. The use of the personal responsibility frame generally follows the same pattern of the overall use of frames in discussions about causes and solutions to obesity – it is overwhelmingly used in discussions about solutions than in discussions about causes. When frames were used alone, personal responsibility dominates, appearing in 94 percent of online news stories that use a single frame. In news stories using multiple frames, personal responsibility appears in every single one.

This finding could suggest a few things. First, it could indicate that news stories are steadily recognizing that other frames, such as the environment or the manipulation frame, might be better suited to contextualize obesity causal factors and solutions. On the other hand, this finding could suggest ambiguity among news reporters to discuss obesity causes and solutions solely within the context of a frame other than personal responsibility. In other words, news stories that might discuss obesity exclusively within the context of manipulation or the life-course perspective also appeal to the personal responsibility frame perhaps in an effort to allay concerns of a 'liberal media bias' [(32)]. This could also be related to a phenomenon known in media and communication studies as "false equivalency", which is media content that describes a situation where there is a logical and apparent equivalence, but when in fact there is none [(33)].

Similarly, focusing on children resulted in significantly more news stories using the life-course perspective within the context of causal attributes of obesity. Nonetheless, not a single news story used the life-course perspective to discuss solutions. While theoretically something other than the life-course perspective frame could have been applied to discuss possible solutions (such as the environmental frame for example), news stories promoted individualized approaches to address

obesity even when the causal attribute was something other than personal responsibility. This finding might signal, at least among the online news articles examined here, an uncertainty about the life-course perspective and its capability to elicit understanding about early-life influences on obesity and support for population-based solutions to reduce early-life risks. For example, if unhealthy environmental exposures in the womb or lack of early bonding between infant and mothers are significantly associated with childhood obesity, less attention should be given to proposed solutions based solely on personal responsibility such as 'expectant mothers need to eat better' or 'mothers need to spend more time with their babies'. Instead, news stories could provide commentary on the Women, Infants, and Children (WIC) program, which provides education and healthy food resources to expectant mothers, or perhaps policies that support maternal/child bonding such as longer paid maternity leave and job security.

In regards to the use of values in news stories, when children were the primary population focus, news stories applied the value of personal responsibility less often than when the focus was adults or the general population. In general, the study found that values were used less often than frames in online news stories, suggesting perhaps that discussions about childhood obesity are are more apt to be held in a 'value-neutral' zone.

6.5.2. Online Readers' Comments Mirror News Stories Use of Frames and Values

Following the trend established in online news stories, the overriding frame used throughout readers' comments was the personal responsibility frame. In contrast, the life-course perspective frame was used the least. This could provide an initial glimpse into how the broader public understands what the life-course perspective is or how the life-course perspective can be applied to better understand and address obesity.

When readers' comments used multiple frames, personal responsibility once again prevailed. This finding simultaneously points to the level of recognition by the public about the impact of

structural-level influences on obesity (hence the use of frames other than the personal responsibility frame) and the level of ambivalence held by the public about the best way to address obesity.

In regards to the association between comment characteristics and frame usage, one of the strongest associations found throughout the entire study was between whether a comment mentioned personal weight and the use of the personal responsibility frame. Formerly obese persons could serve as a powerful ally in perpetuating a personal responsibility frame since they personify values of the personal responsibility frame: discipline, willpower, and restraint. Interestingly, many of the readers' comments that also mentioned personal weight used a manipulation frame to discuss obesity, providing some evidence that the public acknowledges that at times it may take more than perseverance and mental strength to eat healthy and exercise regularly.

Another strong association was found between those that mentioned business distrust and the use of the personal responsibility frame. Among readers' comments that mentioned business distrust, a higher percentage used the manipulation frame while a lower percentage used the personal responsibility frame than those comments that did not mention business distrust. This is an important finding for those interested in promoting a manipulation frame given that the frame solidly identifies the food corporations as the primary perpetrator and is explicit in the types of solutions that are necessary to thwart manipulation.

Readers' comments that expressed hostility towards obese and overweight persons were reliably based within the personal responsibility frame. In some instances, hostility towards obese persons was expressed by formerly obese persons themselves. Although recent studies have examined the long-lasting effects of weight bias and discrimination against formerly obese people [(34)], little research has been done to measure attitudes of formerly obese persons towards obese and overweight persons.

In terms of the use of values in readers' comments, readers used values less frequently than they did frames, and, when values were used, personal responsibility still prevailed. Similar to the use of multiple frames, however, among readers' comments that used a value, 60 percent used a personal responsibility value in conjunction with another value, such as social responsibility, equality of opportunity, or compassion. If viewed from the "glass is half full" perspective, this finding suggests that readers have the capacity to discuss obesity within the context of socially-oriented values that could help shift the general discussion to focus on the social determinants of obesity versus solely personal responsibility. Understanding people's value systems and what values resonate with the public in thinking about disease prevention is an important step towards 'reframing' the obesity discussion.

Similarly to frames, patterns emerged in regards to certain comment characteristics. Specifically, readers' comments that mentioned personal weight and business distrust were significantly associated with the use of values. Among those comments that mentioned personal weight, personal responsibility was the value of choice, while among those that mentioned business distrust, social responsiblity and equality of opportunity prevailed. These findings are revealing in that they illustrate the public's ability to understand and debate about the complexities of obesity causation and solutions using values as a starting place. If this is indeed the case, then it may also be that the public is not only capable, but willing to be exposed to obesity prevention messages that specifically invoke these values that can ultimately be effective in shifting public opinion and discourse about obesity causality and solutions.

6.5.3. The Relationship between Online News Stories and Readers' Comments

These data suggest that online news stories can elicit the use of frames, including the personal responsibility frame, among readers when frames are used to discuss casual attributes about obesity. This is despite the evidence that shows that news stories use frames more often to discuss

solution attributes of obesity than causal attributes of obesity. So, even though these stories tilt towards the more frequent use of frames to discuss solution attributes instead of causal attributes, it is the discussion of causal attributes, and the frames used within those discussions, that prompt the use of frames in readers' commentary. Related to this, the data also show that the use of frames in discussing solution attributes of obesity in news stories did not significantly influence the use of frames in readers' comments.

It is possible that readers were much more sensitive to recognizing the use of a frame in the context of causes than they were in recognizing the use of a frame in the context of solutions. Whether this is related to whether readers pay more attention to news stories that focus on problems and conflict is unknown. Previous research, such as Galtung and Ruge's (1972) 'news values', stipulates that news stories that present conflict, disagreement, or disharmony between subjects are labeled as more "newsworthy" [(35)]. Stories that used a personal responsibility frame in discussing causal attributes may have been perceived as containing higher levels of contention. This is a possibility that research could explore.

This could also be due to a lack of causal thinking about disease in American discourse, or the pervasive, implicit presence of individualistic disease causality. One result of this reality is that causal explanation may seem unneeded, so when an article has a causal explanation, it stands out (recall that just over half of the news stories used a causal frame). Therefore, when readers encountered a causal explanation of obesity, they may have been more receptive to the frames used than when they encountered suggestions for solutions.

The same thought could be used to understand why the use of the personal responsiblity frame in discussing causal attributes in news stories significantly influenced its use in readers' comments. As the data show, there is a diversity of frames that were used to discuss causal attributions in news stories. While that diversity could have lent itself to readers using a particular

frame in their own comments, the dominance of the personal responsibility frame may have obviated all other framing options. And even though readers were exposed to fewer stories that used a personal respsonsibility frame to discuss causal attributes than solution attributes, the exposure to the frame resulted in its use within readers' comments.

Although the use of frames in news stories significantly influenced the use of frames in readers' comments, no significant differences were found among those news stories that used a value, or a personal responsibility value, and those that did not use a value on the use of values in readers' comments. This finding may suggest that values used in news stories do not easily invoke the use of values in online readers' comments. As these data show, online news stories are less prone to discussing the obesity problem within the context of values. When they are used, they may be expressed implicitly, which may impede the perceptibility among readers to recognize the value and render any possible influential effects on the reader null and void.

6.5.4. Limitations

To my knowledge, this study is the first to examine how the use of frames and values in online newspaper content about obesity influence the use of frames and values in online readers' comments. However, this study is not without its limitations. First, although careful attention was paid to identify and include all eligible online news coverage focused on obesity in the *NYT* for 2011, some content may have been missed due to differences between the headlines used for printed news articles and headlines used for their online counterparts. Also, Lexis Nexus may not have identified all *NYT* content on obesity featured in blogs or other sources. These limitations decrease the generalizability of these findings. Second, readers' comments cannot be regarded as representative of broader public understanding of, belief or opinion about obesity because their representativeness is challenged by a number of issues such as the small amount of people who comment on a news story (who are often regular posters), the level of education and income of

people who subscribe to the online version of *NYT*, and the fact that not all news stories are open to comments. Still, readers' comments are an increasingly useful and available source of data to gain and improve understanding of how some readers discuss obesity causal factors and solutions discussed in news stories, as well as to identify the range of "knowledge domains" used in public discourse (e.g. personal experience, popular wisdom, etc.) [22, 36]. Third, in regards to research methods, only a single coder was used in this exploratory quantitative content analysis. Due to the nascent stage of this research, a single coder was the most viable method. As this research develops, a minimum of two coders will be used to ensure validity and establish inter-coder reliability. Finally, because the measurement of gender relied on subjective assessment of readers' online names (i.e. the name John was coded "0" for male while the name Jane was coded "1" for female), there is concern regarding reliably since gender may not have been accurately measured. In many instances, even this subjective assessment could not be used since readers would often use gender-neutral monikers such as "LostInTexas" or "#1KnicksFan" for their comment identifier.

6.6. CONCLUSION

This exploratory study offers the first look into how media coverage influences public discourse on obesity. Readers' comments are an easily attainable and beneficial data source for assessing public discourse on the causes and solutions to obesity proposed in news stories and the types of knowledge domains they use to discuss obesity, ranging from personal experience to popular wisdom [21]. In addition to increasing knowledge on how frames and values influence public opinion on obesity, this research also indicates that building on people's knowledge domains (i.e. how they understand obesity), including people's personal weight loss experiences and distrust of business, could be helpful in shifting public attitudes.

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CHAPTER 7:
USING ALTERNATIVE FRAMES AND VALUE STATEMENTS TO INCREASE PUBLIC SUPPORT FOR POLICIES THAT TARGET OBESITY

This chapter presents findings from the third and final empirical component of the dissertation – quantitative testing of alternative expert frames and value statements on the level of support for structural-level public health policies to address obesity prevention. This research is the result of research activities conducted and discussed in *Chapter 5: How We Think and Talk about Obesity Matters: Expert Views* and *Chapter 6: How We Think and Talk about Obesity Matters: Online Media and Public Commentary*. Previous chapters of the dissertation (including *Chapter 2: Theoretical Framework* and *Chapter 3: Obesity and Obesity Frames*) also details the theoretical framework that substantiates the research questions and guides the research methodology.

7.1. INTRODUCTION

Frames are a powerful part of public health communication and policy. A major goal in public health is not only to understand existing frames, but to test alternative frames that present new ways of understanding obesity prevention, and potentially, could generate public support for public health policies that increase and strengthen obesity prevention efforts. A parallel goal is to test values that are commonly used throughout public health so they can be effectively included in public health policy, communication, and intervention efforts.

To these ends, two alternative frames, the Life-Course Perspective and the Manipulation frame, as well as two values, equality of opportunity and social responsibility, are tested. By examining these alternative frames and values, this research deconstructs the popularly referenced "environmental" frame so that causal attributes and responsible agents are more easily identifiable and proposed policies and public health interventions more salient. In so doing, these frames have the potential to resonate with the public greater than the more generalized, all-encompassing

"environmental" frame. Using a population-based survey experiment, this study empirically tests whether exposure to new, alternative expert frames or value statements can shift support for health policies that influence obesity across the life course and policies that reduce the structural constraints that manipulate a person's choice of the type and amount of food consumed.

7.2. RESEARCH QUESTIONS AND HYPOTHESES

The objective of this study is to determine whether exposing a representative sample of adults to alternative ways of thinking about obesity influences them to be more supportive of structurally-oriented health policies that address obesity at the environmental level. Such policies include implementing nutrition standards within licensed child-care and pre-school settings, and policies such as providing incentives to private businesses to support voluntary, physical-activity opportunities for employees during the workday. Stated formally: Does exposure to alternative expert frames or value statements influence support for health policies and programs that address the social and environmental constraints that make maintaining a healthy weight difficult? Within this broad concern, there are seven (7) discrete research questions and hypotheses:

RQ1: What is the effect of exposure to alternative frames or value statements on level of support for structural-level public health policies to address obesity prevention?

- Hypothesis 1 and Rationale: People exposed to alternative expert frames or value statements will report higher levels of support for structural-level public health policies than people who received no exposure to those frames. *Rationale*: This hypothesis is supported by previous research demonstrating that people are amenable to framing on health policy topics. For example, previous research using similar means of testing on societal concerns such as early childhood development [(1)], child mental health [(2)], and the social determinants of health [(3)] has shown significant effects on increasing the public's

support of population-based solutions and policies (vs. individualized solutions and policies). Exposure to certain treatment conditions allows study participants to consider a social health concern within a broader societal context without eliciting less productive, default ways of thinking about these concerns.

RQ2: What is the effect of exposure to alternative frames or value statements on beliefs about the causal factors of obesity?

- Hypothesis 2 and Rationale: People exposed to alternative expert frames or value statements will be more likely to agree that obesity is a problem in the U.S. because of environmental/societal factors than people who received no exposure to these frames. *Rationale*: Research in anthropology and cognitive psychology shows that causal chains play an important role in engaging people on a topic and helping them to be more receptive to reform alterations[4]. According to the FrameWorks Institute, a causal chain is a communications tool that features a "clear and concrete explanation of the causes of the problem, including the mechanism by which the problem is created."[5]. The alternative expert frames and value statements may be able to bridge the gap that exists between expert understanding of obesity and a more limited public understanding of obesity.

RQ3: What is the effect of exposure to alternative frames or value statements on perceptions of responsibility to address obesity prevention?

- Hypothesis 3 and Rationale: People exposed to alternative expert frames or value statements will attribute greater responsibility for addressing obesity to environmental players/agents compared to people who received no exposure to these frames. *Rationale*:

The theory of perceived responsibility and social motivation posits that beliefs about what causes a social problem influence beliefs about who is responsible, which in turn influence willingness to support public policies to address the problem [6, 7].

RQ4: Does political orientation moderate the effect of exposure to alternative expert frames or value statements on support for structural level public health policies to address obesity?

- Hypothesis 4 and Rationale: Political orientation will moderate the effect of exposure to alternative expert frames and value statements on support for structural level public health policies to address obesity. Specifically, those who identify as Democrat or liberal will be more susceptible to the effects of framing more than their Republican or conservative counterparts. *Rationale*: Previous research demonstrates that mass public opinion on social concerns can be predetermined by varying levels of political awareness and predispositions [8]. Niederdeppe *et al*., (2011) found that persuasive narratives on causal attributes of obesity along with supporting evidence are effective in changing solution attributions for obesity among politically identified liberal persons. This effect however, was not significant among conservatives [9].

RQ5: Does level of political/civic interest moderate the effect of exposure to alternative expert frames or value statements on support for structural level public health policies to address obesity?

- Hypothesis 5 and Rationale: Higher levels of political and civic interest will moderate the effect of exposure to alternative expert frames and value statements on support for structural level public health policies to address obesity. Specifically, those who report higher levels of interest will be more amenable to the effects of framing. *Rationale*: The literature has shown that political interest represents the strongest

predictor of political behavior such as voting and civic participation [10, 11] and that individuals who have a higher interest in political and civic affairs are more likely to hold distinct beliefs [8]. Given the social urgency of addressing obesity, it could be stipulated that those who report higher levels of political and civic interest would be more motivated to support policies that address obesity at the structural level than those who report lower levels of interest.

RQ6: Do perceptions of responsibility about obesity mediate the effects of exposure to alternative expert frames or value statements on support for structural level public health policies to address obesity?

- Hypothesis 6 and Rationale: Perceptions of responsibility will significantly mediate the effects of exposure to alternative expert frames of obesity and value statements on health policy support. *Rationale*: As discussed previously in Chapter 2: Theoretical Framework, the theory of perceived responsibility and social motivation proposes that public belief about who or what causes a health problem influences public belief about who or what is responsible to address the health problem, which is then significantly linked to public support of policies that address the health problem [6, 7] . Prior studies have demonstrated strong and positive correlations between societal solution attributions and support for public policies [9]. Once a health problem is discovered, assigning responsibility for both the cause and solution to the problem forms the basis of public discourse on the issue [12]. It may be that perceptions of responsibility about obesity are a significant intermediary between exposure to alternative expert frames and support for health policies.

RQ7: To the extent that alternative expert frames or value statements are successful in increasing support for structural level public health policies, which alternative expert frames or value statements are most effective when compared to the others tested in the study?

- Hypothesis 7 and Rationale: Exposure to value statements will significantly increase support for structural level health policies to address obesity greater than exposure to alternative expert frames. *Rationale*: Previous research suggests that values may be more effective than simplifying models in influencing support for new policies than the total frame itself [13].

7.2.1. Significance of the Experimental Study

This research offers significant contributions to the literature on the effects of framing on support for health policies, causal attributes, and perceptions of responsibility. The following is a discussion of the significance of the research questions, data and measures, and methodology used in this study.

7.2.1.1. Research Questions

The research questions investigated in this study expand the level of knowledge regarding the effects of framing on public opinion by focusing on 1) new alternative frames of obesity and 2) value statements as an important frame element.

The research also expands the level of knowledge regarding the effects of framing on public opinion by focusing on value statements as a key framing element. Previous research on the effects of framing on public opinion about obesity causal attributes and solutions have focused on the use of metaphors [14], personal narratives [9], thematic frames [15], exemplars [16], and news items [17]. No research to date has focused on the use of value statements to influence public support for obesity

policies. The use of values in messaging has been shown to help people think about, prioritize, and assess the efficacy of public policies leading to more productive thinking about health issues [3].

The research examines the direct relationship between exposure to an alternative frame or value statement about obesity on the level of support for public health policies versus previous research which has solely examined the effect of treatment exposure to causal attributions of obesity (what do people believe causes obesity) or perceptions of responsibility to address obesity (who do people believe is responsible to address obesity) [9] (please see *Chapter 3: Obesity and Obesity Frames*).

7.2.1.2. Data and Measures

The study is based on a general-population survey experiment that allows for the random assignment of survey respondents to experimental conditions of the investigator's choosing. To date, only four (4) published experiments related to obesity have been conducted and none have used a randomized, general-population-based experiment [9]. By combining the strengths of experimental and survey designs, general-population experiments can more effectively overcome the challenges of causal inference that are present in conventional survey data [18]. Furthermore, general population experiments provide researchers the opportunity to conduct experiments outside the typical laboratory setting in a sample that reflects a broader, more diverse community. In so doing, general population experiments can strengthen the validity and the generalizability of the research because sampling from the general population strengthens the generalizability of results (external validity) and random assignment (randomization into control or treatment groups) assures that treatment groups are equal to one another in other respects (internal validity).

In addition to using exposure to value statements and new, alternative frames as predictors, this research investigates three emerging causal attributes of obesity discussed throughout the literature, including fatalism [19], food addiction [20], and the role of food advertising on food consumption [21].

7.3. CONCEPTUAL MODEL

The theoretical background of the conceptual framework guiding the experimental study was discussed in detail in *Chapter 2: Theoretical Framework*. The purpose of this section is to detail the testable components that comprise the conceptual framework. Each path in the conceptual map is marked with a number that corresponds to the specific research question examined in the study. Please refer to *Figure 7.1. Conceptual Model of Experimental Study: The Effect of Value Statements and Frames on Level of Support for Health Policies* for more information.

7.3.1. Alternative Expert Frames

The experimental survey investigates two alternative expert frames: 1) the *life-course perspective*, which considers long-term biological, behavioral, and psychosocial processes that link adult health and disease risk to physical or social exposures throughout the life-course;[22] and 2) a *manipulation frame*, which considers obesity resulting from multiple manipulations inflicted by the food industry to increase the availability and over-consumption of processed foods and sugary beverages. Applying a *life-course perspective frame* recognizes the biological and social constraints that establish metabolic patterns or poor eating and exercise habits that make it difficult to maintain a healthy weight such as low-birthweight, limited access to healthy food, and limited opportunities to engage in regular physical activity. Applying a *manipulation frame* advances a structural-level policy agenda to counteract the effects of various manipulation strategies, such as the use of food additives to maximize consumption, incessant food advertising, and unavailability of healthy foods in low-income neighborhoods.

7.3.2. Value Statements

The experimental study also investigates a particular frame element, *value statements*, which connect the public to the frame by emphasizing the values invoked by the frame.[13] For political

elites, advocates, and private industry, influencing public opinion by invoking values is an attractive option since the public can easily understand values and uses them in making decisions about political or social issues .[23, 24].[24, 25] Two distinct value statements, equality of opportunity and social responsibility, are tested. These values were identified through expert interviews (for more information, see *Chapter 5: How We Think and Talk about Obesity Matters: Expert Views*). Moreover, equality of opportunity and social responsibility were recently identified by the Frameworks Institute as candidates for future empirical testing [26] (for more information about how these values might serve to promote healthy living, please see *Chapter 3: Reframing Obesity through Alternative Frames and Values*).

7.3.3. Development of the Expert Frames and Value Statements

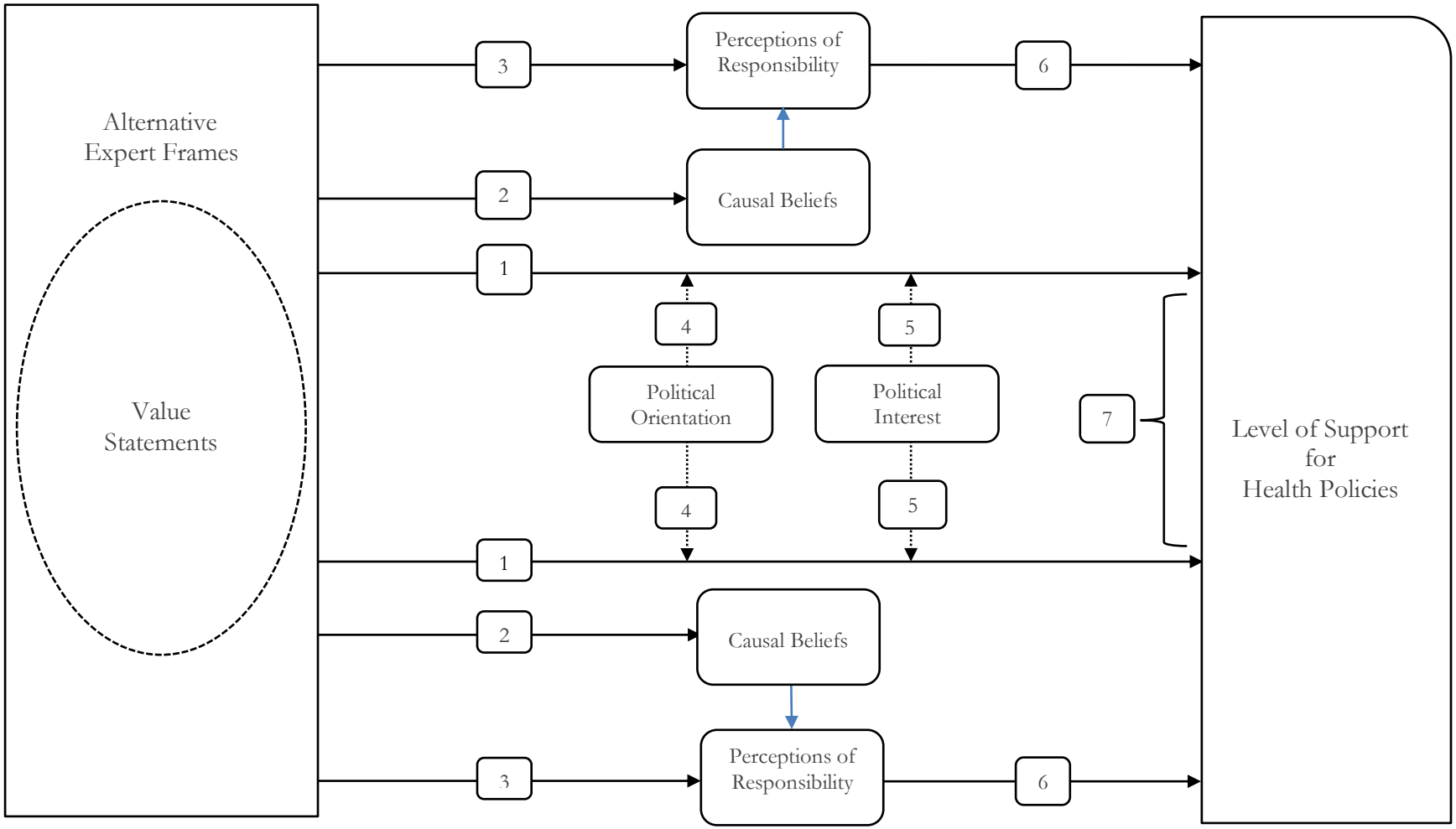
As a preface to this experiment, an extensive literature review on the use of frames in obesity discourse was conducted (please see *Chapter 3: Obesity and Obesity Frames,* for more information). In addition, a detailed discussion about potential alternative frames in which to discuss obesity in a way that can minimize derailing cues that prompt ineffective ways of thinking about obesity solutions [27] was presented in *Chapter 4: Reframing the Obesity Problem Using Alternative Frames and Values*. The alternative frames investigated were the Life-Course Perspective and the Manipulation frame. A series of in-depth, qualitative interviews of obesity experts throughout the nation was then conducted to identify the principal values used by experts throughout their discussions of obesity prevention and potential policy solutions (please see *Chapter 5: How We Talk About Obesity Matters: Expert Interviews*, for more information). Another objective of the interviews was to gauge expert opinion on the usefulness of applying the two alternative frames to understand the causal and solution attributes of obesity. A quantitative content analysis of online news stories focusing on obesity and related online readers' comments was conducted to gain understanding of how online media and its readers discuss causes and solutions to obesity proposed in news stories. In so doing,

patterns of thinking about obesity and obesity prevention were assessed. Another objective was to identify the types of knowledge domains the public use to discuss obesity, ranging from personal experience to popular wisdom [28] (please see *Chapter 6: How We Talk about Obesity Matters: Public Opinion,* for more information).

Afterwards, a "conceptual mapping of the gaps" was conducted to reveal the overlaps and gaps in understanding between experts and the public. By comparing understandings among experts with public patterns of thinking about obesity and obesity prevention, particular aspects of the life-course perspective and the manipulation frame that would most resonate with the public were ascertained; shared values among experts and the public were identified; and narratives associated with the alternative frames and values that could be used to help bridge gaps in thinking about obesity prevention were developed (please see *Appendix 7.1: Conceptual Mapping of the Gaps* for more information).

Two criteria were used to select the equality of opportunity and social responsibility values for testing. The first criterion related to the number of times the values appeared throughout expert interviews. For example, the social responsibility value appeared 32 times and the equality of opportunity appeared 18 times in conversation with experts. The frequency of these appearances were unsolicited, making them the most coherent and popular values among experts. These values were also identified to be the most commonly discussed throughout public commentary. The

Conceptual Model of Experimental Study: The Effect of Value Statements and Alternative Frames on Level of Support for Health Policies



Research Questions Linked to Conceptual Model Labels:

1. Does exposure to value statements or alternative expert frames significantly influence support for policies that address obesity at the structural level? [1]
2. Does exposure to value statements or alternative expert frames significantly influence public beliefs about the causal factors of obesity? [2]
3. Does exposure to value statements or alternative expert frames significantly influence perceptions of responsibility to address obesity? [3]
4. Does political orientation moderate the effect of exposure to alternative frames or value statements on support for policies that address obesity at the structural level? [4]
5. Does political/civic interest moderate the effect of exposure to alternative frames or value statements on support for policies that address obesity at the structural level? [5]
6. Do perceptions of responsibility about obesity mediate the effects of exposure to value statements and alternative expert frames on support for health policies? [6]
7. Does exposure to value statements significantly influence support for policies that address obesity at the structural level, greater than exposure to alternative expert frames? [7]

second criterion was related to the context in which these values were discussed. These values were discussed primarily within the context of discussing why health policies at the structural level are important to implement.

The selection for testing of the alternative frames was deductively based on a literature review (please see *Chapter 3* and *Chapter 4* for more information). These two alternative frames were discussed by a wide range of public health experts and scholars as the most promising for the field to use to understand obesity prevention. For example, the Life-Course Perspective is a well-known and long-established framework to understand the influence of early-life experiences on disease trajectory. Its usefulness as an alternative frame to contextualize obesity prevention has not been formally tested despite its popularity amongst experts. Likewise, the manipulation frame, though not formally known as such, is a coherent packaging of public health research about the power of food corporations on food consumption. The structural premise of the manipulation frame is based on concepts known throughout behavioral economics.

The values and the expert frame narratives are representative of how they might be discussed in a media report or some other form of health policy advocacy materials to which informants might routinely be exposed. These narratives were reviewed by experts in the field including senior staff and faculty at the Frameworks Institute and UCLA to ensure that the values and expert frames were in fact distinct. Special attention was paid to the level of readability of each of the narratives, using the Flesch-Kincaid Grade Level and the Flesch Reading Ease tests. Please see *Table 7.1: Treatment Narratives per Treatment Group*, which describes the narratives used in the experimental survey as well as corresponding Flesch-Kincaid readability test scores.

7.4. RESEARCH METHODOLOGY

7.4.1. Data Source

The study data are from a web-based, randomized population survey experiment conducted in April 2013 that was approved by the UCLA Institutional Review Board in January 2013. The experiment was administered by SurveyMonkey through its Audience platform and SurveyMonkey Contribute (SMC) online research panel, a service provided by SurveyMonkey to assist customers reach a targeted audience for their surveys. SurveyMonkey automatically computes the number of panelists to invite to take the survey experiment based on 1) the number of finished responses requested; 2) the response rates of individual survey respondents; and 3) the availability of survey respondents who meet the study's targeting criteria.

7.4.2. Study Population

The final sample size for this research study is 1,985 and includes a random sample of adults, age 18 and older who are members of the SurveyMonkey Contribute (SMC) online research panel. Overall, the SurveyMonkey Contribute online research panel generally consists of a diverse group of people and is reflective of the U.S. population in terms of gender, age, race/ethnicity, marital status, whether own a home, whether have children less than 18 years of age, BMI level, self-perceived health status, income, educational level, work status, geographic region, political orientation, and level of political interest. Demographic characteristics of the survey population are detailed in Table 7.4.

7.4.2.1. Recruitment of Respondents

Recruitment of survey respondents occurred through SurveyMonkey's panel member site, SurveyMonkey Contribute (SMC). Respondents were recruited from over 30 million people who answer SurveyMonkey surveys each month to help academics target the people they need for their

survey projects. In exchange for providing their time and opinions, SurveyMonkey provides members of SurveyMonkey Contribute with non-cash rewards. For example, survey respondents are asked if they would like to take additional surveys to benefit charities and have a chance to enter a sweepstakes. Each survey respondent who finishes a survey receives a $0.50 donation to the charity of their choice (SurveyMonkey makes this donation on their behalf). By offering these incentives, SurveyMonkey claims to limit the problems that can arise from offering cash rewards such as satisficing and encourages respondents to provide honest, thoughtful opinions.

SurveyMonkey maintains privacy for each of their online research panelists through a number of means. Responses are confidential, with identifying information never revealed without prior approval from the panelist. Panelists may complete any number of surveys on different subjects assigned to them while in the panel, however, the number of surveys panelists can take per week is limited to ensure that no one member is over participating. When surveys are assigned to SMC panelists, an email notification is sent to a private, password protected email account to notify panelists that they have a new survey to take. Surveys are self-administered and accessible any time of day for a designated period. Panelists can complete a survey only once and may leave the survey and the SMC panel at any time.

Exclusion Criteria

Two criteria were used to exclude respondents from the study. The first criteria relates to the length and processing of treatments. Mutz (2011) argues that one of the most problematic concerns in conducting population-based experiments is the inability of the researcher to confirm the amount of time and attention paid to the treatment by the participant [(18).] Since the mean amount of time spent on completing the survey with a treatment condition was 5 minutes and 48 seconds, respondents that took less than 3 minutes (n = 64) were excluded from the study since there may

have been inadequate exposure to the treatment. Respondents that took more than 1 hour (n = 34) were also excluded from the study since there is a possibility that those respondents became distracted or treatment became so distant from the response variable that the anticipated effects are questionable [18]. The second criteria relates to hasty respondents or those that "straight lined" their answers (i.e. those who filled in only the middle options (n = 9) and those who only filled in the left options (n = 2)) and those who used a "semi-x-mas tree" design (i.e. those who only filled in the left option for one part of the survey and then only filled in the right option for the remaining parts of the survey (n = 6). Eight of the respondents had both issues with length of exposure to treatment and were hasty respondents (n = 8).

7.4.2.2. Effect Size

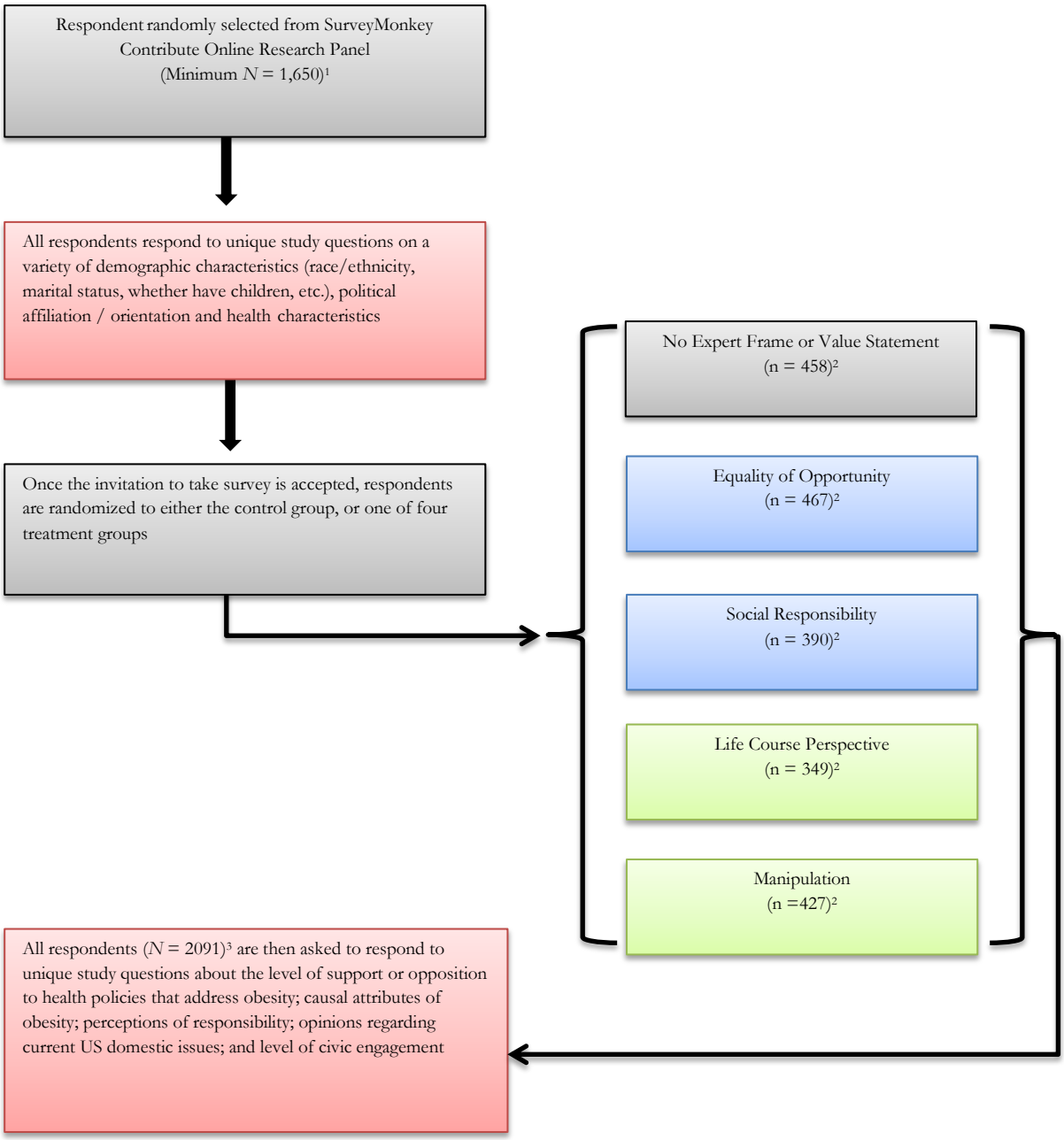
Based on power and effect size calculations, the minimum sample size for this study was determined to be 1,625, or a minimum of 325 respondents per study arm (four treatments and one control). This sample size was calculated using the "`sampsi`" command in Stata 12, which estimates required sample size or power of tests for studies comparing two or more groups. The "`sampsi`" command can be used when comparing means or proportions for simple studies where only one measurement of the outcome is planned and for comparing mean summary statistics for more complex studies where repeated measurements of the outcome on each experimental unit are planned. Based on these calculations, with 80 percent power and an alpha of 0.05, a sample size of 325 per arm and was determined to detect an effect size of .22. Previous studies conducted by the Frameworks Institute, for example, have found similar effect sizes with similar sample sizes [3]. The final sample size for each of the survey arms were: control (n = 426), equality of opportunity value (n = 441), social responsibility value (n = 371), LCP frame (n = 332), and manipulation frame (n = 415).

Table 7.1. Narrative Statements per Treatment Group and corresponding Flesch-Kincaid Readability Scores*

Treatment Group‡	Narrative Statement	Flesch-Kincaid Grade Level	Flesch Reading Ease
Equality of Opportunity	"Lately there has been a lot of talk about obesity in America. Some people believe there should be equal opportunities to eat well and be physically active. According to this view, all Americans should have equal access to healthy food and clean water. Plus, all Americans should have the same prospects to exercise safely and make healthy food decisions for their families. When these conditions exist, people are more able to lead a productive life."	9.4	53.9
Social Responsibility	"Lately there has been a lot of talk about obesity in America. Some people believe that as Americans, all of us are in this together to find solutions to this problem. According to this view, we are all better off when we make sure that good nutrition and exercise options are available within our social, school, and workplace surroundings. This way, we all share in making our communities healthier, which is good for everyone."	9.9	56.5
Life Course Perspective	"Experts agree that early life events play an important role in shaping health. For example, having a healthy weight in early childhood is important to preventing obesity later in life. Keeping a healthy weight requires support for our child care centers, our schools, and our neighborhoods to provide nutritious food and regular exercise opportunities. This way, children can establish lifelong health habits such as healthy eating and getting regular exercise as early as possible."	12.1	40.5
Manipulation	"Experts agree that there are many things outside of people's control that can influence what they eat and drink. For example, advertising can lead people to choose food that is not healthy. Extra salt, sugar and caffeine in food and beverages can also lead people to make unhealthy choices. People need the right information to make healthy food choices. But they also need to be free of the influence of advertising and product manipulation."	8.2	62.6

*The Flesch/Flesch–Kincaid readability tests are designed to indicate comprehension difficulty when reading a passage of contemporary academic English. There are two tests, the Flesch Reading Ease, and the Flesch–Kincaid Grade Level. Although they use the same core measures (word length and sentence length), they have different weighting factors. The results of the two tests correlate approximately inversely: a text with a comparatively high score on the Reading Ease test should have a lower score on the Grade Level test; ‡Control Group was not exposed to any treatment narrative

Figure 7.2. Randomization Process for Experimental Design Study



[1] Minimum total sample size required per power calculations
[2] Actual sample size obtained per survey arm
[3] Sample size prior to applying exclusion criteria

7.4.3. Experimental Design

Figure 7.2 is a schematic of the experimental design. All respondents were asked to answer questions pertaining to their sociodemographic background, health characteristics, political affiliation, and political orientation. SurveyMonkey randomly assigned each respondent to one of the 5 study arms using a 'sample with replacement' random sampling strategy.

7.4.3.1. Survey Instrument

There are nine (9) domains within the survey questionnaire including 1) sociodemographic characteristics; 2) health background (self-perceived health status and height and weight); 3) political affiliation and orientation; 4) narratives (if belong in treatment group); 5) level of support for policies; 6) causal attributes of obesity; 7) perceptions of responsibility regarding obesity; 8) opinions regarding current US domestic issues; and 9) level of civic engagement.

A total of 18 questions were asked to each survey respondent regardless of group assignment. The survey instrument used in the experiment is included as an appendix (please see *Appendix 7.2: Survey Instrument*). All of the survey questions were drawn from previous studies. Questions in the demographic and health status domain come from the National Health Interview Survey (NHIS) and the California Health Interview Survey (CHIS), and demonstrate both strong validity and reliability [(29)]. The questions in the political affiliation and orientation domains, as well as the question measuring level of interest in politics and civic affairs domain, come from the American National Election Studies (ANES) survey. Each of these questions also has strong reliability and validity workplace environment [(30)].

The question pertaining to causal attributes of obesity originates from Oliver and Lee's 2001 "American Attitudes toward Obesity Study" (AATO). To measure causal attributes of obesity, respondents were asked to identify the extent to which they agree with a series of statements that conclude the statement "*Obesity is an issue in the U.S. because…"* [(8)]. However only one of the causal

attributes of obesity – lack of individual willpower – was derived from the Oliver and Lee study. The remaining items were derived from the literature and include healthy food affordability [31] and the workplace environment [30]. In addition to these items, the study also examines emerging causal attributes of obesity including fatalism [19], food addiction [20], and the role of food advertising [21].

The question pertaining to perceptions of responsibility originate from a number of previous studies measuring the public's opinion on who is responsible for addressing obesity [8, 9, 32]. The two dominant frames in obesity discourse – personal responsibility and environmental – not only influence public opinion on what causes obesity, but also who is most responsible for addressing obesity. In other words, if the public perceives obesity to be the result of an individual's inability to monitor their food consumption, then the public will be more likely to assign responsibility to address obesity to the individual. If the public perceives obesity to be the result of incessant food advertising, then the public will be more likely to assign responsibility to the food industry. The choice of actors tested in this study, ranging from the individual to society, each represent either a responsible agent within the context of the individual (individuals) or a responsible agent within the context of society (employers, government, society, schools, food industry, physicians).

Finally, the questions pertaining to opinions on current US domestic issues and voter registration status were pre-validated and provided by SurveyMonkey.

Survey Instrument Construction and Pre-Testing

The survey instrument went through two stages of construction before it was finalized and used in the online survey experiment. First, the overall goals and objectives of the study guided the development of the questionnaire and the selection of the questions included. Second, a preliminary survey instrument was pre-tested in a pilot group of SurveyMonkey Audience panel members (n = 107) in March 2013. The objective of the pre-test was to examine inconsistencies in the survey

instrument, including lack of clarity of instructions, wording of questions, question sequence, response choices, and other technical issue pertaining to the SurveyMonkey interface.

7.4.4. Measures

7.4.4.1. Primary Outcome: Level of Support for Health Policies

The four main selection criteria for the proposed public policies are 1) the strength of the relation between the policies and the proposed, alternative frames; 2) whether significant research supporting the effectiveness of the policies on obesity exists; and 3) the likelihood of being adopted and supported; 4) the extent to which experts endorsed or recommended particular policies. An in-depth discussion about the policies proposed in the experimental survey is presented in *Chapter 4: Reframing Obesity through Alternative Frames and Values*. For a summary of policy items and selection criteria discussed, please see *Table 7.2. Proposed Policies Tested in Experimental Survey*.

Respondents were asked to identify, on a five-point ordinal scale (*strongly oppose* = 1 to *strongly support* = 5) the level to which they support the following nine (9) health policies: 1) increase support for breastfeeding in the workplace (*pol_nursing*); 2) implement statewide nutrition standards within licensed childcare and pre-school settings (*pol_nutrstandard*); 3) increase government funding for schools to provide physical education and activity programs (*pol_physical ed*); 4) provide incentives to private businesses to support voluntary physical activity opportunities for employees during the work day (*pol_workplace*); 5) require food manufacturers to disclose the amount of additives in food products, such as sugar and caffeine, on food packaging (*pol_disclose*); 6) prohibit all high fat, high-sugar food advertising on television programming watched primarily by children (*pol_advertising*); 7) restrict unhealthy food and beverage advertising on public school buses (*pol_buses*); 8) remove soft drink vending machines from public schools (*pol_vending*); and 9) establish a statewide sales tax on sugary beverages with tax dollars only going towards educational campaigns about healthy eating and

Table 7.2. Summary of Proposed Policies to Address Obesity at the Structural-Level

Frame	Policy	Relative Strength to Category	Significant Research[1]	Likelihood of Adoption
Life Course Perspective	Increase support for breastfeeding in the workplace	Strong; relates to infant development and the metabolic effects of breastfeeding vs. non-breastfeeding on childhood obesity	See citations #37 and #38	Strong. Fifteen (15) states currently require that employers support breastfeeding after returning to work.
	Implement statewide nutrition standards within licensed childcare and pre-school settings	Strong; relates to early childhood development, children's nutrition, and early formation of potential lifelong eating habits	See citations #2 and #39-#41	Moderate to Strong. States such as New York and Wisconsin have implemented similar policies to enforce healthy nutrition standards in child care settings and Connecticut is currently considering S.B. 651, which establishes healthy beverage standards.
	Increase government funding for schools to provide physical education and activity programs	Strong; relates to school-aged children and adolescents and early formation of potential lifelong exercise habits	See citations #3, #43, and #44	Moderate. Currently only six states mandate the appropriate amount of physical education instruction for middle school and non require PE at the high school level. California standards are among the highest in the nation and could serve as a strong example to others
	Provide incentives to non-profit and corporate organizations that adopt physical activity practice	Strong; relates to working adults and reshifting the status quo of the working environment as sedentary to one that supports active living	See citations #45 thru #47	Moderate. Legislation is currently being considered to provide incentives such as tax credits to companies that offer comprehensive workplace wellness programs; policies at the local level or site of business should be considered
Manipulation	Require food manufacturers to disclose the amount of additives in food products, such as sugar and caffeine, on food packaging	Strong; relates to physiological manipulation and information assymetry among consumers regarding addictive properties of certain additives in food	See citations #48 thru #50	Moderate. Although the Food and Drug Admininistration (FDA) has the primary authority over food labeling; states also have had success in nutrition labeling and/or menu labeling and could extend disclosure of information to include sugar, salt, and caffeine
	Prohibit all high fat, high-sugar food advertising on television programming watched primarily by children	Strong; relates to cognitive manipulation and the effects of marketing on increased preference among children for particular foods, brands, and consumption of those brands	See citations #51 thru #54	Moderate; Although restriction of advertising is under the jurisdiction f the Federal Trade Commission, the public, the public health community, and legislators could mobilize and demand regulations using the argument that advertising to children is an unfair and deceptive act
	Restrict unhealthy food and beverage advertising on public school buses	Strong; also relates to cognitive manipulation and the effects of marketing on children; added dimension of using publicly funded school buses as an advertising venue for private companies	See citations #55 thru #57	Moderate to Strong; legal advocates argue that schools are a nonpublic forum and as such, governments have more latitude to restrict certain types of speech in this domain; local school districts have adopted policies that prohibit advertising that promotes less nutritious food choices
	Remove soft drink vending machines from public schools	Strong; relates to environmental manipulation and the need to reshape the physical environment in order to increase individual choice in food consumption	See citations #37, and #58 thru #60	Strong. The Healthy, Hunger-Free Kids Act of 2010 required the USDA to establish nutrition standards for all foods sold in schools. The "Smart Snacks in School" proposed rule represent minimum standards that local educational agencies, school food authorities and schools are required to meet.
	Establish a statewide sales tax on sugary beverages with tax dollars only going towards educational campaigns about healthy eating and exercise	Strong; relates to environmental manipulation and the use of taxation as a strategy to alter the food environment	See citations #61 thru #64	Weak to Moderate; however states continue to propose legislation in order to raise revenue, deter consumptions and indirectly reduce obesity; CA Senate committees recently approved S.B. 622 (Monning, D-Carmel)

[1] Citations can be found in *Chapter 4: Reframing Obesity through Alternative Frames and Values*

exercise (*pol_beverage tax*). Question randomization for the order of the policies was used to alleviate order and survey-fatigue bias.

7.4.4.2. Secondary Outcome No. 1: Level of Agreement on Causal Attributes

Respondents were asked to identify on a 5-point ordinal scale (*strongly disagree* = 1 to *strongly agree* = 5) the level to which they agreed with seven (7) randomly ordered responses to the statement "Obesity is an issue in the U.S. because". This study makes use of findings from previous studies examining various types of causal attributes on obesity including societal causal attributes ("it is more affordable to eat junk food and drink sugary beverages", "children don't get enough physical activity in school", and "most people's jobs require sitting for long periods of time") and individual attributes ("most people lack the willpower to diet or exercise regularly"). This study also examines new, emerging causal attributes of obesity including fatalism ("obesity is an unavoidable reality of our modern, busy lifestyle"), food addiction ("foods high in fat, sugar, and salt can be addicting"), and advertising ("some advertising can increase people's desire to eat junk food and drink sugary beverages").

7.4.4.3. Secondary Outcome No. 2: Perceptions of Responsibility

Respondents were asked to identify, on a 5-point ordinal scale, which of the following seven (7) agents bore *"none"* = 1, *"hardly any"* = 2, *"just some"* = 3, *"a good amount"* = 4, or a *"great deal"* = 5 of responsibility for addressing the problem of obesity: 1) employers; 2) government; 3) individuals; 4) physicians; 5) society; 6) the food industry; and 7) schools.

Rescaling of Dependent Outcome Measures

Due to low frequencies and minimum cell sizes in the data, responses for each of the five-point Likert scale outcomes were collapsed into three-point, condense categories (e.g. 1 = *"strongly*

oppose/oppose", 2 = "*neither oppose nor support"*, and 3 = *"support/strongly support"* for health policies; 1 = *"strongly disagree/disagree"*, 2 = *"neither agree nor disagree"*, and 3 = *"agree/strongly agree"* for causal attributes; and 1 = *"none/hardly any"*, 2 = *"just some"*, and 3 = *"a good amount/a great deal"* for perceptions of responsibility

7.4.4.4. Moderator No. 1: Political Orientation

Given previous research demonstrating that mass public opinion can be predetermined by varying levels of political awareness and predispositions [(8)], the study examines whether political orientation significantly moderates the effect of the treatments on level of support for health policies. Political orientation is a composite ordinal variable measuring political affiliation (1 = *"strong republican"*, 2 = *"republican"*, 3 = *"slight republican"*, 4 = *"independent"*, 5 = *"slight democrat"*, 6 = *"democrat"*, and 7 = *"strong democrat"*) and political ideology (1 = *"extremely conservative"*, 2 = *"conservative"*, 3 = *"slightly conservative"*, 4 = "*moderate"*, 5 = *"slightly liberal"*, 6 = "*liberal"*, and 7 = *"extremely liberal"*). From this composite variable, a set of three dummy variables (*conservative*, *moderate*, and *liberal*) were created and used in models testing for effect moderation.

7.4.4.5. Moderator No. 2: Level of Political and Civic Interest

Since political interest generally represents the strongest predictor of political behavior such as voting and civic participation [(10, 11)], the study examines whether level of political and civic interest moderated the effect of the treatment on level of support for health policies. Respondents were asked on a four-point ordinal scale, if they followed governmental and public affairs *"hardly at all"* = 1, *"only now and then"* = 2, *"some of the time"* = 3, or *"most of the time"* = 4. This measure was rescaled as a binary variable with *"most of the time"* equal to 1 and the remaining categories equal to 0 and used in tests of effect moderation.

7.4.4.6. Mediation Measure: Perceptions of Societal Responsibility

This study examines perceptions of responsibility as a possible mediator between exposure to the treatment and level of support for health policies. Exploratory factor analysis was conducted to examine the unidimensionality of responsible agents (employers, government, individuals, physicians, society, the food industry, and schools) and to identify possible latent variables contributing to a common variance in the set of variables measuring perceptions of responsibility [(33)]. Preliminary results indicated the presence of three common factors. Two criteria were used to determine whether a factor was extracted. The first criterion is the eigenvalue, which measures the total variance accounted by each factor. The eigenvalue for the first factor was 2.32, and .26 and .06 for the second and third factors respectively. The widely used Kaiser criterion drops all components with eigenvalues under 1.0. However, there is broad consensus in the literature that this approach may be among the least accurate methods for selecting the number of factors to retain [(34)]. The second criterion therefore was to conduct a "scree test", a procedure that uses decreases in eigenvalues to determine the factors to be retained and involves examining the graph of the eigenvalues and looking for the natural bend or break point in the data where the curve flattens out [(34)]. The scree test demonstrated the existence of one factor prior to a break in the data. Based on these criteria, one factor was extracted.

The second step was to examine the factor loadings, or the correlations between a factor and the individual variables being analyzed, of each of the responsibility agent variables. All variables that had absolute values larger than .50 (employers, government, society, the food industry, and schools) were retained since they loaded highly on the factor and were considered to be members of a group of variables identified by the factor societal responsibility (please see *Table 7.3. Factor Loading Scores and Unique Variances* for more information). Variables that had loadings with absolute values of less than .50 were not retained (individuals and physicians). Using Stata's `predict` command, linear

Factor Score Analysis Results[1]

Table 7.3. Factor Loading Scores and Unique Variances

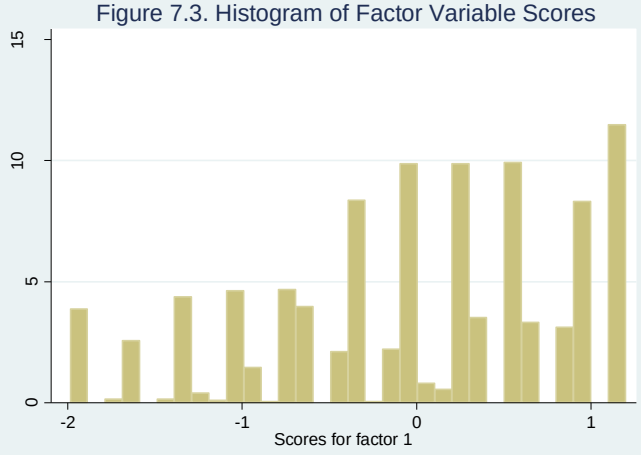
Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor 1	2.3193	2.0498	1.1254	1.1254
Factor 2	0.2695	0.2102	0.1308	1.2561
Factor 3	0.0594	0.1491	0.0288	1.2561
Factor 4	-0.0897	0.0637	-0.0435	1.2414
Factor 5	-0.1534	0.0127	-0.0744	1.1670
Factor 6	-0.1661	0.0120	-0.0806	1.0864
Factor 7	-0.1781		-0.0864	1.0000

Factor Loadings (pattern matrix) and Unique Variances

Agents of Reponsibility	Factor 1	Factor 2	Factor 3	Uniqueness
Employers	0.5991	-0.1684	-0.0638	0.6087
Government	0.6639	-0.1025	-0.1211	0.5341
Individuals	0.2496	0.2799	0.101	0.8492
Physicians	0.4569	-0.2157	0.1446	0.7238
Society	0.6205	0.1975	-0.0409	0.5743
Food Industry	0.609	0.2384	-0.0143	0.5721
Schools	0.7019	-0.0998	0.0874	0.4897

LR test: independent vs. saturated: chi2(21) = 3152.68 Prob>chi2 = 0.0000

Figure 7.3. Histogram of Factor Variable Scores



[1] Figure 7.3. above illustrates the distribution of scores for the factor "Perceptions of Social Responsibility". Scores ranged from -1.984167 to 1.197629.

regression was used to compute a factor score that is highly correlated with societal responsibility. A Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was used to examine the appropriateness of the factor analysis. High values (between 0.5 and 1.0) indicate factor analysis is appropriate. Values below 0.5 imply that factor analysis may not be appropriate. The KMO score was .82 indicating that the factor analysis was appropriate. The societal agents of responsibility factor score was measured as a continuous outcome and used in the mediation analysis only.

7.4.4.7. Primary Regressor of Interest: Exposure to Treatment

The primary predictors of support for health policies, causal attributes of obesity, and perceptions of responsibility, are four unique dichotomous variables (0/1) measuring exposure to a particular treatment (0 = *control* and 1 = *treatment group*$_{T1\text{-}4}$, where Treatment 1 = *Equality of Opportunity* value statement, Treatment 2 = *Social Responsibility* value statement; Treatment 3 = *Life-Course Perspective* alternative frame, and Treatment 4 = *Manipulation* alternative frame). Respondents in each of the four treatment groups were exposed to only one narrative. The control group was not exposed to any narrative.

7.4.5. Statistical Methods

7.4.5.1. Descriptive Statistics

Bivariate analysis was used to produce descriptive statistics. The consistency of level of support for health policies, level of agreement with causal attributes, and perceptions of responsibility across the treatment arms was examined for the overall sample population. An alpha level of $p<.05$ was used for all statistical two-tailed tests. All analyses were conducted using Stata Statistical Software, version 12 (Stata Corp, College Station, TX).

7.4.5.2. Effect of Treatment on Primary and Secondary Outcomes

Analyses were conducted to measure the effect of exposure to a treatment condition (i.e. an alternative expert frame or a value statement) on the level of support for health policies. A set of ordinal logistic regression models were fitted for each of the three outcome variables. The models included only the primary regressor (treatment group) and the outcome (level of support for health policies, level of agreement with causal attributes, and perceptions of responsibility) (Eq.1).

$$\ln(\theta_i) = \alpha_2 - \beta X_{1\text{treatment}(1\text{-}4)} \quad (1)$$

The validity of the proportional odds assumption in the ordinal logistic regression models was assessed by using the Brant test of parallel regression. The results indicate that the Likert, 3-item scale 'level of support for health policies' primary outcome variable and the latent variables measured by it were equal interval data (please see *Appendix 7.3: Results from Brant Test of Parallel Regression Assumption*, for more information). Parameter estimates from these ordered logistic models indicate the odds of having a higher level of support for health policies, a higher level of agreement regarding causal attributes, and a higher level of attribution of responsibility for a given agent above any threshold compared to those below that threshold. *P*-values for the experimental results were adjusted for multiple comparisons using the Bonferroni correction.

7.4.5.3. Effect Moderation of Political Orientation and Level of Political and Civic Interest

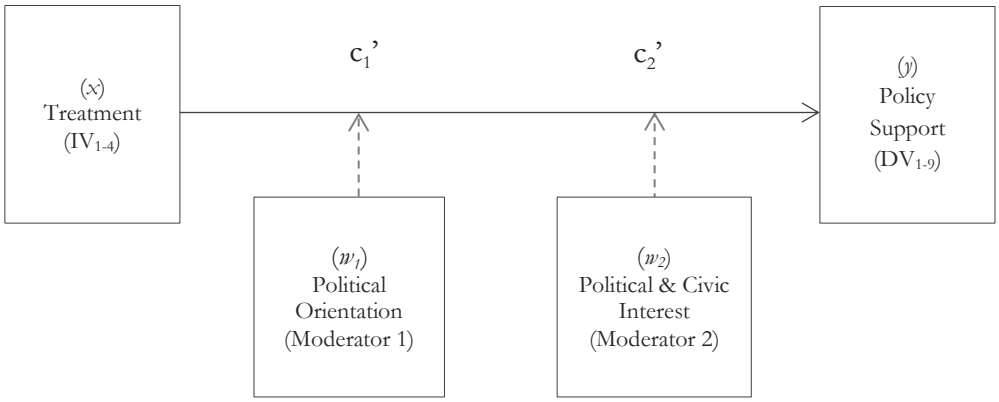
Given the nonlinear nature of the ordered logit model, the analysis uses the `margins` command in Stata to test for and correctly report the significance of the interaction effects of political orientation and exposure to a treatment and political interest and exposure to a treatment on level of support for health policies [35, 36]. This process involves three critical steps. First, the moderation effect for each dependent variable is estimated by examining the difference in the cross-partial derivative of the treatment when political orientation or level of political interest changes

from 0 to 1. Multivariate regression models that included an interaction term between treatment and political orientation (measured by 3 dummy variables) (Eq.2) and treatment and political interest (dichotomous variable) was fitted for each of the dependent health policy outcomes (Eq.3).

$$\ln(\theta_i) = \alpha_2 - \beta X_{1\text{treatment(1-4)}} + \beta W_{1\text{political orientation 1- 3}} + \beta X_1 * W_1 \quad (2)$$

$$\ln(\theta_i) = \alpha_2 - \beta X_{1\text{treatment(1-4)}} + \beta W_{2\text{level political civic interest}} + \beta X_1 * W_2 \quad (3)$$

Figure 7.4. Measurement Models 2 & 3: Moderation Effects Political Orientation and Level of Political and Civic Interest



Where *x* = the effect of being in a treatment group (i.e. Group_EOO, Group_SR, Group_LCP, or Group_MAN), *y* = the level of support of structural level policies (i.e. pol_nursing, pol_nutrstandard , pol_physical ed, pol_workplace, pol_disclose, pol_advertising, pol_buses , pol_vending, and pol_beverage tax), and *m* = a factor variable indexing perceptions of societal responsibility as the proposed mediator.

w_1 = political orientation (measured by three separate dummy variables: conservative, moderate, and liberal) as the first proposed moderator and c_1' = the interaction effect between political orientation and treatment on level of support for health policies.

w_2 = level of political and civic interest (measured by a dichotomous variable where 1 = *"most of the time"* and 0 = "hardly*")* and c_2' = the interaction effect between political and civic interest and treatment on level of support for health policies.

Second, the predicted conditional probability that a one-unit increase for support of policies as political orientation and political interest increases by one-unit was estimated holding each of the covariates at its mean. Since the analyses were conducted using non-linear regression, the effects of the covariates were also non-linear, meaning that the interaction effect would differ depending on

the different values of the covariates. The final step was to estimate the difference in the predicted probabilities and determine whether the difference was significant at the $p<.05$ level. The results from this final step will provide the basis for stratifying the sample into sub-groups if necessary (such as conservative, moderate, and liberal groups or groups based on level of political interest, for example) and fitting a set of regression models for the primary outcomes in these stratified models.

7.4.5.4. Effect Mediation of Perceptions of Social Responsibility on Level of Support for Health Policies

One starting point for mediation analysis is a significant relationship between *X* (treatment) and *Y* (level of support for health policies) [37]. Using the outcome variable *Y* as the criterion variable in a regression equation and *X* as a predictor, may establish that there is an effect that may be mediated. Morera and Castro (2013) argue that the causal steps requirement of the significance of *C* is a problem since this requirement misses the opportunity to measure potential indirect influences on the outcome variable [38]. Therefore, tests of mediation were conducted for outcomes that were marginally significant ($p<.10$) since perceptions of societal responsibility could still have an indirect effect on level of support for health policies. *C* was previously estimated via ordinal logistic regression (Eq.1).

$$\ln(\theta_i) = \alpha_2 - \beta X_{1\text{treatment}(1\text{-}4)} \quad (1)$$

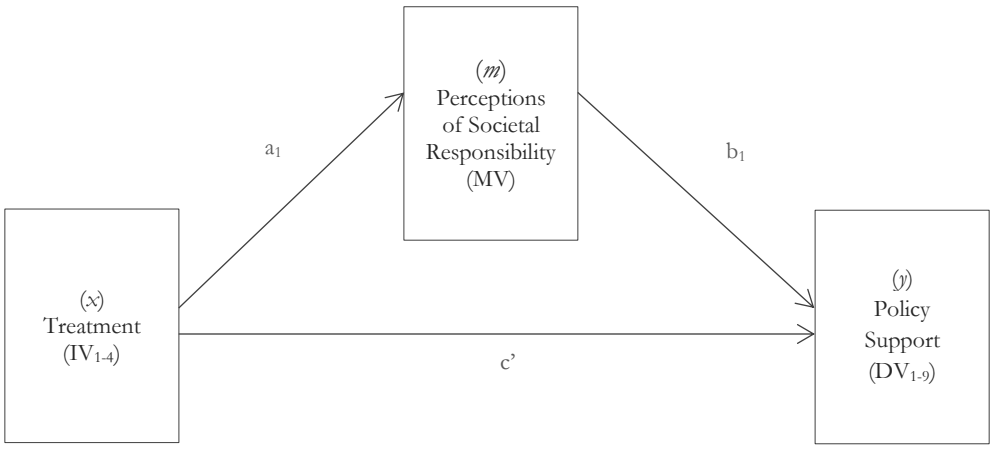
Using *M* (perceptions of societal responsibility) as the criterion variable in the ordinary least squares regression equation (factor scores are continuous) and *X* (treatment) as a predictor (estimate and test path *a*), the next step treats the mediator as if it were an outcome variable (Eq. 4).

$$M = \beta_{01} + aX \quad (4)$$

The next step demonstrates that the mediator affects the outcome variable by using *Y* as the criterion variable in the ordinal logistic equation and *X* and *M* as predictors (estimate and test path *b*) (Eq. 5).

$$\ln(\theta_i) = \alpha_2 - \beta X_{1\text{treatment}(1\text{-}4)} + \beta M_{\text{perceptions}} \quad (5)$$

Figure 7.5. Measurement Model 4: Mediation Effects of Perceptions of Societal Responsibility



Where *x* = the effect of being in a treatment group (i.e. Group_EOO, Group_SR, Group_LCP, or Group_MAN), *y* = the level of support of structural level policies (i.e. pol_nursing, pol_nutrstandard , pol_physical ed, pol_workplace, pol_disclose, pol_advertising, pol_buses , pol_vending, and pol_beverage tax), and *m* = a factor variable indexing perceptions of societal responsibility as the proposed mediator.

a_1 represents the regression coefficient for *x* when *m* is regressed on *x*, b_1 is the coefficient for *m* when *y* is regressed on *m* and *x*, and c' represents the direct effect of *x* on *y*.

However, inconsistencies arise when calculating the significance of the mediator, particularly when the outcome of interest is a categorical variable. The study uses methodological extensions to accommodate categorical regressors. Specifically, a z-test that combines results from OLS and ordinal logistic regression to indicate whether there was a significant mediator effect was calculated as follows in Eq.6:

$$\frac{ZaZb}{\sigma_{Zab}} = \frac{a}{Sa}\ x\ \frac{b}{Sb} \div \sqrt{Z_a^2 + Z_b^2 + 1} \quad (6)$$

Where Z_a is the standardized element of the parameter estimate *a* (the relationship between the independent and the mediator variable) divided by its standard error S_a; Z_b is the standardized element of the parameter estimate *b* (the relationship between the mediator and the dependent variable) divided by its standard error S_b; $Z_a Z_b$ is their product, and the square root of $Z^2_a + Z^2_b + 1$ is their collected standard error (or σ_{zab}).

7.4.5.5. Sensitivity Analysis

To test the robustness of the effect of the treatment on support for health policies, a sensitivity analysis was conducted and measured the extent to which the multivariable results differed when the five-category primary and secondary outcome variables were used.

7.5. RESULTS

Randomization to the five study arms resulted in balanced samples on all measured characteristics (Table 7.4), which suggests that the effect of treatment narratives can be examined by comparing unadjusted results by study arm. There were no statistically significant differences between political affiliation, political ideology, or level of political interest in the treatment narratives and control groups.

Table 7.5 presents odds ratios and their 95% confidence intervals of the effect of treatment narrative on level of support for health policies. The first hypothesis, that exposure to a treatment would lead to support for health policies, was supported for 3 out of the 9 health policies presented. Significant differences at the $p<.05$ level were found among each of the four treatment groups in comparison to the control group for the health policy, *increase support for breastfeeding in the workplace* (aka "nursing")(Treatment 1(*Equality of Opportunity* value): OR 1.54, 95% CI: 1.19, 1.99; Treatment 2 (*Social Responsibility* value): OR 1.32, 95% CI: 1.01, 1.73; Treatment 3 (*Life-Course Perspective* alternative

Table 7.4. Select Demographic Features Per Survey Experimental Arm

Demographic Characteristic	**Control Group** (n = 426)	**Group EOO** (n = 441)	**Group SR** (n = 371)	**Group LCP** (n = 332)	**Group MAN** (n = 415)	**Total Sample** (N = 1,985)
Female (%)	45.1	48.8	44.9	46.4	42.5	45.5
Age (%)						
18- 29 years	19.3	16.9	18.1	17.2	16.2	17.5
30 - 44 years	25.0	23.7	20.3	21.4	24.2	23.0
45 - 60 years	30.9	33.0	33.0	33.4	33.1	32.6
> 60 years	24.8	26.4	28.7	28.0	26.6	25.9
Race/Ethnicity (%)						
American Indian	1.2	2.3	0.5	0.3	1.3	1.6
Asian	3.3	5.5	1.9	4.5	3.6	4.1
African American	3.5	3.6	3.5	7.8	4.4	4.5
Latino	6.1	3.9	6.7	4.8	5.3	5.3
Non-Latino White	85.9	84.8	87.3	82.5	85.4	84.6
Marital Status (%)						
Married	54.5	54.4	56.6	56.9	56.3	55.7
Widowed	3.5	3.6	4.3	2.7	3.2	3.1
Divorced	12.2	14.1	12.4	10.2	11.8	11.6
Separated	1.6	2.5	1.4	1.5	2.0	1.9
Never married	29.7	26.3	25.1	29.8	26.6	27.6
Have children < 18 years (%)	23.0	25.9	20.0	26.5	26.5	24.4
Educational Attainment (%)						
Less high school diploma	1.9	2.1	2.4	2.4	1.2	2.0
High school diploma	11.1	12.8	7.6	8.4	8.0	9.7
Some college	27.6	30.5	26.8	24.7	27.8	27.6
Bachelors degree	35.6	29.4	34.3	36.1	35.0	34.0
Graduate degree	23.8	25.3	28.9	28.3	28.0	26.7
Income (%)						
$0 to $24K	22.5	22.7	21.7	22.6	16.7	21.2
$25K to $49K	15.5	14.7	14.0	12.8	14.7	14.4
$50K to $99K	28.0	29.8	32.3	29.7	33.2	30.6
$100K to$149K	19.5	15.2	19.4	18.3	21.8	18.8
$150K or more	14.5	17.6	12.6	16.7	13.7	15.0
Interest in Politics (%)						
Most of the time	57.0	55.3	58.7	58.2	58.6	57.4
Some of the time	30.4	29.1	28.5	28.7	31.2	29.6
Only now and then	8.5	11.1	6.7	9.5	6.1	8.4
Hardly	4.2	4.5	6.2	3.7	4.2	4.5
Political Affiliation (%)						
Republican strong	6.1	5.2	6.5	7.2	6.5	6.3
Republican	12.7	12.9	15.4	12.4	10.6	12.8
Republican leans	11.3	9.3	10.5	9.9	14.2	11.1
Independent	26.8	31.5	29.4	30.7	24.8	28.6
Democrat leans	15.5	13.6	14.0	12.4	14.7	14.1
Democrat	18.5	18.1	15.4	15.7	15.7	16.8
Democrat strong	9.2	9.3	8.9	11.8	13.5	10.5
Political Ideology (%)						
Conservative extreme	4.2	3.4	5.4	4.8	5.1	4.5
Conservative	19.0	16.6	20.2	19.3	18.8	18.7
Conservative slight	12.9	13.2	13.8	13.3	12.1	13.0
Moderate	24.7	30.4	22.4	26.8	27.5	26.5
Liberal slight	15.7	12.5	11.1	12.4	11.8	12.8
Liberal	16.2	17.7	20.2	16.6	16.6	17.4
Liberal extreme	7.3	6.4	7.0	6.9	8.2	7.2
Registered to vote (%)	91.3	86.9	89.5	89.2	93.3	90.0

‡Columns sum to 100% down rows within variable blocks; Percentages may not sum to 100 because of rounding error

Table 7.5. Ordinal Logistic Regression Estimates for Outcome: Level of Support for Policies per Treatment Group

Policies	**Treatment 1 (*n* = 441)** OR (95% CI)	**Treatment 2 (*n* = 371)** OR (95% CI)	**Treatment 3 (*n* = 332)** OR (95% CI)	**Treatment 4 (*n* = 415)** OR (95% CI)
pol_nursing	1.54**** (1.19, 1.99)	1.32** (1.01, 1.73)	1.51*** (1.14, 2.00)	1.43**** (1.11, 1.86)
pol_nutrstandards	1.26 (0.94, 1.70)	1.16 (0.86, 1.57)	1.15 (0.84, 1.58)	1.30* (0.96, 1.76)
pol_physical ed	1.12 (0.85, 1.47)	0.96 (0.73, 1.28)	1.07 (0.80, 1.44)	1.05 (0.80, 1.40)
pol_workplace	1.23 (0.92, 1.64)	1.30* (0.95, 1.76)	1.11 (0.81, 1.51)	1.21 (0.90, 1.62)
pol_disclose	1.17 (0.75, 1.83)	1.11 (0.70, 1.75)	0.98 (0.62, 1.55)	1.13 (0.72, 1.78)
pol_advertising	1.11 (0.87, 1.43)	0.94 (0.73, 1.23)	0.98 (0.75, 1.28)	0.98 (0.76, 1.26)
pol_buses	0.87 (0.62, 1.23)	0.83 (0.58, 1.19)	0.87 (0.60, 1.25)	0.89 (0.63, 1.26)
pol_vending	1.17 (0.90, 1.52)	1.09 (0.83, 1.43)	1.25 (0.94, 1.65)	0.98 (0.76, 1.28)
pol_beverage tax	1.04 (0.81, 1.33)	0.88 (0.68, 1.14)	0.93 (0.71, 1.22)	0.97 (0.75, 1.24)

*****p < .001, ***p < .01, **p < .05, *p < .10*

Bonferroni correction p-value = .006

Where Treatment 1 = those exposed to the Equality of Opportunity value statement, Treatment 2 = those exposed to the Social Responsibility value statement, Treatment 3 = those exposed to the Life-Course Perspective frame, and Treatment 4 = those exposed to the Manipulation frame.

frame): OR 1.51, 95% CI: 1.14, 2.00; and Treatment 4 (*Manipulation* alternative frame): OR 1.43, 95% CI: 1.11, 1.86)).

Marginally significant differences were also found at the $p<.10$ level for the health policy, *provide incentives to private businesses to support voluntary physical activity opportunities for employees during the workday* (aka "physical activity in the workplace"), among those exposed to the social responsibility (Treatment 2) value statement (OR 1.30, 95% CI: 0.95, 1.76). Among those exposed to the

manipulation frame (Treatment 4), marginally significant differences were found at the $p<.10$ levels for the health policy, *implement statewide nutrition standards within licensed childcare and pre-school settings* (aka "nutrition standards") (OR 1.30, 95% CI: 0.95, 1.76).

Table 7.6. presents odds ratios and their 95% confidence intervals of the effect of treatment narratives on level of agreement on causal attributes of obesity (*Hypothesis 2*). Among those exposed to the social responsibility value statement, significant differences were found at the $p<.05$ levels compared to those in the control group for the causal attribute, workplace environment (OR 1.34, 95% CI: 1.00, 1.80).

In regards to perceptions of responsibility to address obesity (*Hypothesis 3*), only one significant result was found (Table 7.7). For those exposed to an equality of opportunity value statement, the odds of attributing greater responsibility to address obesity to employers were .31 times greater than the odds for the control group (OR 1.31; 95% CI: 1.02, 1.68).

Hypotheses 4 and 5 were not supported by the data. Although both political orientation and level of political interest were significantly associated with level of support for health policies, neither measure significantly moderated the effect of exposure to a treatment narrative at the $p<.05$ level with the exception of a few isolated effects (9 out of a possible 648 outcomes). Appendix 7.4 illustrates the conditional marginal effects of supporting a health policy at a certain outcome (outcome 1 = *"oppose",* outcome 2 = *"neither support nor oppose"*, or outcome 3 = *"support"*) by political orientation (*conservative*, *moderate*, or *liberal*) while holding the covariates at their mean. Statistically significant outcomes at the $p<.05$ level are marked with an asterisk. Appendix 7.5 also illustrates the conditional marginal effects of supporting a health policy at a certain outcome (outcome 1 = *"oppose",* outcome 2 = *"neither support nor oppose"*, or outcome 3 = *"support"*) by level of political and civic interest (yes=*1*/no=*0*) while holding the covariates at their mean as well as their marginal differences.

Table 7.6. Ordinal Logistic Regression Estimates for Outcome: Level of Agreement on Causal Attributes of Obesity per Treatment Group

Causal Attributes	**Treatment 1 (*n* = 441)** OR (95% CI)	**Treatment 2 (*n* = 371)** OR (95% CI)	**Treatment 3 (*n* = 332)** OR (95% CI)	**Treatment 4 (*n* = 415)** OR (95% CI)
Affordability	1.16 (0.88, 1.54)	1.10 (0.82, 1.48)	0.97 (0.73, 1.31)	1.02 (0.77, 1.35)
Advertising	1.16 (0.88, 1.54)	1.20 (0.89, 1.60)	1.12 (0.83, 1.52)	1.20 (0.90, 1.60)
Lack of Physical Education	0.84 (0.62, 1.13)	1.04 (0.75, 1.44)	0.90 (0.65, 1.25)	0.92 (0.67, 1.25)
Work Environment	0.91 (0.69, 1.18)	1.34** (1.00, 1.80)	1.05 (0.78, 1.40)	0.97 (0.74, 1.27)
Lack of Willpower	1.27 (0.95, 1.68)	1.28 (0.95, 1.72)	1.10 (0.81, 1.49)	1.17 (0.87, 1.56)
Fatalism	0.98 (0.76, 1.27)	0.88 (0.67, 1.15)	1.04 (0.80, 1.37)	0.86 (0.66, 1.12)
Food Addiction	1.22 (0.90, 1.65)	1.21 (0.87, 1.66)	1.12 (0.81, 1.56)	1.01 (0.75, 1.37)

*****p < .001, ***p < .01, **p < .05, *p < .10*

Bonferroni correction p-value = *.007*

Where Treatment 1 = those exposed to the Equality of Opportunity value statement, Treatment 2 = those exposed to the Social Responsibility value statement, Treatment 3 = those exposed to the Life-Course Perspective frame, and Treatment 4 = those exposed to the Manipulation frame.

The results from the test of mediation (Table 7.8) suggest that perceptions of societal responsibility did not significantly mediate the effect of any treatment narrative on the level of support for health policies, specifically policies supporting nursing in the workplace, implementing nutrition standards in child care and pre-school settings, providing incentives to private businesses offering opportunities for physical activity in the workplace, and removing vending machines from schools. Therefore, the null hypothesis that perceptions of societal responsibility does not mediate the effect of treatment narratives on level of support for health policies cannot be rejected at the $p<.05$ level. Finally, since exposure to both alternative expert frames and value statements

Table 7.7. Ordinal Logistic Regression Estimates for Outcome: Perceptions of Responsibility to Address Obesity per Treatment Group

	Treatment 1 (*n* = 441) OR	**Treatment 2 (*n* = 371)** OR	**Treatment 3 (*n* = 332)** OR	**Treatment 4 (*n* = 415)** OR
Responsible Agents	(95% CI)	(95% CI)	(95% CI)	(95% CI)
Employers	1.31** (1.02, 1.68)	1.02 (0.79, 1.33)	1.10 (0.84, 1.44)	0.96 (0.74, 1.24)
Government	0.97 (0.76, 1.23)	0.92 (0.71, 1.18)	0.99 (0.76, 1.29)	0.94 (0.73, 1.20)
Individuals	0.94 (0.59, 1.51)	1.31 (0.77, 2.24)	0.76 (0.47, 1.23)	0.93 (0.58, 1.51)
Physicians	1.06 (0.81, 1.37)	0.97 (0.74, 1.27)	0.92 (0.70, 1.22)	0.89 (0.69, 1.16)
Society	0.84 (o.64, 1.10)	0.97 (0.73, 1.29)	1.13 (0.84, 1.53)	0.96 (0.73, 1.26)
Food Industry	1.00 (0.76, 1.33)	1.03 (0.77, 1.39)	1.09 (0.80, 1.48)	0.91 (0.69, 1.21)
Schools	1.22 (0.94, 1.57)	1.21 (0.93, 1.59)	1.05 (0.79, 1.38)	0.98 (0.76, 1.27)

*****p < .001, *** p < .01, ** p < .05, * p < .10*

Bonferroni correction p-value = .007

Where Treatment 1 = those exposed to the Equality of Opportunity value statement, Treatment 2 = those exposed to the Social Responsibility value statement, Treatment 3 = those exposed to the Life-Course Perspective frame, and Treatment 4 = those exposed to the Manipulation frame.

significantly influenced support for breastfeeding in the workplace, the hypothesis that value statements would be more influential on policy support (*Hypothesis 7*) was not supported.

7.5.1. Sensitivity Analysis

The sensitivity analysis examined the extent to which the multivariable results differed when the five-category primary outcome variable was used (1 = *"strongly oppose"*, 2 = *"oppose"*, 3 = *"neither*

Table 7.8. *Zmediation* Scores

Policy	Zmediation Score
Pol_Nurs	
Group 1	0.563525354
Group 2	0.668510962
Group 3	0.790003077
Group 4	-0.509250994
Pol_NutrStandard	
Group 4	-1.532944525
Pol_Workplace	
Group 2	0.519474928
Pol_Vend	
Group 3	0.618258195

*Significance is determined by whether Zmediation score exceeds |1.96| for a two-tailed test with $\alpha = 0.05$

support nor oppose", 4 = *"support"*, and 5 = *"strongly support"*) versus the three-category outcome variable (1 = *"oppose"*, 2 = *"neither support nor oppose"*, and 3 = *"support"*).

The results from this analysis (Table 7.9) suggest that level of support for the health policy, nursing, remains statistically significant at the $p<.05$ level for each of the treatment groups compared to the control group (Treatment 1: OR 1.56, 95% CI: 1.22, 1.98; Treatment 2: OR 1.40, 95% CI: 1.10, 1.80; Treatment 3: OR 1.48, 95% CI: 1.14, 1.91; and Treatment 4: OR 1.49, 95% CI: 1.16, 1.90). Support for the health policy, physical activity in the workplace, was marginally significant among those exposed to the equality of opportunity (Treatment 1) value statement (OR 1.25, 95% CI: 0.98, 1.59) and those exposed to the manipulation (Treatment 4) frame (OR 1.25, 95% CI: 0.98, 1.60) at the $p<.10$ level.

Table 7.9. Ordinal Logistic Regression Estimates for Outcome: Level of Support for Policies per Treatment Group using 5-item categorical outcome variable

	Treatment 1 (*n* = 441) OR (95% CI)	**Treatment 2 (*n* = 371)** OR (95% CI)	**Treatment 3 (*n* = 332)** OR (95% CI)	**Treatment 4 (*n* = 415)** OR (95% CI)
Policies				
pol_nursing	1.56**** (1.22, 1.98)	1.40**** (1.10, 1.80)	1.48*** (1.14, 1.91)	1.49**** (1.16, 1.90)
pol_nutrstandards	1.22 (0.96, 1.56)	1.08 (0.84, 1.39)	1.14 (0.87, 1.48)	1.18 (0.93, 1.52)
pol_physical ed	1.15 (0.90, 1.46)	0.94 (0.73, 1.21)	1.01 (0.78, 1.31	1.00 (0.78, 1.28)
pol_workplace	1.25* (0.98, 1.59)	1.23 (0.95, 1.58)	1.11 (0.85, 1.44)	1.25* (0.98, 1.60)
pol_disclose	1.15 (0.89, 1.50)	1.15 (0.89, 1.52)	1.15 (0.87, 1.53)	1.17 (0.90, 1.53)
pol_advertising	1.13 (0.89, 1.42)	0.96 (0.75, 1.23)	0.98 (0.76, 1.27)	0.99 (0.78, 1.26)
pol_buses	0.95 (0.74, 1.22)	0.96 (0.74, 1.24)	0.92 (0.70, 1.19)	1.01 (0.78, 1.30)
pol_vending	1.14 (0.90, 1.45)	1.03 (0.81, 1.33)	1.21 (0.94, 1.58)	0.98 (0.77, 1.24)
pol_beverage tax	1.03 (0.81, 1.30)	0.86 (0.67, 1.09)	0.92 (0.72, 1.19)	0.95 (0.74, 1.20)

*****p < .001, *** p < .01, ** p < .05, * p < .10*

Bonferroni correction p-value = .006

Where Treatment 1 = those exposed to the Equality of Opportunity value statement, Treatment 2 = those exposed to the Social Responsibility value statement, Treatment 3 = those exposed to the Life-Course Perspective frame, and Treatment 4 = those exposed to the Manipulation frame.

7.6. DISCUSSION

The main objective of this study was to test whether exposure to alternative frames or value statements influenced support for health policies that addressed the social and environmental constraints that make maintaining a healthy weight difficult. This study raises further discussion on the following findings and areas of interest: 1) there was support across each of the four treatment

groups for the policy "support for nursing in the workplace"; 2) emerging patterns in regards to causal attributes and perceptions of responsibility were revealed; 3) political orientation and level of political and civic interest was unable to temper framing effects; 4) policies may have primed respondents to respond negatively to the policies; and 5) the presence of the impenetrable dominance between two opposing frames: personal responsibility and the environment.

The following discussion interprets and describes the significance of these main findings and offers new understanding about the use of frames and values in obesity discourse. The discussion also addresses critical questions concerning the efficacy of the treatment narratives to concretize the causes and solutions to obesity within the societal domain as well as the appropriateness of the proposed policies.

7.6.1. Support of Policy: Breastfeeding Support in the Workplace

The policy for which there was a significant shift in opinion was breastfeeding. There are a few reasons why support for breastfeeding was more malleable than other policies. One reason could be that awareness about the important health benefits of breastfeeding has increased throughout the past decade in the United States as a result of targeted social media campaigns by public-health and community-advocacy groups [39]. Therefore, respondents may have been socially cued or primed to react positively towards policies expanding breastfeeding support after being prompted by their exposure to the treatment narratives. Another reason could be due to the public's knowledge about the connection that exists between breastfeeding and obesity. While a considerable amount of research linking breastfeeding to the prevention of childhood obesity exists, this connection may be less well known amongst the public, even in light of the vast amount of public health campaigns promoting breastfeeding. Respondents who were unaware of the relationship between breastfeeding and obesity may not have relied on the implicit dominant frame of personal

responsibility—so commonly invoked by discussions of obesity—to assist them in their decision-making regarding their level of support for a breastfeeding policy. Although the treatment narratives engaged individuals to think about obesity within the context of the structural environment, the breastfeeding policy itself may not have been perceived as obesity-related, thus, not "penalized" as such.

The effects of framing treatment on the breastfeeding policy are also interesting in that all of the framing treatments had a significant effect, and these effects had a similar magnitude across all treatments. It did not matter much whether the frame was that of equal opportunity, social responsibility, life-course or manipulation; all seemed to work well against the control group who saw no context for the proposed policy. This result may suggest that the particular frame is somehow less important than any attempt to contextualize policy options. Such a result, if sustained in future research, would be consistent with the seminal work of Ellen Langer and colleagues, who found that even pointless contextual explanations were much better than no context at eliciting cooperation from strangers [(40)].

7.6.2. Causal Attributions and Perceptions of Responsibility: Emerging Patterns in the Data

This study also tested the effects of the treatment on level of agreement of causal attributes of obesity and perceptions of responsibility. Each of the treatment groups had increased odds of agreeing that obesity was an issue because of advertising that can increase people's desire to eat junk food and drink sugary beverages than the control group. Although this finding failed to achieve statistical significance, it is a promising indicator of the level of awareness among the public about the effects that advertisement has on our daily food consumption and food choices.

Another pattern found was that each of the treatment groups, with the exception of those exposed to the life-course perspective frame, had decreased odds of agreeing that obesity was an

unavoidable reality of our modern, busy lifestyle than the control group. This finding should be considered within the context of recent research that found that news media coverage is increasingly framing obesity as an inevitable outcome "due to circumstances beyond reasonable control"[19]. The pattern in this analysis shows, however, that there is little attribution of obesity to "fatalism" among the public, representing a disjuncture between what the public thinks regarding obesity causation and what the media promotes throughout its coverage on obesity [19]. This finding could also suggest that the frame might be too novel, and as a result, the public has yet to be influenced. Or, the idea that our "fate is sealed" as an obesogenic society might be disagreeable to the public, especially considering American's emphasis on autonomy and individual agency. The second issue this finding raises relates to why respondents exposed to the life-course perspective frame had increased odds of attributing obesity to fatalism. This was an unexpected direction of effect. There have been some concerns about the life-course perspective being "too deterministic" in explaining the role of early-life influences (both biological and social) on later childhood and adult health outcomes[41]. Overstating the impact of early influences on obesity could increase fatalistic or defeatist attitudes towards public health policies aimed at preventing obesity. Therefore it is possible that exposure to the life-course perspective frame may have conditioned respondents to be more amenable to fatalism as a causal attribute. Finally, all treatment groups had increased odds of agreeing that obesity was an issue because of addiction to foods high in fat, sugar, and salt. This finding corroborates recent findings by Barry et *al.* (2012) which found that Americans are open to thinking about food addiction as an important cause of obesity [42].

In terms of perceptions of responsibility, among all treatments, the manipulation frame narrative had a negative effect on attributing greater levels of responsibility to any of the identified environmental or 'societal' agents (such as employers, government, schools, the food industry) or individual agents. This was surprising and unexpected. It is unclear whether this suggests an

understanding of obesity as a complex problem where no one agent (be it societal or individual) holds greater responsibility to solve it than another agent. Although it was expected that persons in the manipulation treatment group would attribute greater responsibility to the food industry, it is helpful to consider that the treatment narrative may have served to decrease the amount of responsibility that would have otherwise been attributed to the individual.

Similarly, it is also interesting to note that among all four treatments, only one group – those exposed to a social responsibility value - had increased odds of attributing greater responsibility to individuals. Even though the term 'responsibility' was never used in the narrative, these findings may nonetheless be related to the notion of 'shared responsibility' that was implicitly described. As a result, the narrative may have evoked beliefs about the role of the individual within society, particularly among those who primarily perceive society as something that is comprised of only individuals.

7.6.3. Political Orientation and Level of Interest in Political and Civic Affairs

Political orientation did not significantly moderate the effect of exposure to the treatment narratives on level of support for health policies. This finding suggests that certain frames and values may circumvent the influence of political orientation (including both political ideology and political affiliation) on thinking about critical social concerns such as obesity, as well as on level of support for health policies addressing obesity. This corresponds to previous work which found that there was no significant interaction effect between political ideology and a randomized condition on societal cause attributions of society[9]. These findings suggest that although political orientation significantly influenced the level of support for health policies (Table 7.5.), it failed to temper the effects of exposure to alternative frames and value statements. Emphasizing certain values such as equality of opportunity and social responsibility may have provided opportunities for people to

consider obesity within the context of something other than the political realm. Previous research (Simon, 2012) suggests that the use of values "have directive force via the orientation offered by activating values in respondents' minds"[26]. This "redirecting capability" of values may be strong enough to overcome politically-charged patterns of thought. This could be a good sign since it suggests that the polarized political affiliations of Americans might not serve as a barrier to the potential effects of frames.

Level of interest in political and civic affairs also did not significantly moderate the effect of the treatment narrative on level of support for health policies. In retrospect, this finding may not be too surprising given that political interest primarily influences behavior instead of attitudes. For example, although both are important for policy development and implementation, level of political interest may not necessarily be indicative of the type of policies a person will support. Yet, these data suggest exactly the opposite in that persons reporting higher levels of interest in politics and civic affairs had significantly fewer odds of supporting health policies, including policies related to nutrition standards, physical activity in the workplace, restrictions on advertising, and beverage tax. These results may be partially attributed to a recent public opinion poll showing that level of political interest has risen among conservatives, Republicans, and the elderly since 2007 [43], groups which are least likely to support the sort of policies proposed in this study. In contrast, the report showed that Americans aged 18 to 29 were the least likely to say they were following national political news very closely, a group which may be more likely to support policies targeting obesity at the structural level. Similarly, in this study sample population, a higher percentage of conservatives followed political and civic affairs "most of the time" than liberals ($p<.001$). Nevertheless, similarly to political orientation, level of political interest did not temper the effects of treatment exposure on support for health policies.

7.6.4. Policy Language and the Effect of Frames

It is important to consider the effects of the policies themselves on level of support. The presentation and language of public health policies may contain their own seed of failure. For example, it is possible that the policies inadvertently primed individuals to respond according to the dominant frames they primarily rely on (either consciously or subconsciously) to navigate their decision-making in voting scenarios. For example, in regards to the policy proposal on beverage-taxes, it is possible that the inclusion of the word "tax" in the policy automatically triggered the use of a dominant cultural model (e.g. taxes are bad) among respondents that made it impossible for any other alternative frame to penetrate. Extant research has found that views towards tax increases, irrespective of their purpose, are resistant to framing effects than other policy issues [24, 32, 44].

It is possible that public health policies that are *not* specifically targeted at obesity could be just as effective at addressing public policy, but without the problem identified here. As the results demonstrate, breastfeeding is an example of this.

7.6.5. The Dominance of Two Opposing Frames: Personal Responsibility and the Environment

These results suggest that the public responds in a strongly contrasting way between personal responsiblity and other frames, which often are lumped under the environmental frame. The life-course perspective and manipulation frames were used as ways to specify the causality and solutions embedded in the broad, vague, "environmental" frame. However, the null findings regarding these frames may be partially due to the public being unable or unprepared to distinguish the causal and solution elements of environmental frames. Instead, and not surprisingly given the literature about public attitudes, public understanding appears to be simply split between the personal responsibility and environmental frames, with a heavy tilt towards the former. The story emerging from this reality is that public health has work ahead to help the public see the aspects of

environmental frames in general, and sub-frames in particular, that would make them more appealing than the personal responsibility frame. In other words, the next work is to help people see players and solutions within the environmental frame, as easy as they see individuals in the personal responsibility frame. While values have been shown to be effective in influencing public support on policies, at this point in time they appear to be unable to perform as expected in this context. Strengthening experimental conditions such as exposing participants to values and alternative frames, or, values along with other frame elements such as metaphors, could be useful in increasing public support for health policies.

7.6.6. Limitations

This study has several limitations. First, no formal focus groups among the general public were conducted to provide input on the relative strength of the treatments in terms of subject matter, reading ease, and overall comprehension. Instead, in addition to being reviewed by framing experts at the FrameWorks Institute, the pre-test methodology for developing and testing the effectiveness of the treatment narratives included a small, convenience sample of five (5) UCLA graduate students who provided informal feedback on each of the experimental treatments, specifically on whether the treatment conveyed a particular value (equality of opportunity or social responsibility) or domain (life-course perspective or manipulation). However, this pre-testing regime may not have been adequate to ensure readability and maximum efficacy of the treatments.

Second, because the population survey experiment was conducted over the internet, the study was unable to control for the amount of time a respondent was exposed to the treatment. This limitation would result in underestimating the treatment effect on the primary and secondary outcomes. To address this concern, the study applied exclusion criteria to decrease the effects of spending too little time reading the treatment narratives. The study also employed a manipulation

check in the alternative frame treatment groups in the form of a brief question asking the respondent whether they agreed with the overall message of the treatment narrative (exposing the respondent to the treatment narrative for a second time). Since there was a concern about calling unnecessary attention to the treatment or creating a demand for certain kinds of responses (priming), the manipulation check occurred after measuring the dependent outcomes.

Third, the study' participants are members of SurveyMonkey's Contribute online research panel. Although SurveyMonkey states that the online panel is representative of the general U.S. population, the manner in which members are recruited and retained in the panel may lead to selection bias, which could then lead to sampling bias. The people who agree to be in SurveyMonkey's online research panel skew from the general U.S. population in a few ways due to the nature of SurveyMonkey's recruitment methods and the medium used to participate in surveys (via the Internet). Typical panelists therefore, tend to have higher income and education levels, which raises concerns about external validity and generalizability [(45)].

7.7. CONCLUSION

This research examines the usefulness of alternative frames and value statements in influencing both public support for structural-level obesity prevention policies and public opinion regarding causal and solution attributes of obesity. This study significantly contributes to the body of research on the influence of frames and values on public opinion regarding obesity by examining two alternative frames, the life-course perspective and the manipulation frame, and two values, social responsibility and equality of opportunity. Overall, these results suggest that the public support for health policies to address obesity is not easily influenced by the proposed alternative frames and values.

This study suggests that it may be valuable or perhaps even crucial for policy advocates to consider the malleability of public-opinion of policies along with the efficacy of the policy itself in

choosing policies to champion. Failure to do so may lead to a frustrating slog to promote excellent policies that the public is nevertheless not likely to get behind, when it may instead be better to promote second-best policies that the public will more easily endorse.

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CHAPTER 8: DISCUSSION

8.1. INTRODUCTION

The purpose of this research was to empirically investigate whether the proposed alternative frames, the life-course perspective and the manipulation frame, as well as alternative values, could be used to challenge default patterns of reasoning about obesity prevention that are grounded in the personal responsibility frame. By using strategic frame analysis, the research employed qualitative and quantitative research methods to investigate the following overall research question: can alternative frames and values that challenge the dominant frames used to portray obesity, further the salience of public policies and public health interventions to more effectively address obesity?

8.2. ALTERNATIVE FRAMES AND VALUES RECONSIDERED

This research set forth to identify the alternative frames and value statements that would be robust against the default personal responsibility frame and its associated values used to discuss obesity. The natural starting point was a review of the current literature and research on the subject of frames used in obesity discourse, of which there is a tremendous amount. Initial examination of the literature on frames used within obesity discourse (aka "obesity frames") revealed that two frames prevailed in the literature, the personal responsibility frame and the environmental frame. What became more apparent over the course of several months was that the sheer breadth of the environmental frame was limiting in advancing a structural-level agenda to address obesity. This discussion is detailed in *Chapter 3: Obesity and Obesity Frames*.

What was needed, therefore, were new ways to contextualize obesity that could stand firm in comparison to the personal responsibility frame. These 'reframes', or, alternative frames, did not necessarily have to be the polar opposite of the personal responsibility frame. In fact, alternative

frames falling somewhere in-between the personal responsibility and the environmental frame would probably be more palatable to a wider-range of audiences.

Two potential, alternative frames of obesity stood out in the literature. The first alternative frame, the life-course perspective, has been promoted and extensively used among maternal and child health researchers in investigating the social determinants of children's health. The second alternative frame, the manipulation frame, borrowed concepts based in behavioral economics. Primarily, the frame explores why people over-consume certain food products. More detailed descriptions of these two frames are discussed in *Chapter 4: Reframing the Obesity Problem Using Alternative Values*

A simultaneous search for alternative values besides personal responsibility was also conducted. This called for a close examination of the potential values that corresponded with the alternative frames, as well as those values that corresponded with the environmental frame, which is also detailed in *Chapter 4*.

With this context in mind, the remainder of this section considers the feasibility of the alternative frames and values to successfully challenge the dominant frames used throughout obesity prevention discourse, influence the public's reasoning about the causal factors contributing to obesity, shift public beliefs in respect to where responsibility to prevent obesity lies, and increase public support for health policies that lead to structural-level prevention strategies.

8.2.1. Viability of the Life-Course Perspective

The findings in this research suggest that for the life-course perspective, there is theoretical potential to apply the frame to address obesity, particularly in the area of childhood obesity. This was especially captured during expert interviews, many of which emphasized the importance of "catching the epidemic early" (please see *Chapter 5: How We Think & Talk About Obesity Matters:*

Expert Views, for more information). Experts also emphasized policies based within the life-course perspective that focused on early intervention in childhood, such as breastfeeding and developing nutritional standards in childcare and pre-school settings. For the most part, however, experts did not contemplate applying the life-course perspective to obesity beyond the early childhood years.

The life-course perspective was also present in online news stories. In some ways, these news stories were more successful in applying the life-course perspective to understand obesity across the different life-stages than the experts. Yet, online news stories only applied the life-course perspective to discuss causal attributes of obesity. When discussing solution attributes, online news stories yielded to the personal responsibility frame. There was little presence of the life-course perspective in online readers' comments (i.e. LCP was referenced only a single time). In the experimental survey, exposure to the life-course perspective had non-significant effects on support for health policy, with the exception of the policy on breastfeeding support in the workplace (though it had marginally significant results when the adjusted *p*-values per the Bonferroni correction were used).

As a framework in which to understand disease throughout the lifespan, the life-course perspective provides a strong theoretical foundation in which to develop public health interventions and policies. However it remains to be seen whether applying the life-course perspective to understand obesity prevention is as effective as it had been hoped. There are a few challenges that first must be addressed.

First, even among the experts there seemed to be a sort of hesitancy in regards to thinking about obesity within the context of the life-course perspective (LCP). For some, the use of the LCP was "a no-brainer", referring to the importance of early childhood intervention to decrease obesity risk in adolescence and adulthood. For others, the challenge rested with communicating the life-

course perspective to the public in a way that 1) was salient; 2) understandable and simple; and 3) not "too deterministic". When experts were asked to provide examples, few were provided.

Second, while this research provides a baseline understanding of how the life-course perspective is discussed in obesity discourse (experts, news media, public commentary) and how it works to influence support for health policy when operationalized, there is still much work to be done in extracting those aspects of the frame that have the most potential to reorient people's thinking of obesity prevention. Perhaps, because of the difficulty in communicating the LCP, its potential use as a 'reframe' of obesity is limited. The use of metaphors (such as "Children's health is similar to the launching of a rocket") or literal statements ("Healthy children grow into healthy adults"), might help to clarify the more technical aspects of the LCP.

8.2.2. The Manipulation Frame as a Deconstruct Frame

The data from this research suggests that the manipulation frame is a viable, alternative frame in which to contextualize obesity prevention. As a 'sub-frame' of the environmental frame, the frame identifies manipulation tactics that occur at the environmental, cognitive, and physiological level, engendered by the food industry so as to increase the overconsumption of unhealthy food and beverage products. There are distinct differences between the manipulation frame and environmental frame. First, the manipulation frame unequivocally identifies the food industry as the main contributor to obesity. Second, the manipulation frame specifically describes the various ways in which the food industry manipulates the public, including, but not limited to the following: a) the food industry imposes the status quo and the default options to favor overconsumption (*environmental manipulation*)[1-5]; b) the food industry exacts a barrage of advertising on the public to persuade overconsumption (*cognitive manipulation*)[6, 7]; and c) the food industry re-engineers their food products to exploit the biological need for energy and nutrients to induce overconsumption (*physiological manipulation*)[8-11]. Third, the manipulation frame readily identifies and

recommends the specific health policy and public health interventions that would most effectively countervail food industry manipulation strategies, including restrictions on advertising on public school buses[12], limiting advertising during children's television programming[13, 14], promoting foods in accordance with their health profile[15], and reducing or restricting the permissible quantity of a problematic additive or ingredient in food products[15].

There are several instances in this research that support this claim. For example, throughout expert interviews, many of the experts explicitly identified the food industry as the primary transgressor upon the autonomy of individuals to make healthy food decisions for themselves and their families. The food industry, experts stated, "wield extreme power on what to eat, when to eat, and how much to eat." In these discussions, experts were able to swiftly transition from discussing the influence of the food industry on the food environment, food consumption, and food addiction, to talking about applicable health policies and interventions to counter these efforts. Perhaps the most telling observation was the ease in which experts described how to communicate policy strategies to redress food industry effects to the public.

Online readers' comments also spoke to the areas organized within the manipulation frame. In fact, among all online readers' comments, 21 percent used a manipulation frame, second only to the personal responsibility frame. In addition, significant associations were found in bivariate analysis between comment characteristics and the use of frames. Among readers' comments that mentioned distrust of private business, 91 percent used a manipulation frame ($p < .001$).

Although the manipulation frame treatment narrative did not have the anticipated effects in terms of influencing level of support for health policies, other data suggest that this frame can effectively 'unpack' part of the black box of the 'environmental' frame. Moreover, results from the content analysis of online readers' comments also indicate that the public may be ready to be directly exposed to this frame.

8.2.3. Were the Right Values Used?

The methodologies used in this research (including expert interviews and content analysis of online readers' comments), revealed the presence of two dominant values used throughout expert and public discourse, social responsibility and equality of opportunity. The main objective in identifying these values was to redirect the public's thinking about social concerns, reorient their attitudes, and increase their level of support for policies [(16)].

The findings here suggest that for the most part, values were unsuccessful in significantly shifting people's policy positions. In examining why these values failed to influence public support of the health policies proposed in this research, a few issues are raised. The first issue pertains to the value statements used in the treatment narratives. Did they convey the value correctly? Was the exposure time too short? Did they inadvertently provoke other values? For the most part, these concerns are addressed in Chapter 7. The question to be examined here is, *"Were the values used in the experimental survey the right ones?"*

The knee-jerk response is "absolutely!", since these values were specifically identified throughout the strategic framing analysis. The more reflective response is "probably not", especially given the way values are implicitly discussed throughout expert interviews and infrequently used in online public commentary. As discussed in *Chapter 5: How We Think & Talk About Obesity Matters: Expert Views*, experts had a rather difficult time explicitly identifying values inherent within the core story. However, experts used values regularly throughout their discussions about the core story. Unexpectedly, experts also discussed values within the context of personal responsibility.

It is true that social responsibility and equality of opportunity were identified the most number of times. However, the reasoning behind why the values failed to work may come down to the age-old, "quality vs. quantity" argument, as least in influencing support for health policies to address obesity. In other words, it may be that the objective should have been not to use the values

that appeared most frequently, but rather, to use those values that were embedded within experts' statements on how to communicate, or justify, a particular solution to address obesity (be it a policy, intervention, or tax increase) to the community. For example, consider the following statement made by one expert in regards to 're-framing' policies:

> Policy is not a matter of interference with personal choice; it's a matter of allowing parents to make their own choices for their own kids, rather than having someone interfere with it.

This comment was made in reference to a discussion about how to 're-frame' the policy solution as a way to "reinforce freedom of choice." Similar comments implicitly spoke to other values such as "strengthening consumers' autonomy" and "ensuring parental rights." Other comments referenced "knowledge" and "information symmetry."

In contrast to the values of social responsibility and equality of opportunity, these values are inherently connected to the *"What will this policy accomplish?"* solution rationale as opposed to the *"Why should we enact this policy"* causal justification. This distinction is important since it also links to findings from the content analysis, which showed that online news stories use frames more often within the context of solutions than within the context of causal factors.

As Wallack and Lawrence (2005) write, "Egalitarianism, humanitarianism, and social responsibility – values that lie at the core of a social justice orientation to public health – often seem inadequate to respond effectively to the moral resonance of individualism" [(17)]. They follow-up this statement with a recommendation that public health incorporate the value of interconnection throughout public health policies and interventions. In a sense, the values of choice and knowledge also demonstrate strong interconnectedness between personal responsibility and the social structures that either allow or constrain a person's ability to exercise responsibility.

8.3. THE ENVIRONMENTAL FRAME VS. THE PERSONAL RESPONSIBILITY FRAME

There are three common threads that run through each of the three empirical studies. First, experts tend to use broad language to initially talk about obesity prevention, namely, the environment. They use this theme to encapsulate all things not related to individual causes of obesity or personal responsibility. Second, the media re-establishes this dichotomous relationship throughout online news reporting, but does so in a way that appears to be open to deconstructing the environmental aspect of the dichotomy. This understanding of obesity prevention is then transferred into and reflected upon in online public commentary. Third, the public currently can only distinguish the broad distinction between the individual from the environment, underscoring once again, the environment vs. personal responsibility "clash of frames".

However, just like any loose thread, there are noteworthy findings that can be pulled from this research material which can serve to deconstruct the blanket statement of "the environment vs. personal responsibility". Throughout the interviews, it is evident that experts can easily focus their discussion on very specific causal attributes of obesity and solutions when asked. For example, experts who initially identified the environment as the main cause of obesity were able to swiftly detail the effects of nutrition labeling on eating behavior, and the need to develop policies that require food companies to label their food products in accordance to their health benefits. So the question that is raised is, "*Why didn't some experts just say this to begin with*?"

There is a danger in the lack of clarity in introducing the core story of obesity. Mainly, the more substantive parts of the story, such as the part that targets food labeling for example, might become discounted by the dramatic and broad-stroked introduction. No doubt the introduction to the core story is in some ways more interesting for those with short attention spans. Statements such as "the environment is a powerful force in shaping the way we live our lives" are intensely intriguing. And though maybe bold statements such as this are effective in drawing the audience into the core

story, they might also be too dramatic, too encompassing, and too far-reaching for the audience to take away anything other than, "the environment is a powerful force in shaping the way we live our lives". Although this take away message is better than the "obesity is a result of moral failure" dogma, it needs to be more specific and more tangible in order to influence and garner the needed support for health policies and interventions.

If a wide-ranging lens known as the environment is applied to the core story of obesity prevention as currently discussed, then the message that is extracted from this perspective might be that many things cause obesity! But if many things cause obesity, then there should be just as many solutions to solve obesity. But if there are many solutions, how do we socially, politically, and economically prioritize these solutions? The conundrum is palpable.

8.3.1. Online Media and Readers' Comments

It is beyond the scope of this research to determine whether the core story of obesity prevention, as told by the media, comes down from experts or from somewhere else (e.g. industry, policymakers, or special interest groups), but it is within the scope of this research to examine the possible relationships that exist between what experts talk about, what the media talks about, and what the public talks about in terms of obesity prevention. Is it possible that the media is simply echoing the "environment vs. personal responsibility" tension in its news coverage of obesity?

At first glance, these results suggest that news stories carry very strong overtones of this dichotomy in obesity coverage. But on closer inspection it is much more complex. As discussed in *Chapter 6*, only 38 percent of all news stories using a single frame to discuss causal attributes of obesity (i.e. what causes obesity) used the personal responsibility frame. The remaining news stories used something else, including the life-course perspective and manipulation frame. This finding therefore bucks the environment vs. personal responsibility trend in that news stories employ more specific frames in which to report the causal attributes of obesity. The barometer shifts dramatically

however, when the focus shifts to solution attributes (i.e. who/what is responsible to address obesity). In this context, news stories employed the personal responsibility frame over 83 percent of the time to discuss solutions. So news stories that examined inadequate maternal and child bonding as a factor in childhood obesity (causal attribute) for example, also examined solutions that were based in personal responsibility (solution attribute). While it appears that the media may be more open to discussing obesity causation within the context of other frames, it worryingly situates solutions to obesity primarily within the context of the individual, thus tilting the scale in favor of the personal responsibility frame.

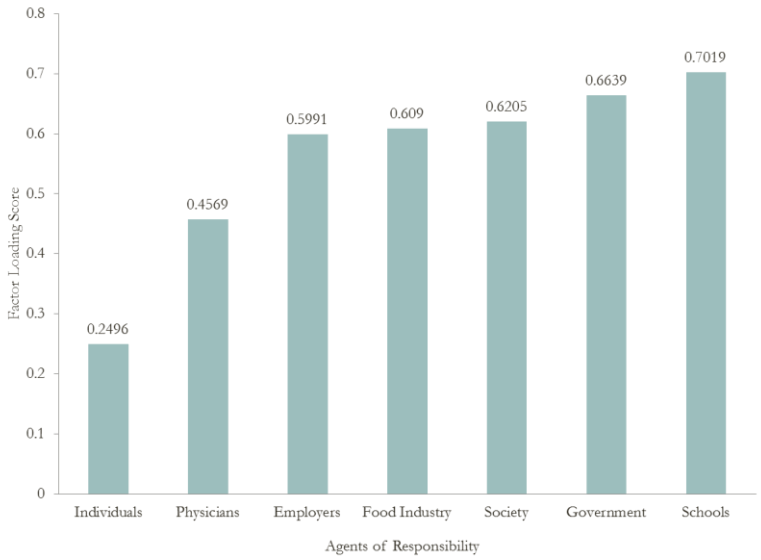
Taking a heavy cue from the media, the public is influenced by the media's use of frames and in particular, its use of the personal responsibility frame. Recall that statistical testing demonstrated that the use of the personal responsibility frame in new stories significantly influenced the use of the personal responsibility frame in readers' comments. Throughout public discourse, the environment vs. personal responsibility dichotomy is not used, but only because the personal responsibility frame is so pervasive.

8.3.2. Experimental Survey

Results from the survey experiment indicate that the environmental-personal responsibility dichotomy is present. This relationship was clearly evident in the results of the factor analysis. Recall that the objective of performing the factor analysis was to identify and illustrate the structure underlying the set of variables measured as 'agents of responsibility' (i.e. solution attributes). Factor analysis works by forming groups of variables that have strong correlations with one another, which can either be positive or negative. Results from the factor analysis are detailed in *Chapter 7* but are summarized here to illustrate the presence of the environment-personal responsibility dichotomy among the public.

Figure 8.1. is a visual representation of the factor loading scores presented in Table 7. 3. The factor loadings are the correlations between a factor and the individual variables being analyzed. Typically, loadings greater than .50 are said to load "highly" on the factor. As shown here, the public does not differentiate between employers, the food industry, society, government, or schools. Physicians are somewhat distinguished by the public but not to the extent that a second factor could meaningfully be extracted. The most obvious distinction that emerges is individuals, which had the lowest factor loading score. This finding provides evidence that the environment-personal responsibility dichotomy exists among the public, at least within the context of perceptions of responsibility. These findings are similar to those found in previous studies examining solution attributes [18, 19].

Figure 8.1. Perceptions of Societal Responsibility Factor Loadings



8.4. IMPLICATIONS

8.4.1. Policy Immobilization

The results from the survey experiment show that only one policy – support for breastfeeding in the workplace – was significantly influenced by each of the treatment groups. The

previous chapter specifically discusses the possibilities of why this may be, so they will not be further examined here. What is called for, however, is a discussion about the policies that were impervious to the effects of frames and value statements in this research. Two in particular stand out: 1) soda/sugary beverage taxes and 2) policies restricting food advertisement (either during children's television programming or on public school buses).

8.4.1.1. Soda & Sugary Beverage Tax

Since the health risks associated with sugary beverage consumption are well established throughout extant research[20, 21], sugary beverage taxes have been targeted by public health advocates as possible state or local tax interventions[22]. Although a recent poll released in February 2013 showed that 68 percent of California voters would support a tax on sugar-sweetened beverages if the revenue supported school nutrition and physical activity programs[23], this was not reflected in the findings from the experimental survey.

One finding in this research however, was the incongruous way in which experts discussed the impact of soda on obesity and the way it was discussed within the context of public communication. For example, a total of 138 references about soda and sugary beverages were made in 80 percent of the expert interviews. However, when experts were asked what they thought were the most important things for the public to know and understand about obesity prevention, only a single reference was made to soda. This finding is vexing given the large amount of emphasis ascribed to sugary beverage taxes as an effective intervention to address obesity.

If sugary beverage taxes are viewed as a valid way in which to effectively prevent obesity, then the core story must assuredly identify and discuss sugary beverages as one of the main culprits in the rise of obesity rates. The objective would be to tackle the challenges that exist in raising public support for such a controversial and unpopular policy proposal.

To be clear, it is evident throughout these interviews that most experts were thoughtful about some of the major concerns regarding beverage tax policies, particularly concerns about the regressive nature of the tax and the economic burden it inevitably places on low-income households. However, why experts were so willing and able to discuss the implications of soda consumption on obesity rates, especially among children, yet not identify it as an important issue for the public to know and understand is unknown.

One possibility may be because of the sheer difficulty in communicating this piece of the core story to the public. The difficulty lies not in communicating about the copious amounts of sugar found in soda, the nutrition-less calories that are mindlessly consumed, but rather, in communicating the solutions. For this particular problem, the overconsumption of soda, the public health community supports tax interventions as one way to decrease consumption. The reasoning is simple. Increase the costs of a product to decrease consumption of that product. The justification is a little less simple, at least face-to-face with community members.

Experts were attentive to the concerns raised by hypothetical community members expressing frustration and anger at the possibility of incurring extra costs for soda, especially among those community members who weren't overweight or obese. After all, they argued, why should they have to pay to solve a 'non-problem' for themselves. To this end, experts spoke of negative externalities such as the rise in health care costs, rise in insurance premiums, and so on. Among poor community members however, the responses were steeped in paternalism ("because it's good for your health, your community's health, and your children's health"). Both responses to the "why" question of sugary beverage taxes are unsatisfactory. Using terminology such as "negative externalities" and framing taxes as a cost effectiveness intervention may not be effective. After all, how do you effectively communicate the somewhat circular argument of "spending money to save

money?" Likewise, framing tax increases as a way to encourage the community to "take their medicine" is difficult, particularly in the current political climate.

Pomeranz (2013) offers a possibly more productive alternative to sugary beverage tax proposals. The author proposes a manufacturers' excise tax for those companies that produce highly processed food [22]. Revenue generated from this tax would be earmarked for public health programs to address critical public health concerns, especially chronic disease related to poor nutrition. Although there is still a likelihood that manufacturers can pass the cost of the tax onto the consumer, the excise tax recognizes the causal role of the manufacturer in producing, marketing and selling a highly processed food products associated with poor nutrition versus the individual.

8.4.1.2. Restrictions on Advertising

Restrictions on food advertising on television and on public school buses were also highly supported among experts. At the same time, however, many experts also expressed a concern (both present and anticipatory) about the invocation of the First Amendment by the food industry to protect their rights to 'free' speech. Extant literature suggests that school buses "may represent the next frontier of litigation over permissible speech on government property" [12].

One area of conversation that deserves further consideration is experts' views on the food industry's ability to harness public support, particularly when regulation, either government or self-imposed,[24] is up for discussion. For most experts, this served as sort of a barometer in measuring the level of antipathy towards the government as well as the public's trust in the government to enact sound policies to ensure the public's health. Other experts pointed to the landmark 2010 Citizens United Supreme Court decision that equates the rights of companies to the rights of individuals as somehow influencing the public's perception of food companies.

In contrast to the overwhelming support by experts, policies restricting advertising had mixed support by the public. The rapid increase of research on food addiction may help to persuade

the public to reconsider and is especially critical given that many of the experts considered it to be the 'game-changer' in obesity prevention efforts. Moreover, online public commentary reveals that among all other frames besides personal responsibility, the manipulation frame is a clear second runner-up, suggesting that the public may be receptive to more messages about food addiction. Finally, survey experiment data show that people reported higher levels of agreement that food addiction is a viable cause of obesity in the U.S., providing further evidence of the public's receptivity to this research.

8.4.2. What's In a Name?

Experts expressed the need to make clear to the public that obesity is tied to many other problems and issues faced as a society. This ranges from salient issues such as long working hours, transportation, the food system, etc. to the more intangible issues such as structural determinants vs. individual behavioral determinants, and the focus on health disparities. Some said obesity was rooted in structural inequality and that it has no easy solutions. Given these claims, the question of *"Why are "non-obesity" policy solutions not being explored to address obesity?"* should be contemplated.

For example, the life-course perspective considers the idea that though structural constraints can guarantee diminished opportunities [(25)] and health status from an early age, opportunities for public health intervention still exist. Therefore, identifying critical and sensitive periods throughout the early life course could garner increased support for public policies that sanction the concentration of resources to minimize the risk factors associated with childhood obesity. Furthermore, addressing intervening mechanisms that link obesity to disease, such as access to healthy food options and physical exercise, could also help mobilize broader alliance around other risk factors. For instance, vast evidence links poverty to diabetes [(26)], yet emphasis is placed on the effects of obesity and individual, "lifestyle" decisions about diet and exercise. Applying a lifecourse perspective to childhood obesity could simultaneously address the effects of poverty by improving

neighborhood conditions, increasing availability of healthy food, and removing harmful environmental exposures.

Using the term "obesity" in policies can also narrow the scope of the social problem; stigmatizes those appearing to be of a particular weight; favors powerful stakeholders like the food, pharmaceutical/surgical, and diet industries; and inadvertently moves the conversation downstream, or to put it another way, places the responsibility to resolve obesity solely on individuals [(27)].

8.4.3. Framing Implications

The results from this research suggest that the environment vs. personal responsibility dichotomy is in fact, a false dichotomy, which is a type of logical fallacy that involves a situation in which only two alternatives are considered, when in fact there are additional options. As stated throughout this research, examining the viability of alternative frames is important in order to deconstruct the environmental frame so that causal attributes and responsible agents are more obvious and proposed policies and interventions are more salient. The results from this study suggest that one of the alternative frames, the manipulation frame, shows strong potential to dismantle the "environmental" frame.

8.5. FUTURE WORK/SUGGESTIONS

There are a number of possibilities for future work that stem from this dissertation research. They are broken down and discussed within the context of three areas: *Methodology*, *Policy Development*, and *Theoretical*.

8.5.1. Methodology

Future research examining how obesity prevention is framed in online media and readers' comments should be expanded to include a representative sample of other national online news media outlets to obtain a more representative sample of news stories and public commentary.

Similarly, quantitative content analyses measuring public opinion about obesity prevention could be conducted on online social media sites such Facebook or Twitter, allowing for 'real-time' interactions and reactions between people or groups of people to be measured.

Population-based experimental surveys that test for treatment effects should be conducted on a random, probability-based sample of the population using a web panel based on dual-frame sampling that combines traditional random-digit-dialing telephone surveying techniques with an address-based technique. This strategy allows the sample to be representative of cell-phone-only households as well as those with landlines.

Treatments used in future experiments should consider not using the term obesity in the narrative since this may have primed respondents to rely on default patterns of reasoning about obesity. Furthermore, longitudinal study designs could be used to measure the effects of treatment exposure throughout various points in time. This would allow for a more nuanced view of how frames and values work over time.

8.5.2. Policy Focus

Public health experts, policymakers, and community advocates working to implement health policies to address obesity should conduct focus groups on the wording of health policies aimed to reduce obesity. Conducting these focus groups would examine whether the policy language induces a priming effect, which may cue the default frames such as personal responsibility into action.

Future studies should include a formal assessment of ethical implications of proposed policies. The main ethical concern raised by the policy interventions proposed in this research is the balance between individual autonomy and governmental intervention. This is not surprising given that a persistent theme throughout the history of public health in America has been the struggle between "the needs of the community versus the rights of individuals" [28].

8.5.3. Theoretical

The values of social responsibility and equality of opportunity were identified throughout the expert interviews. Although these values, particularly social responsibility, appeared throughout readers' comments, it may be that there are equal, or, more important values that are held by the general public. Therefore cognitive interviews with the public should be held to identify value-systems and extract specific values that can be tested.

Future experimental studies should test the interaction effects of being exposed to a value and an alternative frame. Other designs could be exposure to a comprehensive frame that includes values, metaphors, literal statements, and messengers.

Finally, in regards to the alternative frames explored here, future research should further examine the applicability of the manipulation and life-course perspective as viable alternative frames. Cognitive interviews with members of the public could be conducted to examine the ways in which the public reasons about the issue of obesity prevention within the context of these two alternative frames.

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Appendix 1.1. Strategic Frame Analysis Methodology

OVERVIEW

This research employs Strategic Frame Analysis (SFA) as a reframing methodology. Developed by researchers at the FrameWorks Institute in Washington, D.C., SFA aims to answer the following questions [(1)]:

- How does the public think about a particular social or political issue?
- How do experts think about a particular social or political issue?
- What are the gaps that exist between the way in which the public thinks about an issue and the way in which experts think about an issue?
- What is the public discourse on the issue? How does the media frame that issue?
- How do these public and private frames affect public choices?
- How can an issue be reframed to evoke a different way of thinking, one that illuminates a broader range of alternative policy choices?

Strategic frame analysis employs a multi-method iterative process that includes both qualitative and quantitative research methods to arrive at a situation analysis of what barriers advocates face on a particular issue, and which alternative frames, or "reframes" as the literature dubs them, hold the best potential to galvanize public support for more productive policies [(2)]. This method deconstructs the dominant frames used by media, policymakers, and private industry that drive reasoning on issues and identifies reframes that are most likely to stimulate public reconsideration away from an exclusive and unproductive emphasis on blaming individuals toward systemic and community-based solutions [(2)].

The FrameWorks Institute's working perspective on communications is[(3)]:

- People are not blank slates

- Communication is interactive
- Communication resonates with people's deeply held values and worldviews
- Communication is frame-based
- When communication is inadequate, people default to the "pictures in their heads"
- When communication is effective, people can see an issue from a different perspective

How SFA Identifies Alternative Frames (Reframes)

Providing a different lens for the processing of new information is a challenge for communications. Identifying and empowering rival frames in communications can signal to the public how to think about a given social issue. Working from this perspective, SFA research is designed to explore the following questions[(2)]:

- How does the public think about a particular issue?
- What frames are available to them from media, science and advocates' own communications?
- What are the consequences of these current frames on public reasoning and policy attitudes?
- How can this issue be reframed to evoke a different way of thinking, one that reveals alternative policy choices?
- What are the larger values within which this issue should be framed?

Issues

The FrameWorks Institute has conducted SFA in numerous areas of social concern, including but not limited to: children (child mental health and early childhood development); domestic issues (gender equity, immigration, race, and public safety); health (community health and children's oral health), and government (budget and taxes).

METHODOLOGICAL COMPONENTS OF SFA USED IN THIS RESEARCH

There are eight basic methodological components of SFA, including:

- Content analysis of news media
- Cognitive interviews
- Peer discourse analysis
- Expert interviews and material reviews
- Mapping the gap conceptual analysis
- Simplifying model development/value statement development
- National experimental surveys
- Persistence trials

This research employs five of the eight SFA identified methodological components:

→ Quantitative **content analyses** of online news stories about obesity and online readers' comments in response to these news stories are conducted to examine how the public feels about obesity.

→ **Expert interviews** are conducted to better understand the basic content of the message experts want to advance with the public.

→ A mapping the gap **conceptual analysis** is performed to juxtapose public understanding of an issue and the understanding of policy experts and advocates on the issue.

→ **Value statements** that serve as a reframing tool are developed.

→ An **experimental survey** to test the efficacy of using some alternative frames and value statements over others is conducted.

For more information about the FrameWorks Institute and Strategic Frame Analysis, please visit http://www.frameworksinstitute.org/

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Appendix 5.1. Introductory Letter to Expert Interviewees

[Your Name]
[**Street Address**]
[**City, ST ZIP Code**]

June 26, 2012

[**Recipient Name**]
[**Title**]
[**School/Business Name**]
[**Street Address**]
[**City, ST ZIP Code**]

Dear[**Recipient Name**]:

Greetings! My name is Selena E. Ortiz and I am a PhD candidate in the Department of Health Services, at the UCLA Fielding School of Public Health. Dr. Fred Zimmerman (chair) serves as the chair of my dissertation committee.

My dissertation research examines how frames and the process of framing influence public opinion on health concerns and public support of health policies. The research specifically focuses on obesity frames and health policies on obesity prevention.

I am conducting interviews with a number of obesity experts to understand perspectives on current and potential new frames of obesity. Given your expertise in the field of [**FILL IN HERE**] your insights would greatly inform this research.

Would you be willing to serve as an interviewee? The interview consists of 20 questions and is scheduled to run approximately 60 minutes.

I understand that your time is valuable. Any amount of assistance you can provide is very much appreciated. I have attached a copy of the study information sheet. If you have any questions or would like more information about the study, please do not hesitate to contact me by phone at (510) 459-2887 or by email at seortiz@ucla.edu.

Thank you for your time and consideration. I look forward to hearing from you soon!

Sincerely,

Selena E. Ortiz, MPH
PhD Candidate
Department of Health Services, UCLA Fielding School of Public Health

Enclosures

Appendix 5.2. Study Information Sheet

UNIVERSITY OF CALIFORNIA LOS ANGELES
STUDY INFORMATION SHEET

Working Title: *Frames of Obesity Study*

Selena E. Ortiz, MPH and Frederick J. Zimmerman, PhD, from the Department of Health Services, Fielding School of Public Health at the University of California, Los Angeles (UCLA) are conducting a research study.

You were selected as a possible participant in this study because of your expertise in the field of obesity. Your participation in this research study is voluntary.

Why is this study being done?

This study examines frames of obesity that could influence the public's support of health services policies that address the structural barriers contributing to obesity (e.g. environmental) versus traditional frames of obesity (e.g. personal responsibility) that only address individual behavior.

What will happen if I take part in this research study?

If you volunteer to participate in this study, the researcher will ask you to do the following:

- Participate in a 60-minute interview.
- The interview will be digitally recorded.
- The interview will consist of the following:
    - Introduction (Limited to 2 minutes). The interviewer will state the objective of the interview and ask if the participant has any questions.
    - General obesity (Limited to 7 minutes). The interviewer will ask you to discuss your perceptions of obesity.
    - General obesity interventions and policies (Limited to 10 minutes). The interviewer will ask you to discuss your views about current obesity interventions and policies.
    - Environmental (Limited to 5 minutes). The interviewer will ask you questions about environmental factors that relate to obesity.
    - Advertising/Marketing (Limited to 5 minutes). The interviewer will ask you questions about the role of advertising/marketing in relation to obesity.
    - Physiological (Limited to 5 minutes). The interviewer will ask you questions about processed foods.
    - Choice (Limited to 5 minutes). The interviewer will ask you questions about food and exercise choices.
    - Life-Course Perspective (Limited to 10 minutes). The interviewer will ask you questions about obesity and the life course perspective.
    - Scenario #1 (Limited to 10 minutes). The interviewer will ask you to respond to a series of questions regarding obesity prevention policy.

  - Scenario #2 (Limited to 10 minutes). The interviewer will ask you to respond to a series of questions regarding community perspectives on obesity.
  - Future policies (Limited to 5 minutes). The interviewer will ask you to discuss potential new obesity prevention policies.
  - End of interview (Limited to 3 minutes). The interviewer will ask if you have any questions or if you would like to further discuss a particular issue.
- Interviews will be conducted via telephone, public location (e.g. café), or in interviewee place of employment.
- The interview does not include any experimental procedures.

How long will I be in the research study?

Participation will take no more than 60 minutes.

Are there any potential risks or discomforts that I can expect from this study?

There are no anticipated risks or discomforts.

Are there any potential benefits if I participate?

You will not directly benefit from this research.

The results of the research are intended to identify obesity frames that increase public support for health policies that focus on the structural forces of obesity and result in integrated and productive prevention strategies versus obesity frames that focus solely on changing individual behavior.

Will I be paid for participating?

No.

Will information about my participation and me be kept confidential?

All information that is obtained in connection with this study and that can identify you will remain confidential. It will be disclosed only with your permission or as required by law. Confidentiality will be maintained by means of a code name and code place of type of work. All data will be kept in a locked file cabinet located in the Principal Investigator's personal research office. Only the Principal Investigator will have access to this information.

What are my rights if I take part in this study?

- You can choose whether or not you want to be in this study, and you may withdraw your consent and discontinue participation at any time.

- Whatever decision you make, there will be no penalty to you, and no loss of benefits to which you were otherwise entitled.
- You may refuse to answer any questions that you do not want to answer and still remain in the study.

Whom can I contact if I have questions about this study?

- **The research team:**
  If you have any questions, comments or concerns about the research, you can talk to the one of the researchers. Please contact:

  Selena E. Ortiz, MPH
  (510) 459-2887
  seortiz@ucla.edu

  Frederick J. Zimmerman, PhD
  (310) 825-1971
  fredzimmerman@ucla.edu

- **UCLA Office of the Human Research Protection Program (OHRPP):**
  If you have questions about your rights while taking part in this study, or you have concerns or suggestions and you want to talk to someone other than the researchers about the study, please call the OHRPP at (310) 825-7122 or write to:

  UCLA Office of the Human Research Protection Program
  11000 Kinross Avenue, Suite 211, Box 951694
  Los Angeles, CA 90095-1694

You will be given a copy of this information to keep for your records.

Appendix 5.3. Expert Interview Protocol

EXPERT INTERVIEWS PROTOCOL: ELICITING PERSPECTIVES ON ALTERNATIVE FRAMES OF OBESITY

BACKGROUND

The objective of expert interviews are to better understand how experts and advocates communicate about an issue, as well as to better understand the basic content of the messages they want to advance with the public. Using the data from these interviews, we will be able to draft a core story that lays out the central problems associated with obesity, the evidence- or science-base that supports these conclusions, as well as the policy and program solutions that expert knowledge and understanding suggest will help resolve the issue.

RESEARCH METHOD

Ten (10) to fifteen (15) semi-structured (in-person or telephone), audio-recorded, 60-minute interviews with a diverse group of experts in the fields of obesity will be conducted in July and August of 2012.

SUBJECTS

Subjects will be recruited by the researcher through nonprobability processes including *purposive sampling* and *snowball sampling*.

INTERVIEW PROCESS

Subjects will consent to participate in a 60 minute, audio-recorded, semi-structured interview. Each of the interviews will be recorded and transcribed for later analysis. All participants will be assured that their comments will be anonymous and no identifying information will be included in the final report.

INTERVIEW QUESTIONS

The 20 questions listed below will direct the interview conversation. Some of them may or may not be posed according to the conversation between the interviewer and the interviewee. This protocol is semi-structured; the interviewer may pose emerging questions (not listed below) as appropriate according to the interview conversation. Each interview is anticipated to last not more than 60 minutes. It is recommended that the interviewer skip the remaining questions in each part if the designated time limit is exceeded.

Greeting and Introduction *(Limited to 2 minutes)*

"The objective of these interviews is to bridge the gap between what experts know about obesity prevention and how the public understands the issue. In so doing, we can explain the significance of the science to the public in a way that can help shape the public's way of thinking about the issue and avoid unproductive ways they have for understanding obesity."

"I want to ask you to respond to a series of questions. Some of them may seem silly or unnecessarily basic but what I'm trying to do is get at ways of ***thinking*** about and ***explaining*** the fundamental concepts of obesity prevention. I'm interested in how you would help people understand various issues surrounding obesity prevention so that the public can support obesity prevention policies.

"Do you have any questions or comments before we begin?

Obesity-General *(Limited to 7 minutes)*

1. If you had to pick three things that are the most important for the public to know and understand about obesity prevention, what would they be?
    a. Why are these things important?
    b. How would you explain them?
2. What do you think is the biggest source of incomprehension about obesity?
3. Who do you think is most responsible for preventing obesity?

Current Obesity Programs and Legislation *(Limited to 10 minutes)*

4. How effective do you think current governmental intervention is in addressing obesity, specifically prevention of obesity?
5. What major challenges do professionals, researchers, and advocates working in obesity prevention face in reducing obesity rates?

Environmental Manipulation *(Limited to 5 minutes)*

6. Some believe that there "*are factors that can constrain people to behave in health promoting ways*"
    a. What constraints in the environment do you think discourage people from maintaining healthy eating habits?
    b. What constraints in the environment do you think discourage people from engaging in regular exercise?
7. What policies do you think would best address these environmental constraints?

Cognitive Manipulation: Advertising and Marketing *(Limited to 5 minutes)*

8. There is the whole question of food advertising to children… Is it okay to regulate things like that? Why and when?
    a. Probe: What types of food products should not be advertised to children?
9. Do you think that there are forms of marketing besides food advertising that influence people's food choices? Some have suggested, for example, sponsorship of charitable events.

Physiological Manipulation *(Limited to 5 minutes)*

10. There is growing research investigating whether certain types of foods can be physically addicting. I'd like to hear your thoughts as to how you think this area of research is important to preventing obesity.
11. For the past several decades it has been a legal requirement to include first an ingredient list and then a nutritional label on packaged food. So you support this policy, and if so, why is it important to require the food industry to identify and label all ingredients on food/food product packaging?

Choice *(Limited to 5 minutes)*

12. In what ways do you think people's choices about the food they eat are constrained?
    a. Probe: To what extent are people's choices about the food they eat fixed by forces beyond their control?
13. In what ways do you think people's choices about how often they exercise are constrained?

a. Probe: To what extent are people's choices about the food they eat fixed by forces beyond their control?

The Life-Course Perspective *(Limited to 10 minutes)*

14. Some health care experts suggest, "*There should be more investment in childhood because of the impact of childhood experiences on later adult health*." Does this make sense to you?
15. How good a job is the public health community doing in applying a life-course perspective (LCP) to obesity prevention?
16. What LCP policies do you think would be most salient for obesity prevention?
    a. Probe: What strategies would you recommend for best communicating your views to a public who might not intuitively understand these issues?

Scenario #1 – Policymakers *(Limited to 10 minutes)*

17. Pretend that you are in a room with policymakers who are stuck thinking that obesity is primarily the result of lack of personal responsibility. In their minds, for example, obesity results from a lack of self-control when it comes to eating and a lack of self-discipline when it comes to exercising.
    a. How would you simply and concisely make the point that obesity prevention is a much more complex issue than this?
    b. Why do you think the value of personal responsibility resonates with the American public?
    c. What other values would you tell them need to be protected in the prevention of obesity?
    d. How might public health incorporate these values in prevention strategies?

Scenario #2 – Community Members *(Limited to 10 minutes)*

18. If you had to give a 5-minute presentation about obesity prevention to a community group who was interested in learning about the topic, what would you discuss?
    a. What would you say if someone from the audience stood up and asked, "All you seem to be talking about is putting the blame of obesity on someone other than themselves? People are free to choose what they eat after all!"
    b. What if someone else from the audience stood up and asked, "Obesity prevention is a pretty hot political issue. It seems to really break down along party lines. What do you have to say about the politics of obesity?"
    c. How would you respond to someone who stood up and asked, "Ok, I hear that you're saying government needs to take responsibility to prevent obesity, but I think the government sticks their nose way too much in our personal business—now they're trying to stick their nose in what we eat and how we exercise? Aren't I free to choose what I eat without the government telling me what to eat? That sounds like a nanny state to me!
    d. What if another person stood up and asked, "Well, it sounds like obesity is caused by everything. Fast food, workplace environment, advertising and marketing, computer games, television, processed food – everything around us! This is a little overwhelming to think about and I feel like the causes are so big that it's really beyond the scope of doing anything about.

Can you help me see what can be done – that there are real solutions to these overwhelming causes?"

e. What if another person stood up and commented, "It seems as though the food industry is being prevented from exercising market freedom! I don't think that the government should tell them what they can and cannot advertise and what information they can and cannot put on their packaging. Isn't there something called freedom of speech? Don't companies have the right to sell their products as they see fit? I mean, aren't these important American values?"

f. What if another person stood up and asked, "Actually, I don't think the private industry is doing enough for this issue. The food industry says they can self-regulate but I don't know about that – it just seems that there is such a divide between private industry profit interests and public health interests. Is there any way that these two can ever be in harmony with one another?"

Future Policies *(Limited to 5 minutes)*

19. Imagine 50 years in the future, when everyone understands how to prevent obesity and we have made the changes in policy and practice that science suggests. How would the world of policy be different than it is now? What sorts of policies would be in place? How did we get there?

Ending the interview *(Limited to 3 minutes)*

20. Are there any additional issues you would like to discuss?

CONCLUSION

Interviewer will thank interviewee for her/his time and participation in the study. The recording will be stopped and the interview will end. Based on the interviewee's place of employment, interviewer will ask interviewee for copies of educational/promotional/marketing materials used for later analyses (materials review).

Appendix 6.1. Content Analysis Coding Protocol

Coding Protocol for Obesity Frames and Values in Online Newspaper Articles and Readers' Comments

SECTION I. INTRODUCTION

This news story and reader comments protocol is aimed at assessing the use of obesity frames and values in the coverage and public discourse of obesity by online editions of national newspapers and its readers. The American public holds mixed views about how best to address obesity, both within children and adults. The framing of coverage by online news media may affect readers' views about the causes and prevention of obesity. This study examines the use of frames and values within online coverage about obesity and how this affects online public commentary.

Definitions

Causal Attributes / Solution Attributes

The final sample of online news stories are analyzed to determine whether causal attributes and/or solution attributes are discussed within online news stories. To determine whether *causal attributes* are discussed, the online news story must mention possible causes of obesity (e.g. "obesity is caused by eating too much of the wrong foods"; "lack of exercise leads to weight gain"; "living in neighborhoods with high foreclosure rates is associated with obesity"). To determine whether *solution attributes* are discussed, the online news story must mention possible solutions to obesity (e.g. "exercising three times a week can help you lose weight"; "school districts implement nutrition standards for school lunches to decrease obesity"; "bariatric surgery helps patients and their families to keep off the pounds").

Frames

The final sample of online new stories and readers' comments are analyzed to determine the following: 1) whether frames are used to discuss causal attributes or solution attributes of obesity

within online news stories; 2) what types of frames are used to describe causal attributes or solution attributes of obesity within online news stories; 3) whether frames are used to discuss obesity in online readers' comments; and 4) what types of frames are used to discuss obesity in online readers' comments.

Four specific frames are examined: the personal responsibility frame, the environmental frame, the life course perspective frame, and the manipulation frame.

Personal Responsibility

The personal responsibility frame emphasizes the individual's responsibility for his or her obesity status and promotes individual behavioral change (e.g. diet or exercise) as the primary solution. Some words/terms describing the personal responsibility frame include individualism, individual choice, decisions, responsibility, individual responsibility, individual behavior, and parental responsibility.

Environmental

The environmental frame emphasizes the effects of the natural, built, and social environment and broadens the focus of the obesity problem by assigning both causality and responsibility to government, business, and larger social forces. Some words/terms describing the environmental frame include environment, social environment, food environment, work environment, schools, neighborhoods, neighborhood safety, transportation, video games, television, commutes, and long-work hours.

Life Course Perspective

The life course perspective frame contextualizes obesity within the life-course perspective, which considers long-term biological, behavioral, and psychosocial processes that link adult health and disease risk to physical or social exposures during gestation, childhood, adolescence, early

adulthood, or across generations. Some words/terms describing the life-course perspective frame include in utero, infancy, bonding, breast-feeding, and childhood obesity in relation to adult obesity, early-life experiences, early-life exposures, life course, life trajectory, life span, family dynamics, family relationships, poverty, and poverty in childhood.

Manipulation

The manipulation frame contextualizes obesity as the result of purposive manipulation strategies exacted by the food industry to increase the availability and over-consumption of processed foods and sugary beverages. This manipulation occurs at the cognitive, physiological, and environmental levels. Some words/terms describing the manipulation frame include food marketing, marketing to children, food advertising, advertising to children, food addiction, food prices, food labeling, food additives, lobbying, genetically modified foods, high-fructose corn syrup, food industry, food industry regulation and food industry self-regulation.

Values

The final online sample of newspaper stories and readers' comments will also be analyzed to determine whether values are used within the story or by its readers. Three distinct values, personal responsibility, equality of opportunity and social responsibility are examined. Some words/terms describing these values are (1) *personal responsibility*: individualism, willpower, self-control, self-restraint, self-discipline, individual choice and autonomy; (2) *equality of opportunity*: equality, equity, equal opportunity, fairness, chance, equal access, prospects; and (3) *social responsibility*: broad responsibility (i.e. schools, industry, government, individuals, parents), societal responsibility, together, all in this together, working together, collective, collective action, communities, and community responsibility.

SECTION II. PROCESSING OF CONTENT

News Sources

A sample of news stories focusing on obesity published in the *New York Times* in 2011 are analyzed.

Print and Online Obesity News Story in 2011

LexisNexis will be used to identify and collect newspaper stories appearing in print and online. Stories having one of the following terms in their headlines: *obese*; *obesity*; *overweight*; *weight loss*; *weight*; *BMI*; *fat*; *nutrition*; *diet*; and *exercise* published between January 1 and December 31, 2011 will be identified. A subset of newspaper stories from this primary sample need to include at least one of the following terms in their content: *obese*; *obesity*; or *overweight* to be selected for further review.

Stories are defined as all non-advertising matter in a news product. This includes all staff-produced news stories found in the first and "local" section, and may include relevant features produced by local staff reporters and syndicated and wire services stories relevant to the issue being analyzed. The final sample of printed and online stories will exclude stories shorter than 100 words, classified as corrections, book reviews, movie reviews, play reviews, television reviews, gossip columns, advice columns, obituaries, duplicate wire stories, previews or summary of content, calendar reports, exclusively animal –focused, or letters to the editor. A subjective determination to screen all stories to exclude those not focusing on overweight/obesity should be used.

The final sample of printed and online stories identified via LexisNexis should be matched with their online version. Searches by headline, author, and/or story content should be conducted both within the online website of the newspaper and Google search engines (since a headline for a printed story often may not match the headline of its online version). When an online match cannot

be found, the story will be labeled as "lost" and excluded from the final online sample of new stories.

Readers' Comments

Each of the matching online versions will be examined for reader's comments. When reader's comments do not exist for a particular story, the story will be labeled as "no reader comments" and excluded from the final online sample of stories. In addition to the first comment of a story, 20% of each story's total comments will be randomly selected into the study. Only "stand alone" and "parent" comments will be included in the randomization process. "Stand alone" comments refer to those comments that are unique in their point of view while "parent" comments refer to those comments that are unique in their point of view and generate additional, "child" comments. A comment is classified as a child comment if and only if it references another (i.e. "parent") comment without providing any detail about the parent comment and does not extend a unique point of view:

Example 1: @ #1KnicksFan: I totally agree with your view!

Example 2: @ #1KnicksFan: Your comment about the food industry was interesting and should be taken into consideration in this debate. I totally agree with your view!

All child comments that are attached to parent comments randomly selected into the final sample will also be included in the final sample.

A comment is not classified as a child comment if and only if it directly quotes the parent comment or references the parent comment and extends a unique point of view:

Example 3: @ #1KnicksFan: You write, "The food industry's main concern is profits for its shareholders, not the health of the population." I totally agree with your view!

Example 4: @ #1KnicksFan: Your comment about the food industry was interesting and should be taken into consideration in this debate. I totally agree with your view! The food industry should be heavily invested in the health of the population, not only its bottom line.

Comments that directly quote a parent comment or reference a parent comment but extend a unique point of view should be classified as "stand alone" comments and included in the randomization process.

Section III.A. Procedure for Online News Stories

The following steps should be taken in the content analysis coding described below (note: v# stands for variable number; letter (A…*j*) represents the column in an Excel worksheet where variable should be coded; VARNAME stands for variable name; UNIVERSE stands for the group of data of which the variable focuses on). All relevant online news stories on obesity are read to identify frames and values and each story is analyzed for specific characteristics described below:

v1. Story Identification Number (A)

VARNAME = `s_id`

UNIVERSE = all stories

v2. Story Date (month/day/year) (B)

VARNAME = `s_date`
UNIVERSE = all stories

State the month, day, and year of the comment using the format: 00/00/0000

v3. Type of Story (C)

VARNAME = `s_type`

UNIVERSE = all stories

Identify the type of story and code the type of story with the associated values:

News Article	= 1
Blog Post	= 2
Editorial	= 3
Other	= 4 (write the name of other in the cell)

v4. Story Prominence (D)

VARNAME = `s_prom`

UNIVERSE = all stories classified as "News Articles"

Code if v3 = 1 (otherwise label as inapplicable)
Identify the location of the printed version of the news article and code story prominence with the associated values:

Page one	= 1
Section page one	= 2
Inside page	= 3
Inapplicable	= -1

v5. Story Origin: designated by story byline (E)

VARNAME = `s_origin`

UNIVERSE = all stories

Identify the origin of the story and code the story origin with the associated values:

Newspaper's own reporter	= 1
Newspaper's state bureau	= 2
Newspaper's DC bureau	= 3
Associated Press (AP)	= 4
Other bureau or newspaper	= 5 (write the name of other in the cell)

v6. Population Focus (F)

VARNAME = `s_pop`

UNIVERSE = all stories

Identify whether the story focuses on children, adults, or the general population and code population focus with the associated values:

Children	= 1
Adults	= 2
General population (i.e. both adults and children or non-specific)	= 3

v7. Primary Story Topic (G)

VARNAME = `s_primtop`

UNIVERSE = all stories

Identify the main topic of the story within the first paragraph for each article and code the primary story topic with the associated values:

Nutrition	= 1
Exercise	= 2
Exercise + Nutrition	= 3
Food Industry	= 4
Marketing/Advertising	= 5
Obesity general	= 6
Obesity prevention	= 7
Obesity treatment	= 8
Other	= 9 (specify in the cell)

v8. Government Program (H)

VARNAME = `gov`

UNIVERSE = all stories

Identify whether a government program is mentioned in the story and code with the associated values:

Government program mentioned	= 1
Government program not mentioned	= 0

v9. Type of Government Program (I)

VARNAME = `gov_type`

UNIVERSE = all government programs mentioned within the story

Code if v8 = 1 (otherwise code as "inapplicable)
Identify the type of government program discussed within the story and code program with the associated values:

CMS	= 1
Federal School Lunch Program	= 2
Food Stamps	= 3
Other	= 4 (write the name of other in the cell)
Inapplicable	= -1

v10. Taxes (J)

VARNAME = `taxes`

UNIVERSE = all stories

Identify whether taxes (e.g. soda taxes, snack food taxes, etc.) are mentioned in the story and code with the associated values:

Taxes are mentioned	= 1
Taxes are not mentioned	= 0

v11. Policies (K)

VARNAME = `policy`

UNIVERSE = all stories

Identify whether a policy or policies are mentioned in the story and code with the associated values:

Policy (ies) are mentioned	= 1
Policy (ies) are not mentioned	= 0

v12. Type of Policy (ies) (L)

VARNAME = `pol_type`

UNIVERSE = all stories that mention a policy or policies

Code if v11 = 1 (otherwise label as inapplicable)

Identify the type of policy or policies are mentioned in the story and code policy types with the associated values:

Federal Government policy (ies)	= 1
State Government policy (ies)	= 2
Local Government policy (ies)	= 3
Private institutions (work, hospitals, private schools, etc.)	= 4
Other policy (ies)	= 5
Inapplicable	= -1

v13. Causal Attribute (M)

VARNAME = `caus_att`

UNIVERSE = all news stories

Identify whether a news story discussed a causal attribute of obesity and code with the associated values:

Causal attribute of obesity discussed	= 1
Causal attribute of obesity not discussed	= 0

v14. Causal Frame Type (N)

VARNAME = `causf_type`

UNIVERSE = all news stories that discussed a causal attribute of obesity

Code if v13 = 1 (otherwise label as inapplicable)
Identify the type of frame used in the story to discuss causal attributes and code frames with the associated values:

Personal Responsibility Frame	= 1
Environmental Frame	= 2
Life Course Perspective Frame	= 3
Manipulation Frame	= 4
Other Frame	= 5 (specify frame in the cell)
>1 Frame	= 6 (specify frames in the cell)
Personal Responsibility plus other	= 7 (specify frame(s) in the cell)
Inapplicable	= -1

v15. Solution Attribute (O)

VARNAME = `sol_att`

UNIVERSE = all news stories

Identify whether a news story discussed a solution attribute of obesity and code with the associated values:

Solution attribute of obesity discussed	= 1
Solution attribute of obesity not discussed	= 0

v16. Solution Frame Type (P)

VARNAME = `solf_type`

UNIVERSE = all news stories that discussed a solution attribute of obesity

Code if v15 = 1 (otherwise label as inapplicable)
Identify the type of frame used in the story to discuss solution attributes and code frames with the associated values:

Personal Responsibility Frame	= 1
Environmental Frame	= 2
Life Course Perspective Frame	= 3
Manipulation Frame	= 4
Other Frame	= 5 (identify the name of 'other' frame)
>1 Frame	= 6 (identify the names of the frames)
Personal Responsibility plus other	= 7 (identify 'other' frame(s))
Inapplicable	= -1

v17. Values (Q)

VARNAME = `value`

UNIVERSE = all stories

Identify whether the story uses values and code values with the associated values:

Values are used	= 1
Values are not used	= 0

v18. Type of Values (R)

VARNAME = `value_type`

UNIVERSE = all values

Code if v17 = 1 (otherwise label as inapplicable)

Identify the type of value used in the story and code with the associated values:

Personal Responsibility	= 1
Social Responsibility	= 2
Equality of Opportunity	= 3
Other Value	= 4 (identify the name of 'other' value)
>1 Value	= 5 (identify the names of the values)
Personal Responsibility plus other	= 6 (identify 'other' value(s))
Inapplicable	= -1

Section IIIB. Procedure for Online Readers' Comments

The following steps should be taken in the content analysis coding described below (note: v# stands for variable number; letter (A…*j*) represents the column in an Excel worksheet where variable should be coded; VARNAME stands for variable name; UNIVERSE stands for the group of data of which the variable focuses on). All randomly selected readers' comments and associated child comments are read to identify the use of frames and values and each comment is analyzed for specific characteristics described below:

v19. Number of Readers Comments (total) (S)

VARNAME = `c_totnmbr`

UNIVERSE = all readers' comments

State the number of readers' comments available for the story and code numerically (1…*n*)

v20. Number of Readers Comments (randomly selected to be in sample) (T)

VARNAME = `c_randnmbr`

UNIVERSE = all readers' comments randomly selected into the final sample

State the number of readers' comments randomly selected and code numerically (1…*n*)

v21. Comment Identification Number (U)

VARNAME = `c_id`

UNIVERSE = all readers' comments randomly selected into the final sample

Code comment in numerical order beginning with 1thru *n*

v22. Comment Day (month/day/year) (V)

VARNAME = `c_date`

UNIVERSE = all readers' comments randomly selected into the final sample

State the month, day, and year of the comment using the format: 00/00/0000

v23. Gender (W)

VARNAME = `gender`

UNIVERSE = all readers' comments randomly selected into the final sample

Identify the gender of the commenter based on name and code with the associated values:

Female	= 1
Male	= 0
Unable to determine	= 2

v24. Geographic Location (X)

VARNAME = `region`

UNIVERSE = all readers' comments randomly selected into the final sample

Identify the geographic region of the comment and code with the associated values:

Northeast	= 1
Midwest	= 2
South	= 3
West	= 4
US (not specified)	= 5
Outside US	= 6
Unable to determine	= 7

v25. Agreement with Story (Y)

VARNAME = `c_agree`

UNIVERSE = all readers' comments randomly selected into the final sample
Identify whether the comment is in agreement with the story and code agreement with the associated values:

Agreement with story	= 1
Disagreement with story	= 0
Neither agree nor disagree	= 2

v26. Obesity Frames (Z)

VARNAME = `c_frame`

UNIVERSE = all readers' comments randomly selected into the final sample

Identify whether an obesity frame is used in the comment and code frames with the associated values:

Frame of obesity used	= 1
Frame of obesity not used	= 0

v27. Type of Obesity Frame (AA)

VARNAME = `cframe_type`

UNIVERSE = all readers' comments that use obesity frames

Code if v26 = 1 (otherwise label as inapplicable)
Identify the type of obesity frame used in the comment and code frames with the associated values:

Personal Responsibility Frame	= 1
Environmental Frame	= 2
Life Course Perspective Frame	= 3
Manipulation Frame	= 4
Other Frame	= 5 (identify the name of 'other' frame)
>1 Frame	= 6 (identify the names of the frames)
Personal Responsibility plus other	= 7 (identify the name(s) of 'other' frame(s))
Inapplicable	= -1

v28. Values (AB)

VARNAME = `c_value`

UNIVERSE = all readers' comments randomly selected into the final sample

Identify whether the comment uses values and code with the associated values:

Values are used	= 1
Values are not used	= 0

v29. Type of Values (AC)

VARNAME = `cvalue_type`

UNIVERSE = all readers' comments that use values

Code if v28 = 1 (otherwise label as inapplicable)
Identify the type of value(s) used in the comment and code with the associated values:

Personal Responsibility	= 1
Social Responsibility	= 2
Equality of Opportunity	= 3
Other Value	= 4 (identify the name of other value)
>1 Value	= 5 (identify the names of the values)
Personal Responsibility plus other	= 6 (identify the 'other' value(s))
Inapplicable	= -1

v30. Personal Weight (AD)

VARNAME = `weight`

UNIVERSE = all readers' comments randomly selected into the final sample

Identify whether the commenter mentions his/her own weight in comment and code with associated values:

Yes	= 1
No	= 0

v31. Personal Weight History (AE)

VARNAME = `weight_hist`

UNIVERSE = all readers' comments who mention personal weight in their comments

Code if v30= 1 (otherwise label as inapplicable)
Identify how the commenter discusses personal weight and code with the associated values:

Weight loss	= 1

Weight struggles = 2
Weight maintenance = 3
Weight loss and maintenance = 4
Inapplicable = -1

v32. Governmental Distrust (AF)

VARNAME = `gov_distrust`

UNIVERSE = all readers' comments randomly selected into the final sample

Identify whether the comment references governmental mistrust (e.g. government control, coercion, policing, or interference; government's inability to govern; food industry/big business control of government) and code term(s) with the associated values:

Reference governmental distrust =1
No reference to governmental distrust =0

v33. Business Distrust (AG)

VARNAME = `bus_distrust`

UNIVERSE = all readers' comments randomly selected into the final sample

Identify whether the comment references business mistrust (e.g. food industry/business only interested in profits; use of people as a means to profit; abuse of corporate lobbying, etc.) and code term(s) with the associated values:

Reference business distrust =1
No reference to business distrust =0

v34. Hostility for Obese/Overweight People (AH)

VARNAME = `hostility`

UNIVERSE = all readers' comments randomly selected into the final sample

Identify whether the comment conveys hostility towards obese or overweight people (e.g. terms such as "fatties", "lazy", "stupid", etc.) and code terms using the associated values:

Expression of hostility = 1
No expression of hostility = 0

v35. Number of Recommendations Comment Receives (AI)

VARNAME = `c_recnmbr`

UNIVERSE = all readers' comments randomly selected into the final sample

State the number of recommendations a comment receives and code numerically (1…*n*)

Appendix 7.1. Conceptual Mapping of the Gaps

OVERVIEW

In traditional "mapping of the gaps" analysis, specific areas where "cognitive holes" exist on the part of the public that impair a productive understanding of the science around an issue are identified[1]. The objective is then to develop simplifying models that help fill in these "cognitive holes". The purpose of the "mapping of the gaps" exercise for this research is to identify gaps between experts and the public in understanding obesity, particular causal attributions and perceptions of responsibility, and differences in value systems.

This "mapping the gaps" exercise is the culmination of two discrete research phases. First, the study explored and synthesized the sometimes incongruent *expert discourse* on obesity and obesity prevention. In a series of "expert interviews", the substance of what experts were discussing as well as the patterns in how they explained and talked about obesity and obesity prevention was examined. More explicitly, the foundational themes and concepts were observed as well as the shared values that experts use when they attempt to convey the core story to the public or policy-makers.

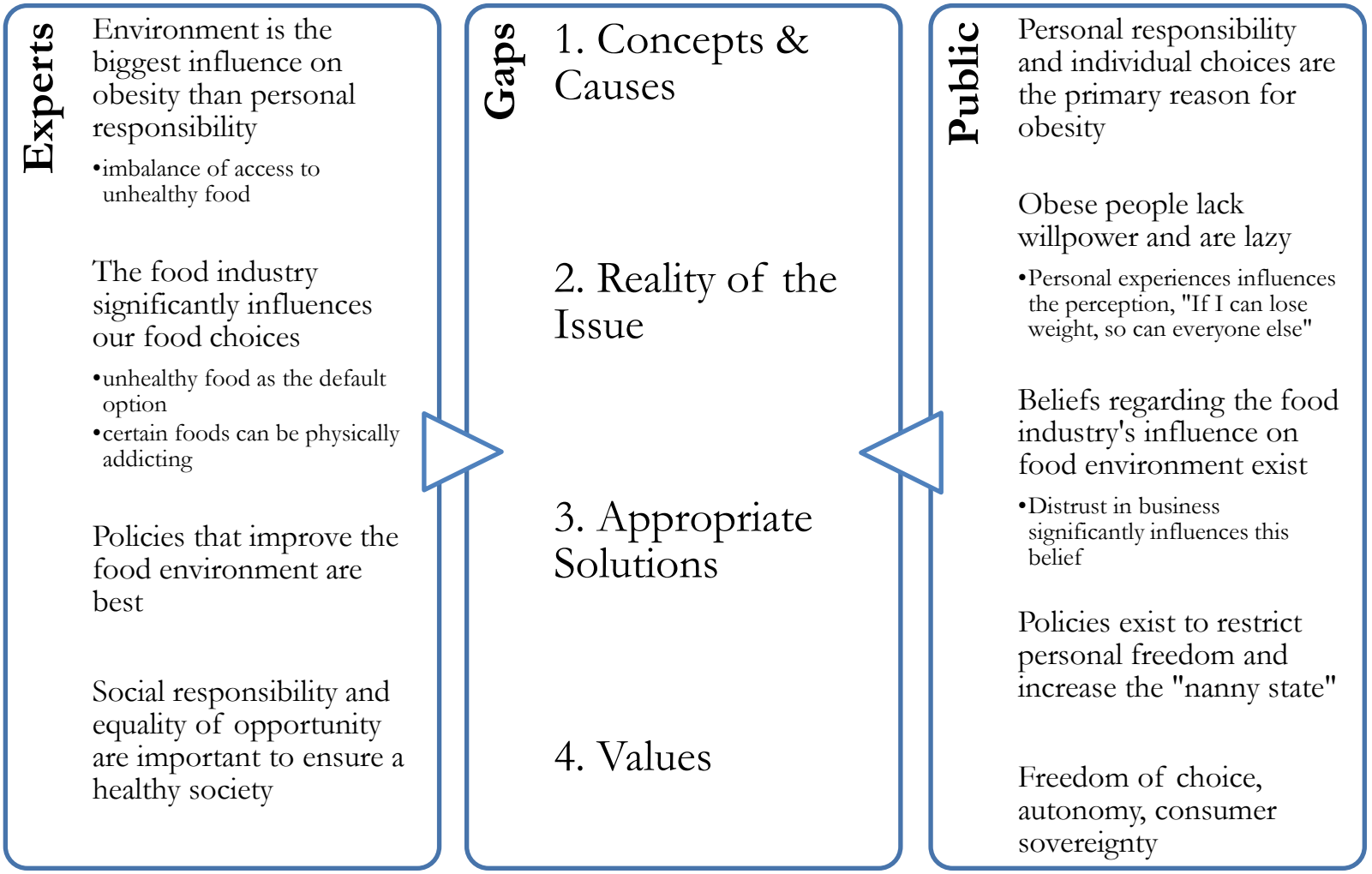
Second, an analysis of online readers' comments was analyzed to assess how the public understands and discusses obesity. In addition, the analysis determined whether the public use frames and values throughout their discourse, and whether the media influences the use of particular frames and values.

Three primary goals are achieved through this "mapping": 1) document the way experts talk about and explain the issue of obesity and obesity prevention; 2) establish the way that the public understands obesity and obesity prevention; and 3) compare and "map" these explanations and understandings to reveal the overlaps and gaps between these two groups. By comparing understandings among experts with public patterns of thinking about obesity and obesity prevention, particular aspects of the life-course perspective and the manipulation frame that would

most resonate with the public were ascertained; shared values among experts and the public were identified; and narratives associated with the alternative frames and values that could be used to help bridge gaps in thinking about obesity prevention were developed. These narratives can then be tested in an experimental study to test for their effectiveness is increasing public support for health policy.

This research also suggests that there are some areas of commonality between the way that experts and the general public understand various concepts with obesity prevention. Overlaps in patterns of thinking can be considered as "features of the cognitive landscape that communications must use to shift thinking and counteract the more dominant and unproductive cultural models" [(1)]. In other words, it is these shared understandings that provide the basis in which to create alternative frames that can help shift public perception of an issue.

The figure below illustrates the map of expert explanations, public opinion and the gaps that exist between these two groups in understanding obesity, including causal attributes of obesity and perceptions of responsibility. An integral part of FrameWorks' Strategic Frame Analysis™ is to first generate this map and then design simplifying models that fill these holes by cultivating clarifying metaphors that concretize key scientific concepts. The method is employed in this research to develop value statements that could help move people to support health policies that systemically address obesity.


Experts
Environment is the biggest influence on obesity than personal responsibility
•imbalance of access to unhealthy food
The food industry significantly influences our food choices
•unhealthy food as the default option
•certain foods can be physically addicting
Policies that improve the food environment are best
Social responsibility and equality of opportunity are important to ensure a healthy society
Gaps
1. Concepts & Causes
2. Reality of the Issue
3. Appropriate Solutions
4. Values
Public
Personal responsibility and individual choices are the primary reason for obesity
Obese people lack willpower and are lazy
•Personal experiences influences the perception, "If I can lose weight, so can everyone else"
Beliefs regarding the food industry's influence on food environment exist
•Distrust in business significantly influences this belief
Policies exist to restrict personal freedom and increase the "nanny state"
Freedom of choice, autonomy, consumer sovereignty

FINDINGS

1. Concepts and Causes

Gaps between understanding about the causal attributions of obesity existed between experts and the public. Expert interviews demonstrated that across the board, experts agreed that the environment was the biggest influence on obesity. The term "environment" was used by experts to specify anything other than the individual. At the other end of the spectrum, the public believes that obesity is caused by poor lifestyle choices by the individual. The public refers to "lifestyle choices" in reference primarily to eating habits and physical exercise habits, but also identifies substance abuse such as alcohol (calories) and smoking status (inability to exercise) as well.

Further questioning provided an opportunity to "un-pack" this concept of the environment, so that more specific causal attributes could be identified and discussed. In these discussions, experts identified the food industry and food industry tactics to increase food consumption as the primary contributor to the obesity problem in the U.S. Analysis of public commentary revealed that there is a level of distrust of the food industry, especially in regards to marketing and food lobbying. Communication strategies should focus on emphasizing the food environment as one that is engineered by the food industry to induce over-consumption of unhealthy food and beverages.

Many of the experts identified the early life-years as some of the most influential years in determining whether a child is obese or not. Very few members of the public raised this as an issue however.

2. Reality of the Issue

Experts are able to identify and talk about the various strategies that the food industry employs at the environmental, cognitive, and physiological level to induce over-consumption. Other experts spoke specifically to the issue of the built environment and the inability of certain communities to engage in regular physical activity. Many of the public however, felt that the reality

was that people are just too lazy and lack motivation and willpower to exercise and eat well. Even if healthy foods were available and the physical environment was structured to support physical exercise, people would still be unwilling to make the necessary changes to be healthy. Still, there was a segment of the public that believed that the food environment encouraged overeating, and that they felt powerless to successfully change their eating habits as a result. Developing communication statements that emphasize the need to improve our surroundings so that the default options are the healthier options.

3. Appropriate Solutions

Not surprisingly, experts and the public had drastically very different views about the best solutions to address obesity. This primarily had to do with having very polarized perspectives on causal attributions. For experts, policies that seek to change the food environment were endorsed, including restrictions on food advertising, the use of standardized nutrition guidelines in childcare and pre-school settings, and disclosure of food ingredients. Other experts noted the importance of mandated physical education programs in schools. For much of the public, policies were viewed as another way government interferes with private behavior, decision-making, and freedom of choice. For some, the only involvement the government should have is to provide the necessary information that people need to have to be healthy. Policy solutions should focus on those things that help people become more active participants in selecting the food they are eating. This means implementing policies that aim to improve consumer choice but goes beyond providing only education and information to actually changing the status quo, or default food environment.

4. Values

The values of social responsibility and equality of opportunity were discussed amongst experts. For many of the experts, these values serve as the foundation for why government

intervention via programs and policies are necessary. The public, on the other hand, spoke of consumer sovereignty, freedom of choice, and autonomy. There were some members of the public however that recognized the amount of corporate lobbying by the food industry and felt that the laws protected the food industry versus the consumer. Communication strategies should emphasize the importance of the effect that sound governmental policies can have on obesity when based on social responsibility and equality of opportunity.

BIBLIOGRAPHY

1. Kendall-Taylor N. Conflicting models of mind in mind: Mapping the gaps between the expert and the public understandings of child mental health as part of Strategic Frame Analysis™. Washington, DC: FrameWorks Institute; 2009.

1. Which race/ethnicity best describes you? (Please choose only one.)

- ◯ American Indian or Alaskan Native
- ◯ Asian / Pacific Islander
- ◯ Black or African American
- ◯ Hispanic American
- ◯ White / Caucasian

2. Which of the following categories best describes your employment status?

- ◯ Employed, working 1-39 hours per week
- ◯ Employed, working 40 or more hours per week
- ◯ Not employed, looking for work
- ◯ Not employed, NOT looking for work
- ◯ Retired
- ◯ Disabled, not able to work

3. Are you now married, widowed, divorced, separated, or never married?

- ◯ Married
- ◯ Widowed
- ◯ Divorced
- ◯ Separated
- ◯ Never married

4. Are your living quarters owned or being bought by you or someone in your household, rented for cash, or occupied without payment of cash rent?

- ◯ Owned or being bought by you or someone in your household
- ◯ Rented for cash
- ◯ Occupied without payment of cash rent

5. Do you have any children under the age of 18?

- ◯ Yes
- ◯ No

6. In general, how would you rate your overall health?

- ◯ Excellent
- ◯ Very good
- ◯ Good
- ◯ Fair
- ◯ Poor

7. What is your height in feet and inches? (Remove shoes before measuring.)

Feet

Inches

8. What is your current weight in pounds?

Pounds

9. In general, what is your political party affiliation?

- ◯ Strong Republican
- ◯ Republican
- ◯ Leans Republican
- ◯ Undecided/Independent/Other
- ◯ Leans Democrat
- ◯ Democrat
- ◯ Strong Democrat

10. When it comes to politics, do you usually think of yourself as extremely conservative, conservative, slightly conservative, moderate or middle of the road, slightly liberal, liberal, or extremely liberal?

- ◯ Extremely Conservative
- ◯ Conservative
- ◯ Slightly Conservative
- ◯ Moderate, middle of the road
- ◯ Slightly Liberal
- ◯ Liberal
- ◯ Extremely Liberal

11. Please tell us if you "strongly support", "support", "neither support nor oppose", "oppose", or "strongly oppose" the following policies:

	Strongly support	Support	Neither support nor oppose	Oppose	Strongly oppose
Require food manufacturers to disclose the amount of additives, such as sugar and caffeine, in their products on packaging	◯	◯	◯	◯	◯
Remove soft drink vending machines from public schools	◯	◯	◯	◯	◯
Provide incentives to private businesses to accommodate breastfeeding in the workplace	◯	◯	◯	◯	◯

12. Please tell us if you "strongly support", "support", "neither support nor oppose", "oppose", or "strongly oppose" the following policies:

	Strongly support	Support	Neither support nor oppose	Oppose	Stongly oppose
Provide incentives to private businesses to support voluntary, physical activity opportunities for employees during the workday	◯	◯	◯	◯	◯
Implement statewide nutrition standards within licensed child care and pre-school settings	◯	◯	◯	◯	◯
Restrict unhealthy food and beverage advertising on public school buses	◯	◯	◯	◯	◯

13. Please tell us if you "strongly support", "support", "neither support nor oppose", "oppose", or "strongly oppose" the following policies:

	Strongly support	Support	Neither support nor oppose	Oppose	Strongly oppose
Establish a statewide sales tax on sugary beverages, with tax dollars only going towards educational campaigns about healthy eating and exercise	◯	◯	◯	◯	◯
Prohibit all high-fat, high-sugar food and beverage advertising on television programming watched primarily by children	◯	◯	◯	◯	◯
Provide government funding for schools to provide physical education and activity programs	◯	◯	◯	◯	◯

14. Please tell us if you "strongly agree", "agree", "neither agree nor disagree", "disagree", or "strongly disagree" with each of the following statements:

“Obesity is an issue in the US because…”

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
“most people’s jobs require sitting for long periods of time”	◯	◯	◯	◯	◯
“foods high in fat, sugar, and salt can be addicting”	◯	◯	◯	◯	◯
“it is an unavoidable reality of our modern, busy lifestyle”	◯	◯	◯	◯	◯
“most people lack the willpower to diet or exercise regularly”	◯	◯	◯	◯	◯
“children don’t get enough physical activity in school"	◯	◯	◯	◯	◯
“some advertising can increase people’s desire to eat junk food and drink sugary beverages”	◯	◯	◯	◯	◯
“it is more affordable to purchase unhealthy food than healthy food”	◯	◯	◯	◯	◯

15. Please identify which of the following bear "none", "hardly any", "just some", "a good amount", or a "great deal" of responsibility for addressing the problem of obesity:

	None	Hardly any	Just some	A good amount	A great deal
Food industry	◯	◯	◯	◯	◯
Schools	◯	◯	◯	◯	◯
Government	◯	◯	◯	◯	◯
Employers	◯	◯	◯	◯	◯
Society	◯	◯	◯	◯	◯
Physicians	◯	◯	◯	◯	◯
Individuals	◯	◯	◯	◯	◯

16. In your opinion, what is the most important issue facing the U.S. today?

- ◯ Foreign policy
- ◯ Taxes
- ◯ Environment
- ◯ Terrorism
- ◯ Race relations
- ◯ Energy
- ◯ Economy
- ◯ Situation in the Middle East
- ◯ Moral issues
- ◯ Immigration
- ◯ Jobs
- ◯ Healthcare
- ◯ Education
- ◯ Other (please specify)

17. In most states in the U.S., people cannot vote in an election unless they fill out a government form to "register to vote." Are you currently registered to vote in the state where you live now, or are you not registered to vote there?

- ◯ Registered in state where I live
- ◯ Not registered in state where I live
- ◯ Not registered - Live in North Dakota

18. Some people seem to follow what's going on in government and public affairs most of the time, whether there's an election going on or not. Others aren't that interested. Would you say you follow what's going on in government and public affairs most of the time, some of the time, only now and then, or hardly at all?

- ◯ Most of the time
- ◯ Some of the time
- ◯ Only now and then
- ◯ Hardly at all

This survey is now complete. Thank you so much for your participation!

Appendix 7.3. Results from Brant Test of Parallel Regression Assumption

Variable*	Chi^2	$P>Chi^{2**}$	Degrees of Freedom
pol_nursing			
Treatment 1	2.04	0.153	1
Treatment 2	0.00	0.984	1
Treatment 3	2.31	0.129	1
Treatment 4	0.71	0.400	1
pol_nutrstandards			
Treatment 1	1.93	0.165	1
Treatment 2	0.29	0.588	1
Treatment 3	3.96	0.047	1
Treatment 4	2.80	0.094	1
pol_physical ed			
Treatment 1	0.22	0.640	1
Treatment 2	1.24	0.266	1
Treatment 3	0.74	0.390	1
Treatment 4	5.33	0.021	1
pol_workplace			
Treatment 1	1.73	0.189	1
Treatment 2	1.16	0.282	1
Treatment 3	1.56	0.212	1
Treatment 4	0.00	0.997	1
pol_disclose			
Treatment 1	1.18	0.276	1
Treatment 2	0.36	0.548	1
Treatment 3	0.39	0.533	1
Treatment 4	0.15	0.695	1
pol_advertising			
Treatment 1	0.32	0.574	1
Treatment 2	1.16	0.281	1
Treatment 3	0.43	0.514	1
Treatment 4	1.40	0.237	1
pol_buses			
Treatment 1	1.01	0.315	1
Treatment 2	0.53	0.466	1
Treatment 3	1.02	0.312	1
Treatment 4	1.13	0.288	1
pol_vending			
Treatment 1	2.40	0.121	1
Treatment 2	0.44	0.506	1
Treatment 3	0.15	0.695	1
Treatment 4	0.92	0.339	1
pol_beverage tax			
Treatment 1	0.03	0.855	1
Treatment 2	0.26	0.609	1
Treatment 3	0.04	0.844	1
Treatment 4	0.12	0.728	1

* for more information about these variables, please see Chapter 7

** A significant test statistic indicates that the parallel regression assumption has been violated

Appendix 7.4. Conditional Marginal Effects of Treatment Narratives on Level of Support for Health Policies among Conservatives, Moderates, and Liberals

	Treatment 1 (*n* = 441)			Treatment 2 (*n* = 371)			Treatment 3 (*n* = 332)			Treatment 4 (*n* = 415)		
Policies	Liberals Coef.	Moderates Coef.	Conservatives Coef.	Liberals Coef.	Moderates Coef.	Conservatives Coef.	Liberals Coef.	Moderates Coef.	Conservatives Coef.	Liberals Coef.	Moderates Coef.	Conservatives Coef.
pol_nursing												
Support	0.1025	0.1784	0.0816	0.0314	0.2330	0.0857	0.1110	0.2647	0.0519	0.1209	0.0808	0.0576
Neutral	-0.0720	-0.0907	-0.0281	-0.0221	-0.1329	-0.0320	-0.0786	-0.1480	(-0.0163*)	-0.0879	-0.0365	-0.0190
Oppose	-0.0304	-0.0877	-0.0535	-0.0092	-0.1001	-0.0537	-0.0325	-0.1167	-0.0356	-0.0330	-0.0444	-0.0386
pol_nurstandards												
Support	0.0371	0.1006	0.0258	0.0284	-0.0092	0.0649	0.0569	0.1421	-0.0382	0.0650	0.1191	0.0058
Neutral	-0.0225	-0.0535	-0.0103	-0.0179	0.0047	-0.0288	-0.0343	-0.0759	0.0136	-0.0398	-0.0633	-0.0022
Oppose	-0.0146	-0.0470	-0.0155	-0.0105	0.0045	-0.0361	-0.0226	-0.0662	0.0246	-0.0252	-0.0558	-0.0035
pol_physical ed												
Support	0.0434	-0.0590	0.0181	-0.0031	-0.1393	0.0396	-0.0105	0.0938	0.0181	0.0552	-0.1481	0.0025
Neutral	-0.0274	0.0335	-0.0067	0.0018	0.0716	-0.0144	0.0063	-0.0578	-0.0065	-0.0324	0.0701	-0.0008
Oppose	-0.0160	0.0255	-0.0114	0.0012	0.0677	-0.0252	0.0042	-0.0359	-0.0116	-0.0227	0.0780	-0.0017
pol_workplace												
Support	0.0419	0.1427	-0.0073	0.0378	0.1023	0.0752	0.0328	0.1237	-0.0201	0.0836	0.0048	0.0002
Neutral	-0.0260	-0.0807	0.0032	-0.0237	-0.0572	-0.0367	-0.0204	-0.0696	0.0088	-0.0567	-0.0026	-0.0001
Oppose	-0.0159	-0.0619	0.0041	-0.0141	-0.0451	-0.0385	-0.0123	-0.0540	0.0113	-0.0269	-0.0022	-0.0001
pol_disclose												
Support	-0.0007	0.0455	0.0166	0.0074	0.0108	0.0218	-0.0195	0.1086*	-0.0160	0.0039	0.0287	0.0128
Neutral	0.0005	-0.0321	-0.0113	-0.0060	-0.0084	-0.0167	0.0158	(-0.0866*)	0.0121	-0.0030	-0.0212	-0.0092
Oppose	0.0002	-0.0134	-0.0053	-0.0014	-0.0024	-0.0051	0.0038	-0.0221	0.0038	-0.0009	-0.0076	-0.0036
pol_advertising												
Support	0.0072	0.0244	0.0318	0.0233	-0.1100	-0.0024	0.0072	0.1086	-0.0437	0.0205	-0.0650	-0.0180
Neutral	-0.0028	-0.0085	0.0016	-0.0093	0.0265	-0.0002	-0.0029	-0.0432	-0.0074	-0.0081	0.0178	-0.0021
Oppose	-0.0044	-0.0159	-0.0334	-0.0140	0.0835	0.0026	-0.0044	-0.0654	0.0512	-0.0124	0.0473	0.0201
pol_buses												
Support	-0.0159	-0.1166	-0.0072	0.0104	-0.1080	-0.0271	0.0072	-0.0961	-0.0270	0.0263	-0.1360	-0.0466
Neutral	0.0090	0.0634	0.0031	-0.0052	0.0511	0.0097	-0.0041	0.0527	0.0115	-0.0131	0.0611	0.0158
Oppose	0.0069	0.0532	0.0041	-0.0052	0.0569	0.0174	-0.0031	0.0434	0.0155	-0.0132	0.0749	0.0308
pol_vending												
Support	0.0181	0.0172	0.0502	0.0455	-0.0799	0.0389	0.0173	0.0829	0.0817	0.0574	-0.1227	-0.0400
Neutral	-0.0085	-0.0071	-0.0108	-0.0232	0.0305	-0.0086	-0.0086	-0.0397	-0.0212	-0.0296	0.0425	0.0057
Oppose	-0.0096	-0.0100	-0.0394	-0.0223	0.0494	-0.0303	-0.0086	-0.0432	-0.0604	-0.0278	0.0802	0.0343
pol_beverage tax												
Support	0.0464	(-0.1689*)	0.0220	-0.0081	(-0.2303*)	0.0220	-0.0023	-0.1364	0.0114	0.0821**	-0.1545	-0.0609
Neutral	-0.0090	0.0130	0.0063	0.0012	0.0055	0.0059	0.0004	0.0133	0.0033	-0.0177	0.0128	-0.0246
Oppose	-0.0374	0.1559*	-0.0283	0.0068	0.2249*	-0.0279	0.0019	0.1231	-0.0147	(-0.0644**)	0.1417	0.0855

****p < .001, **p < .01, *p < .05*

Significant p-values indicate that the marginal difference between membership within a particular category of political identity and non-membership is significant

Where Treatment 1 = those exposed to the Equality of Opportunity value statement, Treatment 2 = those exposed to the Social Responsibility value statement, Treatment 3 = those exposed to the Life-Course Perspective frame, and Treatment 4 = those exposed to the Manipulation frame.

Appendix 7.5. Conditional Marginal Effects of Treatment Narratives on Level of Support for Health Policies among Persons with High and Low Interest in Political and Civic Affairs

	Treatment 1 (n = 441)			**Treatment 2** (n = 371)			**Treatment 3** (n = 332)			**Treatment 4** (n = 415)		
Policies	Low Interest Coef.	High Interest Coef.	Marg. Diff. Coef.	Low Interest Coef.	High Interest Coef.	Marg. Diff. Coef.	Low Interest Coef.	High Interest Coef.	Marg. Diff. Coef.	Low Interest Coef.	High Interest Coef.	Marg. Diff. Coef.
pol_nursing												
Support	0.0675	0.1366	-0.0692	0.0340	0.1005	-0.0665	0.0919	0.1135	-0.0216	0.0445	0.1255	-0.0810
Neutral	-0.0391	-0.0740	0.0349	-0.0202	-0.0554	0.0352	-0.0546	-0.0600	0.0055	-0.0258	-0.0688	0.0430
Oppose	-0.0284	-0.0626	0.0342	-0.0138	-0.0451	0.0313	-0.0374	-0.0535	0.0161	-0.0187	-0.0567	0.0380
pol_nutrstandards												
Support	0.0482	0.0333	0.0150	0.0386	0.0283	0.0103	0.0781	-0.0020	0.0802	0.0361	0.0650	-0.0289
Neutral	-0.0287	-0.0171	-0.0116	-0.0221	-0.0146	-0.0075	-0.0428	0.0009	-0.0437	-0.0193	-0.0323	0.0129
Oppose	-0.0293	-0.0143	-0.0150	-0.0165	-0.0137	-0.0028	-0.0354	0.0011	-0.0365	-0.0167	-0.0327	0.0160
pol_physical ed												
Support	0.0386	0.0117	0.0269	-0.0099	-0.0060	-0.0039	0.0396	-0.0008	0.0404	0.0082	0.0154	-0.0072
Neutral	-0.0212	-0.0059	-0.0152	0.0050	0.0029	0.0021	0.0214	0.0004	-0.0218	-0.0040	-0.0070	0.0031
Oppose	-0.0174	-0.0057	-0.0116	0.0048	0.0031	0.0017	-0.0182	0.0004	-0.0186	-0.0042	-0.0084	0.0041
pol_workplace												
Support	0.0482	0.0333	0.0150	0.0208	0.0787	-0.0579	0.0697	-0.0108	0.0805	-0.0020	0.0723	-0.0744
Neutral	-0.0287	-0.0171	-0.0116	-0.0123	-0.0425	0.0302	-0.0424	0.0054	-0.0478	0.0013	-0.0410	0.0423
Oppose	-0.0196	-0.0162	-0.0033	-0.0085	-0.0362	0.0277	-0.0273	0.0054	-0.0327	0.0008	-0.0313	0.0321
pol_disclose												
Support	0.0374	-0.0044	0.0417	0.0277	-0.0040	0.0317	0.0480	-0.0365	0.0845	0.0440	-0.0120	0.0560
Neutral	-0.0265	0.0031	-0.0296	-0.0218	0.0031	-0.0249	-0.0379	0.0285	-0.0664	-0.0328	0.0089	-0.0417
Oppose	-0.0109	0.0013	-0.0121	-0.0060	0.0009	-0.0068	-0.0101	0.0080	-0.0181	-0.0112	0.0031	-0.0143
pol_advertising												
Support	0.0180	0.0328	-0.0149	-0.0610	0.0227	-0.0837	0.0116	-0.0127	0.0243	-0.0255	0.0141	-0.0396
Neutral	-0.0056	-0.0061	0.0005	0.0149	-0.0038	0.0188	-0.0036	0.0018	-0.0054	0.0069	-0.0023	0.0091
Oppose	-0.0124	-0.0268	0.0144	0.0461	-0.0188	0.0649	-0.0080	0.0109	-0.0189	0.0186	-0.0119	0.0304
pol_buses												
Support	-0.0505	-0.0009	-0.0496	-0.0601	-0.0016	-0.0584	-0.0243	-0.0165	-0.0078	-0.0382	0.0002	-0.0384
Neutral	0.0269	0.0004	0.0264	0.0273	0.0007	0.0267	0.0131	0.0079	0.0052	0.0171	-0.0001	0.0172
Oppose	0.0237	0.0005	0.0232	0.0327	0.0010	0.0318	0.0112	0.0086	0.0026	0.0211	-0.0001	0.0212
pol_vending												
Support	0.0321	0.0410	-0.0089	0.0368	0.0140	0.0228	0.0599	0.0518	0.0080	-0.0308	0.0149	-0.0457
Neutral	-0.0124	-0.0146	0.0022	-0.0151	-0.0050	-0.0101	-0.0258	-0.0202	-0.0056	0.0112	-0.0053	0.0164
Oppose	-0.0197	-0.0264	0.0067	-0.0216	-0.0089	-0.0127	-0.0341	-0.0316	-0.0024	0.0196	-0.0097	0.0293
pol_beverage tax												
Support	0.0386	0.0117	0.0269	-0.0659	0.0001	-0.0661	-0.0552	0.0154	-0.0706	-0.0451	0.0226	-0.0677
Neutral	-0.0212	-0.0059	-0.0152	0.0061	0.0000	0.0060	0.0056	0.0015	0.0042	0.0048	0.0020	0.0029
Oppose	-0.0174	-0.0057	-0.0116	0.0599	-0.0002	0.0600	0.0496	-0.0169	0.0664	0.0402	-0.0246	0.0648

****p < .001, **p < .01, *p < .05*

Significant p-values indicate that the marginal difference between membership within a particular category of political identity and non-membership is significant

Where Treatment 1 = those exposed to the Equality of Opportunity value, Treatment 2 = those exposed to the Social Responsibility value, Treatment 3 = those exposed to the Life-Course Perspective alternative frame, and Treatment 4 = those exposed to the Manipulation alternative frame.