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Who's to Blame? Blame Attributions and Obesity-related Law and Policy

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by

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Obesity is a foremost public health concern that has received considerable attention. Because of this so-named "epidemic," law-makers are challenged with implementing effective policies that the public supports. Little is known, however, about the antecedents and consequences of these policies—especially attributions of blameworthiness. Study 1 developed the Obesity Blame Attribution Scale (OBAS). Confirmatory factor analysis demonstrated that controllability, responsibility and dispositional blame were separate constructs and were part of a higher-order dispositional blame factor. Situational blame was a separate higher-order factor, not correlated with dispositional blame, consisting of blame toward the food industry and towards government policy. Using the OBAS, Study 2 examined how blame is attributed according to target characteristics within the context of two prominent blame theories (Shaver's Theory of Blame and Alicke's Culpable Control Model); and whether blame is a necessary antecedent for support of obesity-targeted policies. The results indicated weight group (obese versus average), but not health choice (makes healthy versus unhealthy food choices) or attribution type (specific or general), predicted blame-related attributions. And, although measured variables such as anti-fat attitudes, stereotype content, and disgust were significantly correlated with blame attributions, they did not uniquely predict blame attributions above controllability and responsibility attributions. Higher blame attributions toward the target, and higher general dispositional blame

predicted support for the dispositional-framed policy. Study 3 tested the behavioral assumptions of a policy presented in Study 2 to observe whether laws that blame people who are obese contributed to behaviors congruent to the law's intent. After reading one of three vending machine laws that varied by the legislative intent behind them (blamed individuals, blamed the food environment or no blame control), participants with varying BMI were more likely to choose the stairs over the elevator and take a gym flyer following the individual-blame framed policy than the other two policies. Policy type did not affect food consumption, taking additional snacks, internalization of stigma, or negative emotions. These studies suggest people who endorsed higher blame attributions are more likely to support policies that focus on personal responsibility and blame, and these policies in turn may have short-term effects on health outcomes.

Dedication

This dissertation is dedicated to my mom Sharon Wylie

My mom taught me the value of education and in being able to support myself. I fondly remember her saying that if I was going to change my major from environmental engineering to psychology; I better go “all the way.” Here it is mom… I went “all the way!”

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CHAPTER 1
LEGAL AND PSYCHOLOGICAL BACKGROUND

In October 2012, a news anchor from Wisconsin directly responded on air to a letter she received criticizing her about her weight. The letter, in sum, stated that the news anchor was not a "suitable exemplar" for the community, that "obesity is one of the worst choices a person can make," and that the news anchor should "reconsider her responsibility" as a public personality. On-air, the news anchor responded by criticizing the letter-writer as a bully. The video of her response went viral and many championed her for standing up to the bullying. Others, however, did not see the letter as bullying and instead found the comments in the letter as concerns for the news anchor's health (Michelle, 2012). In an era when reality television is consumed with weight loss programs (e.g., The Biggest Loser, Extreme Makeover: Weight Loss Edition, Heavy), there are mixed feelings about the best way to address obesity—either blaming people who are obese as a way to motivate them to lose weight or accepting them to avoid an increase in weight-based stigma (Puhl & Heuer, 2010). Policy-makers are similarly challenged with how blame is apportioned in generating law and policy to improve the public's health.

Popular culture and media accounts often seek to assign blame for the obesity "epidemic" (Boero, 2007) to either individuals for unhealthy lifestyles (Jameson, 2010), policy and zoning laws (Begley, 2012), the media (Freeman, 2011), or fast food companies (Woodhouse, 2011). This is not a surprising response—considering "who's to blame?" is often one of the first questions asked following a misfortune or moral affront (Shaver, 1985). Within social psychology, the cognitive processes laypeople use for

making blame judgments to explain behaviors and outcomes can be explained by attribution theories (Heider, 1958). Although attributions of blame are ubiquitous in the legal system (Feigenson & Park, 2006; Shaver, 1985), most psycholegal research has only examined the construct of blame when a wrong-doer is blamed for criminally inflicting harm on a victim (e.g., Feigenson & Park, 2006). The attribution of blame in non-criminal health settings, however, has received less attention from researchers. Furthermore, the application of social psychology to issues related to health is also ripe for investigation (Klein, et al., 2015). As such, the aim of the current research is to examine the construct of blame within the context of obesity-targeted health law and policy.

In part one, I will provide the legal background for various types of legal strategies and health policies aimed at reducing obesity. Because reviewing all governmental strategies would be far too extensive, I have selected a few examples that illustrate both consumer-based and provider-based strategies most relevant to blame and social science research. In part two, I will discuss several areas of psychological theory to provide background on the psychological issues relevant to obesity and blame. I will discuss weight-based stereotypes and the effects of stigma. Then, I will generally discuss attribution theory and the theoretical underpinnings of attributions of blame, including both Shaver's (1985) prescriptive model of blame and Alicke's (2000) Culpable Control model of blame. Finally, I will detail three studies aimed at examining the antecedents and consequences of obesity-targeted law and policy. In study 1, I developed and tested the factor structure of a scale to measure attributions of blame toward people who are obese and toward environmental factors. In study 2, I sought to elucidate several

hypothesized antecedents for support of obesity-targeted policies using theoretical models of blame. In study 3, I examined the consequences of blame-based obesity-targeted policies on health-related outcomes including food consumption, physical activity and mental health.

I. Legal Issues

The Obesity "Epidemic"

In 2001, the Surgeon General released a report warning that the obesity "epidemic" had become a public health concern—demonstrated by every state having at least a 20% prevalence rate of obesity (Center for Disease Control and Prevention, 2015a). According to the U.S. Department of Health and Human Services, the cause of obesity is multifaceted, which makes it difficult to blame a single causal factor (U.S. Department of Health and Human Services, 2012). However, laws and policies often target a single factor. In general, these factors have been grouped according to two categories: 1) individual *consumer-based factors*, such as eating habits, physical inactivity and sedentary lifestyles; and 2) societal or environmental *provider-based factors*, such as the poor food industry practices and government actions or inactions (Benjamin, 2006; U.S. Department of Health and Human Services, 2012; Winstanley, 2007).

Obesity contributes to an increased risk of developing high cholesterol, hypertension, respiratory ailments, orthopedic problems, depression and type II diabetes (U.S. Department of Health and Human Services, 2012). Moreover, because of the social stigma surrounding obesity, there are social consequences that can contribute to physical and emotional health issues (Puhl & Heuer, 2010). In addition to individual health

consequences, there are also financial consequences for society—with the cost of obesity-related medical expenses in the United States amounting to $147 billion annually (Cawley & Liu, 2008; Finkelstein, Trogdon, Cohen, & Dietz, 2009). Many of these costs are paid by taxpayers through Medicaid or Medicare (Byrd, 2005) and payers of private insurance through premiums (Finkelstein et al., 2009). Because obesity has been labeled a public health concern that affects both people who are obese and society, laws and policies have been proposed/implemented by local and national governments to address obesity. These strategies, however, are often highly debated and many consumers argue that the government should not be involved in personal health decisions. Others, including public health scholars and government administrative agencies (e.g., Food and Drug Administration), argue that states have a duty to protect society in areas of public health risk.

States' Interest in Public Health

The academic and legal scholarship on the intersection of law and health is widespread, and is commonly termed health care law, health law, or law and medicine. Although public health law overlaps with these areas, scholars have suggested that public health law is a distinct discipline (Gostin, 2000; Parmet, 2009). Lawrence Gostin, a lead scholar in the area of public health law defines public health law as:

> *the study of the legal powers and duties of the state to assure the conditions for people to be healthy and the limitations on power of the state to constrain the autonomy, privacy, liberty, proprietary, or other legally protected interests of individuals for the protection of promotion of community health (Gostin, 2000, p.4)*

The source and scope of the state government's authority to pursue various public health measures fall under the state's police power, generally enumerated in the state

legislature or state constitution.[1] Beginning with *Jacobson v. Commonwealth* (1905) the U.S. Supreme Court recognized the state's police power to enact reasonable regulations as long as the goal was to protect public health and safety, and the regulation did not infringe on any right granted or secured in the U.S. Constitution. In *Jacobson* the issue was whether Massachusetts could sanction individuals for neglecting or refusing to undergo mandatory vaccination for smallpox. The plaintiff in the case, Jacobson, asserted that the vaccination requirement was an "assault upon his person" and invaded his liberty to make decisions about the welfare of his own body and health. The Court held the law valid, citing that the Constitution does not provide an absolute right for autonomous decision making because there are times when every person must give up some of their rights for the welfare of the common good. This case illustrates the primary argument within the scholarship of public health law—that the health of the population is best achieved through a high level of health throughout society, and not just the best possible health for a few (Gostin, 2010). Furthermore, it illustrates the tension between self-determination and government strategies for paternalistically protecting the public's health, a tension that is generated by many public health strategies.

Scholars and practitioners alike, however, are conflicted with the scope of public health agencies. Those who subscribe to a narrow focus suggest the scope of public health agencies should include exercising discrete powers in surveillance (e.g., screening for diseases and reporting of disease occurrence to appropriate agencies), preventing injury (e.g., ensuring safety), and controlling infectious disease (e.g., vaccinations and

[1] The Federal government's power to regulate public health is mostly enumerated by Congress' ability under the U.S. Constitution, Article 1, section 8 that allows regulation of interstate commerce and to spend money in order to promote the public welfare. The Federal government may also exercise authority in areas that have been ceded by the states to the Federal government.

quarantines). Those who subscribe to a broader focus suggest the scope of public health agencies should encompass anything that promotes the value of societal well-being. This latter, more paternalistic, view is gaining acceptance and public health law has moved toward social policy issues such as discrimination, city planning, safe housing, as well as eating an exercise (Gostin, 2010).

Although the individual and societal effects of obesity are alarming, many believe what we eat is a personal decision and the government should not interfere (Gostin, 2010; Zernicke, 2003). Furthermore, there is a belief that what we eat does not affect others' health like other public health concerns such as second-hand smoke or infectious diseases (Creighton, 2010; Gostin, 2007). People who oppose government intervention for obesity argue that as autonomous decision-makers, each individual is responsible for their health and the financial consequences of their illnesses. However, proponents contend that because obesity affects society there is a compelling state interest in governing the medical and social costs of individuals' unhealthy choices (Parmet, 2009).

This tension between self-determination and paternalistic government health policies, however, is not new (e.g., the ban on contraception and abortion in 1872 and prohibition of alcohol sales in 1920); however, legal scholars suggest there is a political surge to regulate private behavior on issues such as tobacco, drug use, and obesity (Kersh & Marone, 2002; Kersh & Morone, 2005). To regulate these private behaviors, scholars note that a "culprit" for the problem must be identified in order to assert blame by either demonizing users or demonizing providers (Kersh & Morone, 2002). Blame, according to these scholars, is required to demonstrate that a public health risk is great enough to warrant government intervention. Blame may also be necessary to identify where the law

should focus its regulatory attention—on the consumers of food or on its producers. For instance, blame for obesity may be assigned to the individual for having a weak will or to the food industry for creating an unhealthy food environment (Kersh & Morone, 2005).

Government Anti-obesity Strategies

According to Benforado and Hanson (2008), "law is centrally concerned with making attributions" and most law seeks to answer three questions: 1) What caused an outcome? 2) Who or what was responsible? 3) Is anyone to blame? Correctly making these attributions is important for addressing the problem the law is aimed to address. Framing theory may provide insight into how these questions are answered. According to Goffman's framing theory (1974), the way in which social problems are framed can direct how we attribute cause, effect, and response to the problem. As such, explanations for obesity are often either dispositionally (consumer-based) or situationally (provider-based) framed. If obesity is framed as an individual health problem, then individuals' dispositions towards consumption are more blameworthy and policies should encourage changes in individual lifestyles. If obesity is framed as the result of situational factors, then individuals are less blameworthy and policies should encourage modifying the environment (Kwan, 2008).

A. Consumer-based strategies

In general, consumer-based strategies stem from dispositional attributions; where people who are obese are perceived as having causal responsibility and being blameworthy for their obesity. Those who subscribe to consumer-based strategies believe that the government is within its power to intervene to prevent people who are obese from making poor choices. The two examples discussed here, the failure litigation against

fast food companies and fat taxes, both illustrate blaming the individual for making bad choices and emphasize personal responsibility. On the surface, litigation against fast food companies may seem to be provider-focused, however, to date, plaintiffs have not convinced the courts that the food companies' food directly caused the plaintiff's obesity (*Barber v. McDonald's restaurant, Inc*., 2000 but see Mello, Rimm, & Studdert, 2003; *Pelman v. McDonald's Corp, 2003*); instead, the courts have concluded that plaintiffs themselves are responsible for what they eat (Burnett, 2007). The second example includes a junk food tax proposal. These taxes would increase the price of unhealthy foods in an attempt to alter an individual's food choices by making the foods less desirable based on cost (Strnad, 2005; Winstanley, 2007).

Failed litigation against fast food companies. In *Barber* (2000), the plaintiff, a diabetic, sued Burger King, Kentucky Fried Chicken, Wendy's and McDonald's claiming that because he ate at these restaurants daily, he suffered two heart attacks. He claimed these restaurants intentionally produced fatty foods and failed to warn customers of the dangers of the food. The plaintiff's lawyer eventually removed the case from court because the lawyer believed that re-litigating the case with children as plaintiffs might make a stronger case against fast food restaurants. The subsequent lawsuit, *Pelman v. McDonald's Corp* (2003), involved four youths who regularly ate McDonald's and later developed diabetes, high blood pressure and coronary heart disease, for which they alleged McDonald's was responsible. Although the judge agreed the restaurant's advertising was deceptive, the New York court held the deceptive advertising was not legally relevant because the "reasonable consumer" in New York would not share the view that the advertising is deceptive. The court also held that the plaintiffs could not

show "but for" causation (i.e., "but for" the defendant's behavior, the injuries would not have occurred), especially in light of the plaintiffs' genetic history.

In another instance, following the passage of a San Francisco ordinance that regulates how fast food restaurants can provide toys[2], a class action lawsuit was filed claiming that McDonald's uses toys to induce kids to persistently request to eat at McDonalds and to develop a preference for unhealthy foods (*Parham v. McDonald's*, as cited in Center for Science in Public Interest, 2010). Although the judge dismissed *Parham* without providing legal reasoning, and the dismissal was not published (Levine & Baertlein, 2012), McDonald's and the food industry have responded publicly by stating that decisions about what a child eats should be left up to the parents and that providing parents with nutritional information about the restaurant's food should be enough to inform their decisions (Levine, 2011). In response to such litigation and demonstrating further strategies aimed at personal responsibility, Congress has twice attempted to pass the Personal Responsibility in Food Consumption Act (2005) also known as the "Cheeseburger Bill," which sought to protect restaurants such as McDonald's from litigation and class action suits brought by obese customers. Although the bill has been passed by the U.S. House of Representatives twice, it has twice failed to achieve a Senate vote.

Fat taxes. A second example, and one of the most controversial strategies that has been proposed, are "fat taxes" or "Twinkie taxes" pioneered by Dr. Brownell, a psychology professor at Yale University (Brownell, et al., 2009). Fat taxes, which are similar to taxes on tobacco and alcohol, is principally a sin tax levied on commodities

[2] I later discuss this ordinance under the provider-based strategy section

deemed harmful or morally blameworthy (Winstalay, 2007). Some argue that the lower cost of unhealthy foods, in comparison to healthy foods, is one of the contributing factors to obesity (Brownell & Frieden, 2009). Forty states currently have some small taxes on sugary drinks and snack foods, but states such as Maine, New York, Arizona, and Nevada have discussed larger taxes on sugared sodas (Brownell & Frieden, 2009; Vogel, 2011). In 2014, Berkeley, California passed (75% of the vote) the first soda tax that placed a 1 penny tax per ounce on most sugar beverages (Measure D).

The rationale for fat taxes is that the additional cost would deter people from purchasing unhealthy foods and instead encourage them to purchase healthier options, while generating revenue to help offset the financial costs of obesity. Proponents argue that by taxing foods that are unhealthy, the price of healthy and unhealthy food would be more comparable and consumers may select to eat healthy foods (Brownell & Frieden, 2009). In Berkeley, where the soda tax was passed, there is not yet information on whether soda consumption decreased. However, the city generated $116,000 in revenue in its first month, but has not yet decided how to spend it (Whitman, 2015).

Opponents argue these “fat taxes” are a paternalistic governmental response to “trick” consumers, and that they erroneously assume that consumers are unable to adequately assess the future risks of consuming the unhealthy foods (Strnad, 2005; Winstanley, 2007). Although these taxes may ultimately reduce food companies’ profits because of decreased sales (unless they sell healthier alternatives instead), fat taxes are thought to target individuals to induce healthier choices and reduce unhealthy food consumption (Creighton, 2010). A comprehensive review from Yale University’s Rudd Center for Food Policy and Obesity Research found that for every 10% increase in price,

consumption of unhealthy beverages decreased by 7.8% (Brownell & Frieden, 2009). In general, however, behavioral economics decision-making research suggests that people more often make "extra-rational" food decisions, especially when they are distracted or have little time (Just & Payne, 2009; Wansink, Just, & Payne, 2009). Because food decisions are often made without much cognitive effort, food policies that require cognitive attention, such as the price comparisons that are suggested with fat taxes, may have little impact on healthy decision-making (Just & Payne, 2009).

B. Provider-based strategies

Provider-based strategies, on the other hand, are the result of situational attributions where environmental factors like the food industry are perceived as having causal responsibility and being to blame for obesity. Within this perspective, the environment is perceived as fostering and reinforcing lifestyles that favor high caloric intake, and low caloric expenditure. Those who ascribe to provider-based strategies hold that obesity is created by the unprincipled behavior of the food industry and that the government should intervene to prevent the food industry from taking advantage of consumers. The two examples discussed here, advertising toward children and mandatory nutrition posting in restaurants, both illustrate governmental strategies that appear to blame food companies for business tactics and hold them responsible for changing their business practices (Benjamin, 2006).

Advertising to children. One intervention that has gained attention is the regulation of food and marketing towards children. In 2006, a lawsuit was filed by the Center for Science in the Public Interest (CSPI) against Kellogg's, for marketing unhealthy foods to children. According to the settlement agreement with Kellogg's, in order to advertise on

media (television, radio, print and third party websites) that have an audience constituting at least 50% of those under age 12, the food will have to meet specified nutritional value. Kellogg's also agreed that it will not focus its advertising to children under 12 in schools, sponsor product placements, license characters in mass media, or brand toys (Center for Science in the Public Interest, 2007). Advertising in these ways will still be allowed for products that do meet the nutritional value set forth or if the focus is not toward children under 12.

In 2010, an ordinance in San Francisco was passed that required restaurants to meet certain nutritional standards in order to provide toys with kids' meals (Healthy Food Incentives Ordinance, 2010). The ordinance gained the media's attention (e.g., Brank & Wylie, 2010; Hensley, 2010) because San Francisco was the first large city to enact a "Happy Meal" ordinance, but other cities nationwide have also placed nutritional restrictions on children's meals (see Anderson, 2008). In response to the "Happy Meal" ordinance, the food industry lobbied to ban ordinances that restrict restaurant advertising. These efforts were successful in Arizona and gained support in Florida. As such, in Arizona, the government may not regulate restaurants' practice to provide toys, games, coloring books, or prizes that appeal to children (Reuters, 2011).

The argument fueling both "Happy Meal" ordinances and *Parham* (the class action lawsuit that was filed against McDonald's for using free toys with meals) is that advertising, which may not be understood to be advertising, is inherently deceptive and violates consumer protection laws (Center for Science in Public Interest, 2010). Proponents argue that the food industry is to blame for undermining parental influence and intentionally manipulating children's inherent trust and lack of cognitive maturity. In

fact, public health scholars state that marketing, such as including toys with meals, strongly influences children's food preferences, requests and consumption and that young children are unable to distinguish between advertising and educational information (Nestle, 2006).

Following the passage of the San Francisco ordinance, researchers examined the impact of the toy ordinance on restaurants and children's purchases. Using a pre-post design, the researchers examined restaurant response (e.g., marketing, press releases, test purchases, menu changes) and interviewed 762 children/caregiver dyads (e.g., eating out practices, food and beverage orders, awareness of ordinance) in regards to two major chain restaurants (n = 30). Because the ordinance forbade pairing free toys with meals, both chains in the study charged 10 cents for the toy. According to the study's findings, 88% of the sample who purchased a children's meal also purchased the toy. Although neither chain met the nutritional criteria required by the ordinance, both chain restaurants made changes to the children's meals—but, the authors noted this was irrespective of the ordinance requirements. One changed the default side-item to fruit instead of fries and the other announced employees would verbally offer all drinks and side-items as opposed to the default fries and soda (Otten et al., 2012).

Mandatory nutrition posting. Many Americans eat a high proportion of their meals outside of the home, therefore, another initiative that blames the providers and holds the food industry responsible for changing its business practices is mandatory nutrition publishing regulations. Although the goal of nutrition posting is to make nutritional information more available so that consumers could make better decisions for their health, mandatory nutrition posting is considered provider-based because it places

responsibility on the food companies to disclose the nutritional content of the food in an effort to improve business practices.

Beginning in 1973, the Food and Drug Administration (FDA) introduced nutrition labeling for packaged food and required that labels had standard formats, minimum font sizes, and uniform placements; however, these did not become mandatory until 1990 after the passage of The Nutrition Labeling and Education Act (NLEA). NLEA added two new provisions (q) and (r) to the original Federal Food, Drug, and Cosmetic Act (1938) that merely required food not to be mislabeled. The first provision (q) provided that foods designated for human consumption must provide nutritional information, such as the familiar nutrition facts found on the back of grocery goods (e.g., grams of sugar, number of calories). Congress explicitly exempted restaurants from this requirement [21 U.S.C. § 343(q)(5)(A)(i)] because the dynamic nature of their menus would make it "impractical" (Anderson, 2008; H.R.Rep. No. 101–538, at 7). The second provision (r) stated that if a food company was to voluntarily make nutrient content or health-related nutritional claims (e.g., low sodium, high fiber), the claim must meet specified nutritional requirements based on generally accepted science. Restaurants are not exempt from this latter provision and must comply with the NLEA in order to make nutritional claims [21 U.S.C. § 343(r)(5)(B)].

Within the NLEA, there are two express preemption clauses that correspond to the (q) and (r) provisions. Both clauses preempt any state or local government from creating regulations that are not identical to the NLEA, except for nutrition labeling that is already exempt under the NLEA. Because restaurants are exempt from provision (q), which mandates nutritional information, but are not exempt from provision (r), which mandates

nutritional information if the restaurant voluntarily chooses to make a nutrient content claim or health-related claims, state and local governments may adopt laws governing nutrition labeling for restaurants but are preempted from passing healthclaim regulatory laws. In other words, the NLEA does not regulate restaurant labeling (or quantitative) claims (i.e., 200 calories), only restaurant health (or qualitative) claims (i.e., "low fat"); thus Congress left it up to the states and municipalities to create their own restaurant labeling regulations.

In an effort to reduce consumer's caloric intake and to encourage restaurants to offer lower calorie items, New York City passed such a regulation titled Regulation 81.50—which required restaurants to post the total number of calories on their menus and menu boards if they already *voluntarily* made nutrition content publicly available (i.e., on the internet or pamphlets). This first ordinance was deemed unconstitutional because even though the city did have the right to mandate nutrition labeling, it must do so in a way that does not contradict the federal NLEA (by requiring quantitative information like nutritional facts, rather than qualitative health claims). The court's analysis stated that because of the federal Constitution's supremacy clause, federal law must prevail if the state's law contradicts the federal law.

In 2008, after the previous attempt that was deemed unconstitutional, New York City revised the ordinance only requiring "chain restaurants" (having 15 or more stores nationally) to post the total number of calories (revised Regulation 81.50). Similar to the first ordinance, the calories must be prominently displayed on the menu or menu board. The law was again challenged based on preemption of NELA and restrictions on the restaurants' First Amendment speech. The court upheld the regulation stating that the

ordinance was no longer in conflict with NELA because it required all chain restaurants (and not just those who voluntarily provided information) to post the information. Furthermore, the court declared that posting the information was "negligible" (non-significant) and not considered compelled speech (which would be unconstitutional) because nutritional information is "factual and uncontroversial" (*New York State Restaurant Ass'n v. New York City Board of Health,* 2008, p.29).

More recently at the Federal level, the Patient Protection and Affordable Care Act (2010) includes a provision that requires chain restaurants, retail food establishments and vending machine companies (those that have 20 or more locations) to post calorie content on their menus and to provide additional nutritional information upon request (Sec. 4205). The Food and Drug Administration is charged with implementing the new regulation. Execution of the policy has been delayed for several years but should take effect by December 2015.

Despite efforts in New York and now the Federal government, research generally shows that posting nutritional information may not be effective for all consumers. Studies conducted in places that have implemented calorie postings in New York have shown that only about 30% of consumers notice the calorie information (Bleich, 2014). However, calorie posting requirements may have an effect on restaurants' menu offerings. For instance, Bleich and colleagues (2015) compared menu information in New York from 2012 and 2013 for 2/3 of the largest fast food restaurants. The findings revealed that although mean calories did not change, there was a decline in calories for newly introduced items (−12% decline)—especially for new main course items (−10%), new beverages (−8%), and new children's options (−20%).

In addition to not noticing the information, other barriers to the effectiveness of calorie posting include consumers' use of heuristics for making food decisions. Thus, even if restaurants are required to post such information, consumers may not use that information in a meaningful manner. Kozup and colleagues (2003) found that consumers do have more favorable attitudes toward a single restaurant food item when nutrition facts are provided; however, the effect changes when more than one restaurant food item is presented and consumers make relative comparisons using other items as references. In this study, participants perceived the food item as being more "healthy," when compared to two additional "unhealthy" food items. This suggests that as long as the menu includes an item that appears more "healthy" than other food items (regardless of whether it actually is), consumers may make relative judgments of healthiness, rather than absolute judgments of healthiness. For example, people may choose the 700 calorie item because, relative to the 1000 calorie items, it seems like the "healthy" choice even if the 700 calorie item is not actually healthy. Furthermore, environmental factors, such as the type of restaurant or the health claims made, can also affect food consumption decisions; when told a food is "low fat" people often eat more of the product (Wansink et al., 2009). Therefore, it follows that some unintended effects of calorie positing in restaurants may be that consumers will make relative judgments and/or eat more of the lower calorie food items.

C. Combination of consumer and provider-based strategies

Scholars have proposed that instead of focusing on one perspective, strategies to reduce obesity should consider both consumer-based and provider-based perspectives (Benjamin, 2006; Brownell et al., 2010; Greener, Douglas, & Teijlingen, 2010).

Strategies that focus on both, however, may be difficult to implement because even though obesity is primarily perceived as something that is caused by personal responsibility factors, public support for consumer-based strategies that regulate behavior is often low (Hilbert, Rief, & Braehler, 2007; Oliver & Lee, 2005). A recent study (in which participants could select as many entities as they desired) reported that 80% of the sample indicated individuals were primarily to blame for the rise in obesity, with only 35% selecting food manufacturers as primarily to blame, and 18% selecting government policies as primarily to blame (Lusk & Ellison, 2013). Despite these beliefs, participants who endorsed personal responsibility causes for obesity were *less* likely to support general obesity-targeted policies, whereas those who endorsed food environment causes for obesity were *more* likely to support general obesity-targeted policies (Barry et al., 2009). Although studies examining support for public policies provide us with some information on how the public perceives anti-obesity strategies, research that more closely examines obesity within the context of blame attribution theories may provide further insight into the antecedents and consequences of obesity-targeted law and policy.

II. Psychological Theory and Research

Attribution Theory

Attribution theory and research has generally assumed that people engage in attributional processes, either explicitly or implicitly, because of a human need to predict the future and control outcomes (Heider, 1958; Kelley, 1967). Contemporary work on attribution theory is founded on the comprehensive work of Heider (1958) who theorized about the way “naïve psychologists” or laypeople interpret the actions of others. According to Heider’s (1958) theory, perceivers distinguish dispositional aspects of the

person, from situational aspects of the environment. Dispositional factors include the ability to achieve the action and the motivation (intentions and efforts) for doing so. Situational factors, which either facilitate or inhibit dispositional factors, include things such as task difficulty, opportunity, and luck. According to Hedier's (1958) Hydraulic Function, the more one attributes to dispositional factors, the less one will attribute to situational factors. Using these properties, Heider suggested that perceivers systematically search for factors that may reliably account for change and stability in the environment (Fiske & Taylor, 2008).

Another early theory proposed by Kelley (1967, see Kelley 1973), concerned the conditions under which perceivers seek to confirm their causal attributions. According to Kelley's Covariation model, if causal information is weak, perceivers rely on three dimensions for inferring causality: distinctiveness (does the effect occur with or without the entity?), consistency over time and modality (does it consistently occur across multiple domains?), and consensus (is the effect experienced by others in the same way?). If an event or person is high on all three dimensions, then the perceiver may make a confident causal inference attribution. Kelley suggested that perceivers process each dimension systematically by serially deciding one dimension, while holding the other dimensions constant. In this way, perceivers seek information that is highly distinctive and does not vary by circumstances or persons.

Finally, Weiner's Attribution Model (1979, see Weiner, 1988), which is derived from Heider's theory, initially focused on the successes or failures of achievement-related tasks, or social acceptance. The theory proposes that perceivers search for the cause of an outcome using three dimensions: stability (causes that do not change garner stronger

associations), locus (attributed to internal or external factors, and controllability (perceived control over the outcome). Weiner's theory differs from others discussed because it incorporates affective responses to causal attributions, which is hypothesized to influence perceivers' expectations and behavior. For instance, as applied to helping behavior, anger may be elicited (and subsequent non-helping) if someone is perceived as requiring help due to low effort, but pity may be elicited (and subsequent helping) if someone is perceived as requiring help due to low ability or situational barriers (Weiner, 1988).

These early theories focused on decision-stage models that are described as "prescriptive" because criteria at each stage of the attribution process are thought to be rationally considered before a final judgment is made. In other words, these models offer a formal and idealized set of guidelines for understanding how perceivers ought to make attributions. Although stage models, such as these, outline the criteria from which people ought to make attributions of others, these models often ignore cognitive shortcomings and motivational biases that emerge during less controlled processing. Furthermore, they do not adequately explain how perceivers make attributions under conditions where information about the requisite dimensions is unavailable.

More recently, therefore, attribution theories have focused on dual-processing accounts of cognition because they better explain how attributions are made according to complex processes, such as personal expectations and emotional reactions. According to dual-process models, cognition occurs as both an automatic and a controlled process. Automatic processes are unintentional, uncontrollable, rapid, autonomous and outside awareness (Bargh, 1994); whereas controlled processes are intentional, slow, controlled,

and within awareness. As scholars have noted, most of the attributions we make occur quickly and virtually automatically; perceivers rarely engage in explicit and systematic processing to find the best possible causal explanation for an outcome—rather they rely upon a single sufficient explanation (Fiske & Taylor, 2008).

Although sometimes social perceivers are interested in attributing temporary characteristics of a person, such as intentions, emotions, or desires to explain a behavior or outcome; most often perceivers infer enduring dispositions, such as beliefs, traits, and abilities (Gilbert, 1998). This has been especially demonstrated in groups with stigmatizing conditions. As such, enduring dispositional causes for the stigma are often automatically assumed and temporary situational causes are minimized.

Attributions and Obesity

One stigmatized group where attributions are often automatically assumed are people who are obese. People who are obese are often perceived according to several negative stereotypes: lazy, weak-willed, unsuccessful, unintelligent or incompetent, undisciplined, non-compliant with weight reduction techniques, immoral, and unclean (Puhl & Heuer, 2010). Furthermore, weight-related perceptions are often the focus of moral assertions (Greener et al., 2010) and moral judgments (Townend, 2009). For example, people who eat unhealthy fatty foods (e.g., cheeseburgers and milkshakes) are perceived as morally inferior to those who eat healthy non-fatty foods (e.g., chicken and salads), which is mediated by the "you are what you eat" heuristic and the Puritan Ethic of restrictive self-indulgence (Stein & Nemeroff, 1995). Negative perceptions of people who are obese are pervasive and thought to negatively affect housing, employment, education, healthcare, and interpersonal relationships (Puhl & Latner, 2007).

Compared to other groups, people who are obese have received less attention in research than other stereotyped groups such as gender, race, or ethnicity. Unlike other stigmatized groups, there may not be any in-group protection because both obese and average-weight people report dislike toward overweight people (Crandall, 1994; Teachman et al., 2003). One reason for this is that negative perceptions of people who are obese are socially condoned, which is evidenced in the media that disproportionally frames the causes and solutions for obesity in terms of personal responsibility (McClure, Puhl, & Heuer, 2011). For instance, in a review of 751 articles in *The New York Times*, Boero (2007) found that obesity is often discussed in terms of pre-existing cultural and moral understandings that fatness is due to lack of willpower. By focusing on individual causes of obesity (e.g., overeating) and individual-level solutions (e.g., changing one's diet), environmental factors may be ignored, possibly leading to blaming individuals and increasing weight-based stigma (McClure, et al., 2011; Puhl & Brownell, 2003; Puhl, & Heuer, 2011; Teachman et al., 2003). Weight stigmatization, therefore, is perceived as justifiable because people who are obese are thought to be responsible for their weight (Holub et al., 2011; Puhl & Heuer, 2010). According to stigma researchers (Crandall, 1994), weight stigmatization is believed to be caused by anti-fat attitudes embraced by a just world ideology (Crandall, 1994; Crandall & Martinez, 1996). According to the Just World Theory, people strive to believe the world is just and fair as a method for feeling in control (Lerner, 1980)—especially in U.S. culture that has strong beliefs in self-determination (Crandall, 1994). According to Crandall (1994), if one subscribes to these just world views then the person will "chronically attribute controllable causality to others, he or she will tend to *blame* fat people for their weight and stigmatize them" (p.

884).

Although Crandall (1994) and others have suggested there is a strong relationship between blame and negative perceptions of people who are obese, research that has empirically tested this relationship is limited. In addition, research that has examined "blame" and obesity has used the term blame interchangeably with controllability and personal responsibility; thus, less is known about the role of blame within the obesity context. Before discussing the limited research on blame attributions and obesity, I will summarize the research on weight-based stigma and stereotypes, which is thought to be related to blame in an obesity context. Research has noted that certain stigmatizing conditions, such as obesity, carry an assumption of causality and responsibility (Weiner, 1993), which are two components hypothesized to affect blame judgments according to blame theories (Alicke, 2000; Shaver, 1985). Weight-based stigma and stereotypes, therefore, may be interconnected with judgments of blame. In addition, because there is limited empirical research on the effects of blame on people who are obese, the literature on the effects of stigma on people who are obese may provide a framework for thinking about the effects of blame.

Weight-based Stigma

Although discrimination is traditionally frowned upon, weight stigma remains a socially acceptable form of bias and has been documented in a variety of settings including employment, health-care settings, educational settings, interpersonal relationships, and the media (Puhl & Heuer, 2009; Puhl & Heuer, 2010). Central to this debate is whether stereotypes are motivating or stigmatizing. Some scholars have proposed that reinforcing pre-existing stereotypes through stereotype priming procedures

(Pechmann, 2001) or increasing stigma (Callahan, 2013) may be a way to frame health messages to improve health-related choices. According to stereotype priming literature, when a stereotype is primed, it becomes more accessible to the perceiver, and is more likely to influence information processing and behavior (Kelly, 1955). To reduce obesity, according to Pechmann (2001), positive stereotypes of people who engage in recommended behaviors, and negative stereotypes of people who fail to engage in recommended behaviors, should be made more salient. By doing so, the positive stereotypes should encourage positive behavior and the negative stereotypes should discourage negative behavior. Although obesity-related behaviors were not specifically studied according to this paradigm, previous work by the same researcher (Pechmann & Goldberg, 1998) demonstrated that the paradigm of stereotype priming (i.e., exposing participants to negative smoker stereotypes such as yellow teeth) was more effective at reducing reported intentions to smoke than traditional health risk messages (i.e., providing participants with information that smoking causes cancer).

Other scholars strongly disagree with making negative stereotypes of obesity more salient and argue that this may have unintended consequences such as weight gain, increased stigma and other negative consequences (Puhl & Heuer, 2009; Puhl & Heuer, 2010). Specifically, women in a weight loss program who endorsed weight-based stereotypes reported more binge eating than women who did not endorse weight-based stereotypes and reported eating *more* food to cope with perceived stigma (Seacat & Mickelson, 2009). In a longitudinal study, Sutin and Terracciano (2013) surveyed a national sample of 6,157 participants at two time points. Their findings revealed that overweight participants who experienced self-reported weight discrimination at time 1

were 2.5 times more likely to become obese at time 2; and participants who were obese at time 1 and experienced self-reported weight discrimination were three times more likely to remain obese at time 2. Weight-based discrimination has also been linked to lower self-esteem (Crocker, Cornwell, & Major, 1993) and increased body dissatisfaction (Farrow & Tarrant, 2009), which has been found to contribute to *more* eating as a method to cope with perceived stigma (Farrow & Tarrant, 2009; Puhl & Brownell, 2006). Although these studies demonstrated a relationship between weight-related stereotypes and obesity-increasing behavior, the findings are somewhat limited by self-report data and non-experimental methods.

In addition, stereotype threat research (Steele & Aronson, 1995) describes how an individual's performance may be hindered if the individual is concerned with confirming his or her group's stereotype in a stereotype-relevant domain. Studies examining stereotype threat have mostly been conducted in domains that examine academic or athletic performance and have found that performance is hindered because the anxiety experienced leads to diminished performance (Smith, 2004). Stereotype threat literature has examined whether coping with a non-related stereotype threat situation may contribute to unhealthy eating. In a traditional stereotype threat paradigm, Inzlicht and Kang (2010) had average weight women complete a series of math problems (either under stereotype threat or not) followed by an ostensible ice cream taste test study. As hypothesized, women in the threat condition ate more ice cream than the women in the non-threat condition. According to the authors, because stereotype threat increases cognitive load and decreases executive resources, there are few resources left to resist tempting foods.

Although no known study has examined whether exposure to a stereotype threat situation would increase food consumption as a coping strategy for overweight/obese participants, one study examined the effects of priming negative stereotypes and *intentions* for food consumption and exercise. Seacat and Mickelson (2009) examined the effects of stereotype threat on overweight women who were exercising two times a week. Participants were randomly assigned to receive either a negative prime or a control condition with no prime. In both conditions, participants received a brief description about a research study on the health consequences of being an overweight woman. The negative prime experimental condition included an additional sentence that stated the mock study found that poor diet and exercise (individual causes) was the cause of obesity. Furthermore, participants in the negative prime experimental condition provided their height and weight directly after the prime (making weight more salient), whereas the control condition participants provided their height and weight at the end of the study. The study's findings suggested that women in the negative weight-based stereotype prime group reported lower intentions to exercise and eat nutritionally than women in the control group.

Although scholars have suggested that weight-based stereotypes and stigma may increase food consumption, some research suggests that when one's body is made salient, it could contribute to short-term *restrained eating* as opposed to increased eating. Self-objectification theory describes the process whereby a person may become pre-occupied with his or her own appearance as a result of internalization of others' perceptions. In other words, self-objectification means that a person is more likely to take a third person perspective, focusing on observable body attributes. Previous research has found that

self-objectification increases body shame, which in turn contributes to restrained eating (Fredrickson, Roberts, Noll, Quinn, & Twenge, 1998; Noll & Fredrickson, 1998). Although this research has not specifically examined whether restrained eating is a possible consequence of feeling blamed for one's weight, research has found that targets of blame in general do experience shame (Baumeister, Stillwell, & Hetherton, 1994). As such, targets of blame may engage in restrained eating, rather than increased eating as proposed by stigma researchers.

Blame Theories

Within criminal and civil law, the overall goal is to resolve conflict by assigning fault in instances where there are opposing claims. In other legal contexts—specifically in public health law and policy—finding fault is a central element in deciding how law and policy should be implemented. As scholars have noted, even though blame is ubiquitous in the legal system, the everyday assignment and avoidance of blame is not as theoretically simple as it appears (Shaver, 1985). Because blame involves identifying behaviors that are morally or socially reproachful, the assignment of blame is more complex than assigning responsibility. To complicate matters, the terms blame, responsibility and controllability are often used interchangeably, despite arguments by theorists that they are separable constructs (Mantler, Schellenberg, & Page, 2003; Shaver, 1985). Typically, the distinction between blame, responsibility, and controllability (also causality) are blurred whereby researchers use items that measure controllability and responsibility and assume blame. Thus, claims that "obese people are blamed" may be misleading. To clarify some of these measurement issues and summarize the theoretical

literature, two prominent theories of blame will be discussed including Shaver's (1985) Theory of Blame and Alicke's (2000) Culpable Control model.

Shaver's Theory of Blame

According to Shaver's (1985) classic prescriptive Theory of Blame attribution, questions of blameworthiness only arise when at least one of the causal elements is a human action. Once the person has been determined to be the "cause" of the negative outcome, the next step involves judgments of the degree of "responsibility" the person has for the outcome. In other words, causation can be thought of dichotomously, and once determined, the person's position on the dimension of responsibility contributes to judgments of responsibility. If the person has been found responsible, then the perceiver decides whether the person is blameworthy. A person is considered blameworthy if they do not offer a justification, excuse, or lack of intention to mitigate the culpability or liability for punishment. As Shaver notes, this demonstrates the difference between responsibility and blameworthiness—a distinction that has not always been readily apparent in previous research or theoretical models.

The model outlines five dimensions that a person would systematically and sequentially proceed through in order to attribute blame—as each of these dimensions increases, so too should the attribution of blame. (1) The actor's contribution to the harm (causality); (2) The actor's awareness of the consequences of her action (knowledge); (3) The actor's desire to bring about the consequence (intentionality); (4) The actor's freedom (lack of coercion) and (5) The actor's appreciation of the moral wrongfulness of the action. According to Shaver's theory, once causality and responsibility are established, blame follows unless the actor successfully offers either a justification,

which does not deny responsibility but presents a reason to not assign blame; or an excuse, which denies responsibility according to one of the dimensions.

Alicke's Culpable Control model

On the other hand, Alicke's (2000) Culpable Control model integrates rational analysis with cognitive and affective-based biases. The model treats cognitive and affective biases as inherent in blame attribution, rather than treating them as exceptions to rationality norms. The Culpable Control model proposes that attributions of blame are based on two main components: (1) making "spontaneous evaluations," which are affective reactions to the participators and harmful events that are caused; and (2) assessing the actor's personal control and responsibility over the harmful outcome termed "structural linkages." According to the model, the spontaneous evaluations can be triggered by evidential aspects, such as intentions and foreknowledge, but also by extra-evidential aspects, such as stereotypes. Spontaneous evaluations may affect blame attributions in alternative ways. They may directly influence blame judgements or they may indirectly influence blame judgements by first influencing beliefs about structural linkages (controllability and responsibility), which then influence blame judgements (Alicke, 2000; Alicke, Davis, & Pezzo, 1994). Because Alicke's model proposes that spontaneous evaluations can distort both blame judgements and structural linkages that predict blame judgments, this model deviates from Shaver's (1985) sequential process model that proposes a single path to blame judgements.

With respect to assessment of an actor's personal control over the event, Alicke's model purports that people engage in blame-validation—the tendency to assign blame for harmful outcomes and downplay any mitigating features, and to perceive people, rather

than environmental cues as primarily in control of negative events (human agency control). For these reasons, evidence that supports control by a human agent will be weighed more heavily by the person assigning blame than environmental reasons that may mitigate blame because human actions are perceived as more controllable than environmental actions. The model assumes that both spontaneous evaluations and structural linkages contribute to blame-validation, but Alicke suggests that even when evidence of structural linkages is weak, spontaneous evaluations can prompt blame-validation processing. Thus, according to the model, spontaneous evaluations such as stereotypes, emotions, and attitudes may be sufficient for blame judgments even if attributions of controllability and responsibility are low.

Comparing theories

Both models suggest that causality (Shaver, 1985) or causal controllability (Alicke, 2000) is deliberately and consciously assessed; but the models differ with respect to the cognitive processes behind these elements. For instance, Shaver's theory (1985) assumes a decision-stage model that purports the assignment of blame is a controlled process that describes how rational actors systematically move through stages of judgment before assigning blame. On the other hand, Alicke's model (2000) assumes a dual-process model where evaluations of blame include both controlled and automatic processes win which spontaneous affective evaluations influence judgments before assigning blame. Scholars have suggested that because Shaver's theory is prescriptive (what people ought to do), rather than descriptive (what people actually do), it fails to account for cognitive and motivational biases that are important for making blame attributions (Alicke, 2000; Lagnado & Channon, 2008). Shaver (1985), however, does

not completely ignore these biases, but rather suggests that biases are peripheral to the basic structure of the theory. Alicke's (2000) Culpable Control model, nevertheless, argues that these biases should be central to a blame attribution model.

Although Shaver's theory offers an extensive framework for understanding blame as a construct (as well as sub-constructs causality/controllability and responsibility) and was instrumental in the scale development in Study 1 of this research, previous empirical research seems to support Alicke's (2000) descriptive Culpable Control model over Shaver's (1985) prescriptive Theory of Blame decision-stage model. Lagnado and Channon (2008) had participants make judgments of cause and blame for several negative outcomes that varied by degree of intentionality (intentional human action, unintentional human action, and physical event that removes human action). According to the authors, their findings supported both models in that the degree of intentionality was important for blame attributions and influenced causal judgments. In support of Alicke's model, conversely, blame judgments were much higher for unintentional rather than physical events, which support Alicke's argument that people engage in blame-validation and prefer to hold human agents blameworthy, rather than environmental cues. Furthermore, causal judgments were only marginally higher for an unintentional event, which is also supported by Alicke's model because blame-validation acts directly on blame judgments and indirectly on causal judgments.

In light of previous research, Alicke's dual-process Culpable Control model that accounts for both controlled and automatic processing may best explain attributions of blame within an obesity context. Although neither of the aforementioned models has been applied to how attributions of blame are applied to obesity, Weiner (1988, 1993) has

suggested that with obesity, blameworthiness of the individual may be assumed absent a causal explanation—suggesting attributions of blame for obesity are automatic. Furthermore, Alicke's model may explain why, despite environmental cues, people often attribute obesity to the person's behavior. Because of normative propensities to blame human actions, environmental factors that may mitigate blame are often downplayed. According to Alicke, even if cues for human agency are low (i.e., food industry factors are provided as causing obesity), spontaneous evaluations such as weight biases and negative emotional reactions theoretically strengthen the relationship blame-validation for persons who are obese.

The following sections will discuss the major constructs described in the previous models as they have been examined within an obesity context—namely, controllability (also called causality in some research and models), responsibility, and affective evaluations. Although controllability and responsibility are separate constructs according to blame theories, they are discussed in the same section because research in this area either measures both constructs or uses these terms interchangeably, making the research findings difficult to disentangle.

Controllability and Responsibility in Obesity

Although commentary surrounding obesity often centers on both individual and situational factors, scholars have suggested that the focus is often stronger for ascribing obesity to individual causes and personal responsibility-related factors (Brownell, et al., 2010). Because of the strong focus on personal responsibility, understanding how people make attributions of responsibility is central within an obesity context. According to Attribution Theory research, controllability—the capacity to alter an outcome

voluntarily—is a necessary component for determining responsibility (Weiner, 1993). As stated above, however, although the constructs of controllability and responsibility can overlap (and often interchangeable in research studies), blame theory proposes they are separate but related constructs (Shaver, 1985).

Attributions of responsibility are concerned with whom or what can be held responsible for an event, especially when the event is negatively valenced (Shaver, 1985). Scholars have noted several precursors to attributing responsibility including: having an identifiable source such as a specific person, a belief that the person should have foreseen the event, the perception that the person's behavior was not justified, and the perception that the person exercised free will (Fiske & Taylor, 2008). Furthermore, according to meta-analyses procedures, attributions of responsibility will be higher when the event is more severe, and when the target is personally and situationally different from the perceiver (Burger, 1981). Within the context of groups who are stigmatized based on physical illness or disability, controllability for the illness is a strong predictor of responsibility (DeJong, 1980; Weiner, 1993). Scholars have suggested, however, that the stigma itself may automatically imply a cause and negate perceivers' need to search for further controllability information. Obesity, for example, may automatically engender thoughts of overeating or behaviors that are personally under the control of the person (Weiner, 1993)—especially for those who are high on measures of weight bias (Hilbert et al., 2008).

Despite the prevalence of strong personal responsibility attitudes for the cause of obesity, researchers have attempted to shift attributions based on the causal and responsibility information that is provided. Studies commonly manipulate the level of

control the person has over their weight as a method to test the effects of controllability on participants' judgements of responsibility. In these studies, controllability is typically manipulated by describing the person who is obese as becoming obese because of low controllability means (e.g., a biological disorder) or high controllability means (e.g., lack of exercise or poor eating habits). The results from these studies, however, have been mixed with some studies finding low controllability reasons result in more positive judgements than high controllably reasons (DeJong, 1980; Latner, Puhl, Murakami, & O,Brien, 2014; Pearl & Lebowitz, 2014; Pryor et al., 2004; Monterosso, Royzman, & Schwartz, 2005; Rodin, Price, Sanchez, & McElligot, 1989), but others finding little difference based on controllability (Teachman et al., 2003).

For instance, DeJong (1980) examined the responsibility and likability of an obese adolescent. Participants were randomly assigned to either receive a photograph of an obese peer or a normal-weight peer. Half received an explanation that the obese peer had a thyroid problem that resulted in weight gain or paleness, respectively; and the other half received no explanation. Findings revealed that the obese peer was perceived as less disciplined and less likable than the normal weight peer in the no explanation condition, but was not perceived any differently than the normal weight peer in the thyroid explanation condition. Monterosso and colleagues (2005) examined whether biological (e.g., chemical imbalance) or experiential (e.g., abusive parents) evidence would have on mitigating perceptions of responsibility for four different scenarios that included overeating (as well as fire setting, murder, and failure to follow through on plans). For all four scenarios, participants were more likely to categorize the biological explanations as automatic, and were less likely to perceive the actors as responsible.

Conversely, Teachman and colleagues (2003) examined whether implicit or explicit biases were moderated by the personal causal controllability of obesity and found that genetic reasons did not decrease negative perceptions. Participants were randomly assigned to either receive one of two articles that explained the cause of obesity as either predominately due to genetics or predominately due to behavior (over-eating and lack of exercise), or a control condition with no information. Each participant completed both an implicit measure (Implicit Association Task; Greenwald et al., 1998) and explicit measure (Fat Phobia Scale; FBS; Robinson, Bacon, & O'Reilly, 1993) of weight-based bias. A manipulation check asked participants what the primary cause of obesity was and confirmed that there were significant differences of perceived causality by each group. With respect to measured biases, their findings revealed that implicit weight-biases (but no effects of explicit biases) were highest for the behaviorally primed group, but there were no differences between the control and genetic group, indicating that people still attributed obesity to over-eating despite genetic information.

Most of the research has examined perceptions of targets, but recent research tested whether causal beliefs about a participant's own weight status contributed to attitudes and whether these predicted support for obesity-targeted policy. In a national online sample of people who are overweight and obese, Pearl and Lebowitz (2014) examined whether four manipulated passages that varied by causal beliefs (personal responsibility, biological, food environment, or a control condition with no cause) predicted attitudes towards people who are obese, attitudes about their own weight, and support for food-policy and non-discrimination policy. According to the findings, there was a significant passage-type effect for self-efficacy and support for food policy, but not

for self-blame or internalization of weight bias. Specifically, participants who received the food environment condition had greater beliefs in their own ability to lose weight and more support for food-based policies compared to the control condition, without the negative consequences related to blame and weight stigma.

Taken together, research generally suggests that people who are obese are often assumed to have contributed to becoming obese and are subsequently held responsible for their weight. These attributions are especially prevalent when negative attitudes toward obesity are high and when information is presented for behavioral contributions to weight, as opposed to biological contributions to weight. According to both blame theories discussed (Alicke, 2000; Shaver, 1985) controllability and responsibility are both necessary precursors to blame attributions, but descriptive models of blame (Alicke, 2000) propose that extra-evidential factors such as affective reactions are also considered by perceivers when making blame attributions.

Affective Evaluations of People who are Obese

The primary function of emotions is to signal changes in the environment so that the person experiencing the emotion can choose between competing goals and values (Damasio, 1994; Schwarz, 2011). The cognitive theory of emotions (Ortony, Clore, & Collins, 1988) explains that each emotion depends on an appraisal of the significance of the change in the environment for that person. In doing so, people often use their moral affective intuitions to guide their support for matters of public policy and public health (Baron, 1998). Understanding how people's intuitions affect decision-making, therefore, may be useful for helping decision-makers improve the quality of public policies (Blumenthal, 2005; Haidt, 2001).

According to Alicke's (2000) Culpable Control model, attributions of blame are influenced by relatively unconscious, spontaneous, affective reactions to the event and people involved. This notion is supported by other research including Haidt's (2001) argument that moral judgments arise from quick and automatic moral intuitions or feelings that are positively or negatively valenced. Within legally-relevant judgments, Feigenson and Park (2006), suggest that emotions can be distinguished from one another by their cognitive appraisal structures, which can lead to informational cues about how to assign legal responsibility and blame. For example, the cognitive appraisal for anger is disapproval of a target's blameworthy behavior and unhappiness about the outcome; thus, anger provides a cue to the person that guides their assignment of legal responsibility. Research that has specifically examined the role of emotions in public policy also suggests that support for public policies may be guided by affective reactions. After priming people with either stereotypical or non-stereotypical Black exemplars, participants' prejudicial feelings (disgust, fear, nervous, dislike, anger) in the stereotypical exemplar condition, but not the non-stereotypical exemplar, predicted lack of support for affirmative action policies, which was further mediated by internal attributions for the out-group's failures (Ramasubramanian, 2010, 2011).

The Stereotype Content model (SCM; Fiske, Cuddy, Glick, & Xu, 2002), amongst other research, has found that certain outgroups elicit different emotional reactions based on cognitive appraisals of specific threats the outgroup elicits (e.g., Cottrell & Neuberg, 2005; Fiske et al., 2002). According to the SCM, outgroups are stereotyped along two dimensions—warmth (or perceptions of intent) and competence (or their ability to pursue it) —which creates four quadrants (i.e., high warmth-low competence, low warmth-low

competence, high warmth-high competence, and low warmth-low competence) that are hypothesized to predict specific intergroup emotional reactions. As the SCM predicts for outgroups, warm but not competent subordinates elicit pity; competent but not warm competitors elicit envy; and those that are neither warm nor competent elicit contempt. The warm and competent quadrant is reserved for the in-group and positive feelings, such as pride (Fiske et al., 2002).

Some of the emotional reactions proposed by the SCM are consistent with other studies on other-based emotions. One study found that disgust was a common emotional reaction toward people who are obese (Oaten, Stevenson, & Case, 2009). Disgust is believed to be a contamination or avoidance emotion (Cottrell & Neuberg, 2005; Park, Schaller, & Crandall, 2007) that emerges when people look down on someone as having no redeeming qualities (Fiske & Taylor, 2008). In general, when stigmatized groups are not held responsible for their condition they often elicit pity, but if perceived as responsible for their condition they elicit anger or contempt (Cottrell & Neuberg, 2005; Fiske et al., 2002; Weiner, 1993). Pity involves unequal status and undermines a person's own control; thus, if an obese person is perceived as lacking control over eating then pity may be elicited (Weiner, 2005). Anger occurs when the out-group is perceived as demanding resources or as a barrier to desired outcomes (Cottrell & Neuberg, 2005; Fiske & Taylor, 2008); thus, if an obese person is perceived as taking away resources from the perceiver (i.e., financial resources such as healthcare expenses, or consumable resources such as food), anger may also be elicited. Pryor and colleagues (2004) have proposed that emotional reactions toward stigmatized groups may be based on a dual-process reflexive/reflective model. Initially, negative emotional reactions, such as

disgust, are evoked, but following attributional considerations of the controllability of the stigma, pity (uncontrollable) or anger (controllable) may be evoked.

Previous research has suggested that perceivers often make moral judgments based on these affective reactions (Blumenthal 2005; Haidt, 2001). According to Haidt (2001), moral judgments such as attributions of obesity are made according to moral intuitions, which are quick and automatic affective reactions; rather than more traditional controlled rational-based moral reasoning theories (e.g., Kohlberg, 1969). The model purports that people make these quick and automatic affective reactions, and then after the fact, explain their judgment was made through a more systematic moral reasoning as part of social demand. Taken together, it seems that people often make judgments based on affective reactions to stigmatized groups and that these reactions can contribute directly to moral judgments of blame (Alicke, 2000; Haidt, 2001) or can indirectly affect perceived controllability or responsibility (Alicke, 2000).

Blame for Obesity and Consequences of Blame

Several legal scholars and psychological researchers have suggested that people who are obese are blamed for being obese, but fewer have empirically tested this assumption. One issue, as previously discussed, is that studies often state they are assessing "blame" but items facially measure "controllability." If theories of blame are correct, then these terms are not interchangeable because while controllability considers whether a person caused the condition, blame further considers whether there is a moral transgression.

To date, there is no known research that has examined the consequences of blame on people who are obese. Research examining the consequences of blame, in general, is

quite limited. A qualitative study that examined the effects of stigma in a sample of patients with lung cancer found that patients felt blamed for their condition because of the assumption that lung cancer is self-inflicted. As a result of being blamed, the lung cancer patients reported experiencing negative feelings even though some acquired lung cancer from non-smoking related causes (Chapple, Ziebland, & McPherson, 2004). Clinical psychology research has found that children who feel blamed following an incident of sexual abuse feel guilty and shameful (Lamb, 1986). According to a review of the medical literature, medical professionals who feel a "culture of blame" following a serious adverse medical event, report experiencing guilt and shame, and poor physical health (O'Connor, Kotze, & Wright, 2011). For healthcare providers, it appears the felt or perceived consequences of blame are so adverse that health care providers report they fear being blamed more than being punished following a serious adverse medical event (Gorini, Miglioretti, & Pravetonni, 2012).

Even if the specific effects of blame are not well researched, it is well-established that people are motivated to avoid being blamed. In a criminal case, for example, defendants offer mitigating evidence to reduce blameworthiness because of blame's effects on sentencing (Gray & Wegner, 2011). Although the consequences of blame are not well-known, blame does seem to have an impact on people emotionally and physically, and guides how one would want to present him or herself to escape blame. Empirical research that examines the consequences of blame more specifically—especially in the context of obesity—seems an important next step in better understanding the effects of being blamed.

CHAPTER 2
STUDY 1: VALIDATION OF THE OBESITY BLAME ATTRIBUTION SCALE

To parse the complexities of blame in the context of obesity and to understand social judgments underlying anti-obesity public policies, I developed a 40-item Obesity Blame Attribution Scale (OBAS) to examine controllability, responsibility, and blame for obesity. Although scholars have developed theoretical models that describe these three constructs (Alicke, 2000; Shaver 1985); actual measures of these latent (unobserved) constructs are limited. In studies that have measured controllability, responsibility, and blame as separate constructs, often a single item is used; however, there are both measurement and pragmatic reasons a multi-item scale should be created.

Item Development

My aim was to construct a scale to reliably and validly measure the constructs of interest: Controllability, Responsibility, and Blame (Dispositional and Situational). To do so, I researched theoretical models of blame (Alicke, 2000; Shaver 1985); previous research that has measured blame; and research that has examined controllability, responsibility, and blame as separate constructs in attributions for serious illnesses (Mantler et al., 2003). The theoretical models offered rich information with respect to potential items (see discussion on models of blame in literature review), but scales that measure blame according to these theories are limited and have often measured blame incongruent with theoretical presumptions.

For example, researchers have often combined attributions of controllability, responsibility, and blame and/or use the terms interchangeably (e.g., Allison, Basile, & Yuker, 1991), but because theoretical work suggests they are separate constructs, an

empirical analysis of the factor structure of these constructs is necessary. In addition, typically researchers ask a single question to measure each construct (e.g., Alicke & Zell, 2009), but because theoretical models of blame are complex, a multi-item scale that reliably measures each construct is warranted. Furthermore, many blame scales were developed for attributions of blame when someone has committed crime (e.g., Gudjonsson, & Singh, 1989; Rogers, Josey, & Davies, 2007) but attributions of blame are common in settings beyond criminal settings (e.g., public health issues, non-criminal misbehavior, and environmental problems). Other measures examine blame from the perspective of the victim, such as blameworthiness of the offender or self-blame (e.g., Cramer et al., 2010; Sleed et al., 2002); however, these measures may not generalize to non-victims who are making attributions of others who have not personally harmed them.

One known study by Mantler and colleagues (2003) has measured these as separate constructs in an area that does not involve criminal behavior (i.e., severe illnesses, AIDS, and lung cancer); however, the empirical analysis of the scale items was somewhat limited. The authors examined the hierarchical nature of the constructs using a decision-stage model that purported to move from objective to subjective judgments (controllability→ responsibility→ blame). According to their hypotheses, because they are separate constructs that operate in sequential stages, the three judgements should increase in magnitude as each judgement is sequentially made. Because responsibility is required for blame, and responsibility is required for controllability, then blame judgements should be lower than responsibility judgments, which in turn should be lower than controllability judgements (measured on a 1 to 7 point scale). Their analysis has limitations, however, because it assumed unidimensionality (they averaged the four items

for each construct) and used correlations to assess whether the constructs were separate, but related factors.

With the literature in mind, the items for the Obesity Blame Attribution Scale (OBAS) were developed using the four components outlined in Wilson (2005) for instrument construction: construct (and context), item generation, response (outcome) space, and the measurement model.

Pilot study 1a – do blame attributions consist of separate factors?

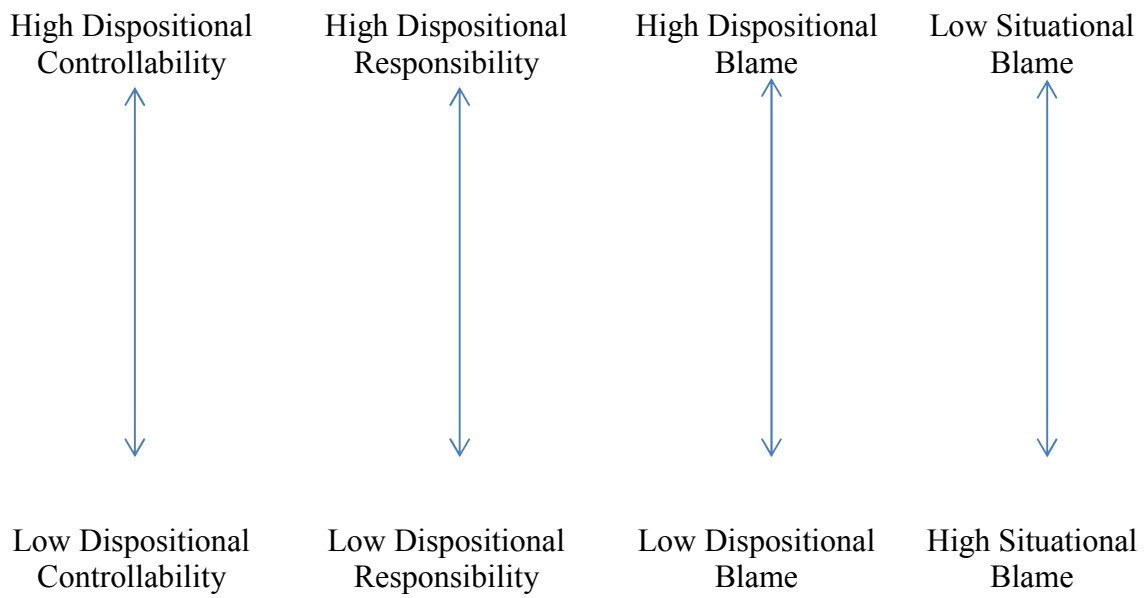
Prior to creating items for the OBAS, we examined general obesity-related attributions with a sample of university students (*N*=710) to explore whether our scale should include separate factors. Participants indicated perceived responsibility and blame for three factors known to cause obesity that varied by amount of human controllability: a) controllable dispositional factor (e.g., lack of exercise); b) non-controllable dispositional factor (e.g., medical condition); and c) situational factor (e.g., laws or restaurant policies). Responsibility and blame were measured with a single item each and response options were on a 6-point scale ranging from strongly disagree (−3) to strongly agree (3) without a neutral midpoint in order to create a forced choice. In general, results provided support that responsibility and blame were perceived as different constructs within an obesity context as previous theoretical work has posited (e.g., Shaver, 1985). Across the three levels of controllability, agreement with responsibility and blame differed and were in the hypothesized direction (means ranged from −0.52 to 2.25); ratings for responsibility and blame were highest for the controllable dispositional factor and lowest for non-controllable situational factors. As a result of these findings, I created

a 40-item Obesity Blame Attribution Scale (OBAS) to measure blame with four factors: controllability, responsibility, dispositional blame, and situational blame.

Wilson's Component 1: Construct (and context): First, I created a construct map for the blame construct that consists of four separate sub-constructs: controllability, responsibility, dispositional blame, and situational blame (Figure 1.1). The purpose of the construct map is to provide a definition of the construct by ordering persons and items from high to low (or low to high). According to Wilson's framework, each latent variable is assumed to be unidimensional and continuous, therefore, sub-constructs are depicted separately but part of a hypothesized higher-order model. According to both Shaver's (1985) and Alicke's (2000) models of blame, controllability and responsibility are antecedents to blame attributions. As depicted in Figure 1.1, an obese person must be perceived as having some dispositional control before being perceived as dispositionally responsible. Similarly, an obese person must be perceived as having some dispositional responsibility before being perceived as dispositionally blameworthy. Because dispositional blame is not the direct opposite of situational blame, these are not labeled on opposite ends of a single blame construct. Rather, and similar to Heider's (1958) Hydraulic Function, I predicted that if a person is perceived as being dispositionally blameworthy, then situational blameworthiness will be lower. Conversely, if situational blame is high, I predicted that dispositional blame will be lower (although I do not think these relationships will be symmetrical). If there is no support for the Hydraulic Function, then dispositional blame and situational blame may be separate blame constructs, whereby dispositional blame is positively correlated with controllability and

responsibility, but situational blame is negatively correlated with controllability and responsibility.

Figure 1.1 A sketch of the construct map for the attributions of blame



Wilson's Component 2: Item generation. Second, and with the construct map in mind, items were created according to theoretical models (Alicke, 2000; Shaver, 1985) and previous research (Mantler, 2003). For each construct, there was an iterative process of deciding what items would best measure the construct and to avoid measuring more than one concept in each item (i.e., not including "and," which may measure two different concepts). In addition, words for items were chosen that I thought would be clear and easy to understand and I avoided negatively-worded items.[3] Attention was paid to both construct components and descriptive components. Construct components provide the interpretational levels within the construct, such as the location on the construct map

[3] Items 1 for controllability and 10 for responsibility, however, were negatively worded because I thought they could not be worded positively.

(Wilson, 2005). In creating items, therefore, I considered items that would provide observations across the construct map continuum. Using the dispositional blame items as an example, I anticipated that people who strongly agree with the item, *"People who are obese should be criticized for being obese"* will be high on dispositional blame attributions; therefore this item is placed at the high end of the continuum for this construct. Conversely, I anticipated that people who strongly agree with "People who are obese should be excused for their weight" would be low on dispositional blame attributions; therefore this item was placed at the low end of the continuum for this construct. Descriptive components provide other characteristics of the items that describe some feature of the items, such as the language, context, method of administration, and unit of analysis (Wilson, 2005). For instance, I decided I would refer to "people who are obese" as opposed to "obese people" in accordance with the American Psychological Association's suggestion to "put the person first." Once items were designed, they were ordered on the construct map (Figure 1.2). Finally, once items were created, for face validity and clarity, I asked several colleagues to read the items and items were revised based on suggestions.

Figure 1.2 Construct map for Dispositional Obesity Attribution Scale with items and respondents

Controllability	**Item**	**Respondent**
	People who are obese…	
10C	… cause their own obesity	Participants with high individual controllability attributions
9C	… are obese because of their own free will	
8C	… are obese because they lack will power	
7C	… can prevent becoming obese	
6C	… can personally control their weight	
5C	...are obese because they overeat	
4C	...are obese because they do not exercise	
3C	… are obese as a result of their own behaviors	Participants with low individual controllability attributions
2C	… contribute to their own obesity	
1C	...are obese as a result of a medical or biological	

condition (R)

Responsibility

	Item	Respondent
People who are obese…		
10R	… are forced by external pressures to act on behaviors that lead to gaining weight (R)	Participants with high individual responsibility attributions
9R	… could be thin if they changed their behavior.	
8R	… can restrain themselves from overeating	
7R	… choose behaviors that lead to gaining weight	
6R	… intentionally act in ways that lead to weight gain	
5R	… are aware of the consequences of poor eating and exercise	
4R	… willingly participate in behaviors that lead to obesity	
3R	… do not understand how their behaviors contribute to their weight	Participants with low individual responsibility attributions
2R	… are not responsible for the behaviors that lead to their obesity.	
1R	… should not be accountable for the behaviors that lead to gaining weight.	

Dispositional Blame

	Item	Respondent
People who are obese…		
10DB	… should be criticized for being obese	Participants who provide high dispositional blame attributions
9DB	… are to blame even if their weight was caused by genetic factors	
8DB	… are to blame even if they exercise regularly	
7DB	… are to blame even if they eat healthy foods	
6DB	… should be ashamed of their weight	
5DB	… have no good reasons for being obese	
4DB	… should do something differently so they no longer gain weight	
3DB	… are to not blame for their obesity	Participants who provide low dispositional blame attributions
2DB	… are at not fault for their weight	
1DB	… should be excused for their weight	

Situational Blame

	Item	Respondent
People who are obese…		
1SB	The food industry should be ashamed that it promotes unhealthy foods that increase an individual's obesity.	Participants who provide low situational blame attributions
2SB	Fast food restaurants are at fault for an individual's obesity	
3SB	Fast food restaurants are to blame for an individual's obesity	
4SB	Poor governmental public policies are to blame for an individual's obesity	
5SB	Fast food marketing techniques are to blame for an individual's obesity	
6SB	Government public policies should have prevented an individual's obesity	
7SB	Government public policies need to do a better job at reducing an individual's obesity	
8SB	Restaurants that serve unhealthy food should be liable for an individual's obesity	Participants who provide high situational blame attributions
9SB	The food industry should be criticized for an individual's obesity.	
10SB	Fast food restaurants should be punished for causing an individual's obesity	

Wilson's Component 3: Response (outcome) space. Third, response options were selected (Wilson, 2005) that I thought best represented the construct, while balancing notions important for measurement. There are seven response options for the OBAS on a Likert scale that include a label for each point: "strongly disagree," "moderately disagree," "slightly disagree," "neither agree nor disagree," "slightly agree," "moderately agree," and "strongly agree."

Wilson's Component 4: Measurement model. The final component of scale construction includes the measurement model, which is the statistical process of making inferences of where participants fall on the latent factor (Wilson, 2005). Selecting the appropriate measurement model depends mostly on the response option format (i.e.,

ordered responses). See the analytic strategy portion below for a more detailed discussion of the measurement model.

Pilot study 1b and 1c-- initial testing and item refinement

The aim of pilot studies 1b and 1c were to determine if any of the items needed to be refined. The four factors each included 10 items measured on a 7-point scale ranging from strongly disagree (−3) to strongly agree (3) with labels for each point and a neutral midpoint (0). Although offering a neutral midpoint may influence poorly motivated participants to select it, we included it to avoid forced directional responding when participants truly felt neutral (Sturgis, Roberts, & Smith, 2014). The midpoint was not included in pilot study 1a because in earlier phases of item development I wanted participants to make a forced choice. We administered the 40-item OBAS to a national online sample (*N*=169) using Amazon's MTurk and to a sample of college students (*N*=157). All four factors had sufficient reliability according to Cronbach's alpha for both the Mturk sample (α =.80 to .97) and the college sample (α =.77 to .94) and if removed, no items increased alpha outside of that range. However, alpha assumes all items are tau-equivalent with uncorrelated errors and unidimensionality, which limits the utility of alpha. In examining the inter-items correlations, most of the items correlated with other items within their respective factor, but four items[4] did not correlate with other items, which is problematic. Means for each item were in the hypothesized direction according to the hypothesized construct map. Finally, after averaging the item responses within each factor, correlation analyses revealed responses for the controllability, responsibility and dispositional blame factors were all positively correlated, but that responses for the

[4] One reversed coded item from the controllability subscale; one reverse coded item from the responsibility subscale; and two items from the dispositional blame subscale.

situational blame factor were not correlated with any of the other scales. This suggests that the final latent factor structure may include one higher-order with a situational blame factor (measured by controllability, responsibility, and dispositional blame) and a situational blame factor; however, final conclusions will be drawn following the reliability and validity analyses with the community sample. It was decided that all items would be retained and included in the actual sample and factor analysis, and may be removed in the future if still problematic.

One decision that was made after initial construction of the items was to include the alternative stem "people who are fat" as a comparison to "people who are obese." The rationale was that "people who are fat" may invoke more stigmatization, whereas "people who are obese" may invoke perceptions of someone who is heavier (Puhl, Peterson, & Luedicke, 2006). As such, both item stems were included and participants were randomly assigned to receive one of the two item stems to empirically compare them.

Method

Participants

Measurement of the Obesity Blame Attribution Scale (OBAS) included responses from 601 participants (M_{age} = 38.34, *SD* = 13.02; 57% women) from a national sample recruited from Amazon's Mechanical Turk (MTurk), an internet service that allows access to over 500,000 members who are available to participate in online research. Empirical research suggests that data obtained from Mechanical Turk are as reliable as those obtained from traditional sources (Buhrmester, et al., 2011; Paolacci, et al., 2010). Participants were paid $0.50 as compensation for their time with an opportunity to earn an additional $1.00 if they were randomly selected to participate in part two of the

research (Study 2). A total of 811[5] participants clicked on the survey in Mturk; however, participants (*n*=108) were removed for not completing the study (i.e., clicking on the link and not completing any questions), answering any of the three attention questions incorrectly (*n*=98), and for taking the study more than once (*n*=4). For those who took the study more than once, only their first response was retained and the second response was deleted.

Procedure

Participants completed an online survey that included the OBAS and several measures to examine construct validity. Each participant was randomly assigned to receive either the obese stem (”people who are obese,” *n* = 301) or the fat stem (“people who are fat,” *n* = 300). For convergent and divergent validity, the OBAS was compared to several scales that measure beliefs about the causes of obesity, negative stereotypes and attitudes of people who are obese, behavioral discrimination of people who are obese, and beliefs that people get what they deserve. Additional measures were included in the online study as pre-study measures that will be discussed in Study 2.

Materials

Causes of obesity. The Causes of Obesity Scale (COS; Klaczynski et al., 2004) is a 31-item scale that measures beliefs about the causes of obesity with three subscales. The Internal Causes subscale (18 items) measures beliefs that obesity is caused by personal shortcomings and people who are obese are responsible for their weight. The Internal Causes subscale includes items such as: “If obese people had more willpower,

[5] Research suggests that Confirmatory Factor Models are most stable when there are at least 15-20 participants per item (Muthén & Muthén, 2002); thus 800 participants were recruited to ensure we have adequate sample size even if cases need to be removed.

they'd stop eating too much." The Physical Causes subscale (7 items) measures beliefs that obesity is uncontrollable and is the outcome of genetic or medical conditions. The Physical Causes subscale includes items such as: "Obese people are stuck being obese because of hormones they can't control." The Social Causes subscale (6 items) measures beliefs that environmental factors are responsible for obesity. The Social Causes subscale includes items such as: "People get obese because in school, at work, and at home, they can get their hands lots of fatty food." Higher scores for each subscale indicate stronger beliefs for that cause of obesity. Items are presented in Appendix A.

Attitudes toward people who are obese. The Anti-fat Attitudes Questionnaire (AFA; Crandall, 1994) is a 13-item scale that measures negative attitudes toward people who are obese with three subscales. The Dislike subscale (7 items) measures prejudice toward fat people. The Dislike subscale includes items such as: "I really don't like fat people much." The Fear of Fat subscale (3 items) measures one's self-relevant concerns about fatness. The Fear of Fat subscale includes items such as: "I feel disgusted with myself when I gain weight." The Willpower subscale (3 items) measures belief about controllability. The Willpower subscale includes items such as: "Some people are fat because they have no willpower." Each subscale is measured using a Likert-type response format (0 = very strongly disagree; 9 = very strongly agree) and is scored by averaging the responses for that subscale. Higher scores on each subscale indicate stronger anti-fat attitudes. Items are presented in Appendix B.

Obesity stereotypes. The Obese Stereotypes Scale (OSS; Klaczynski et al., 2004) is a 40-item scale that measures beliefs about personalities of obese people. Response options are on a 4-point Likert scale ranging from "strongly disagree" (1) to "strongly

agree" (4). The beliefs consist of both negative and positive personality traits. The positive items such as "popular," "talented," and "friendly," are reversed coded. Higher scores indicate more negative beliefs about the personalities of people who are obese. Items are presented in Appendix C.

Behavioral discrimination toward people who are obese. Social distance toward a person who is obese will be measured using an adapted version of the Social Distance Scale (SDS; Link et al., 1999). The social distance scale is a 5-item proxy measure for behavioral discrimination toward people with mental illness that I changed to say "person who is obese" instead of "a person with mental illness." Response options are on a 4-point Likert scale ranging from "definitely not willing" (0) to "definitely willing" (3). An example item includes: "How willing would you be to make friends with someone who is obese?" Higher values indicate more willingness to engage with a person who is obese. Items are presented in Appendix D.

Beliefs about justice for self and others. Previous research has found that blame attributions are related to beliefs about distributive and procedural justice for self and others. The Belief about Justice for Self and Others Scale (BJSOS; Lucas et al., 2011) is a 16-item scale with response options on a 7-point Likert scale ranging from "strongly agree" (1) to "strongly disagree" (7). The scale has four subscales that consist of four items each: Distributive Justice Beliefs for Others, Distributive Justice Beliefs for Self, Procedural Justice Beliefs for Others, and Procedural Justice Beliefs for Self. An example item that measures distributive justice for self includes "I feel that I usually receive the outcomes that are due" and for others includes: "I feel that other people usually receive the outcomes that they are due." An example item that measures procedural justice for

self includes “I am generally subjected to processes that are fair” and for others includes: “Other People are generally subjected to processes that are fair.” Higher scores indicate stronger beliefs in justice for self and others. Items are presented in Appendix E.

Beliefs in a just world. Previous research has found that blame attributions are related to beliefs in a just world. The Global Beliefs in a Just World Scale (GBJW; Lipkus, 1991) is an 8-item scale with response options on a 6-point Likert scale that ranges from ”strongly disagree” (1) to “strongly agree” (6). An example item includes “I feel that I get what I deserve.” Higher scores indicate beliefs that people are more likely to get what they deserve. Items are presented in Appendix F.

Hypotheses and Analytic strategy

First, I analyzed the factor structure of the construct(s) within each stem group. I hypothesized that the factor structure of the OBAS consisted of one higher-order factor with four separate lower-order factors: individual controllability for obesity, individual responsibility for obesity, dispositional blame for obesity, and situational blame for obesity. It is not clear whether the results will comport with theoretical literature that purports each is a separate construct (Shaver, 1985) or with previous attributional literature suggesting lay people may perceive these constructs more similarly because of held negative stereotypes that obese people have both control and are responsible for their weight (Weiner, 1988, 1993).

Once the factor structure of the OBAS was tested, I examined whether there is measurement invariance between the obese stem and fat stem items. Establishing measurement invariance is important part of demonstrating the psychometric reliability of any measure (e.g., South, Krueger, & Iacono, 2009) because it determines whether the

construct is being measured similarly across groups. It is hypothesized that the stem types will achieve at least partial scalar invariance (i.e., factor loadings will be similar on to each factor by stem type and most thresholds will be similar across stem types), because full invariance is more difficult to achieve with a larger number of items. Structural invariance analyzes whether each stem type differed according to the factor variance, covariance and factor means—which represent actual differences between stem type on the construct (not differences due to measurement, which is what is tested in the invariance analysis). It is hypothesized that the constructs measured using the fat stem items will have higher means because the word "fat" tends to be more stigmatizing (Crandall, 1994; Puhl, Peterson, & Luedicke, 2006). In sum, I expect the stem types to measure the same underlying latent trait (general blame-related attributions), but that the "fat" stem items will result in higher means of the latent trait than the "obese" stem items.

Third, several scales were examined for convergent and divergent validity with the OBAS. Because each of these scales also measure latent traits, global fit for each scale will be examined prior to construct validity analyses. In general, it was expected that the OBAS factors will be correlated, but not substantially overlapped with any of these measures. For specific hypotheses, see Table 1 below. It was hypothesized that scales that measure individual causes of obesity (COS: Internal subscale and AFA: Willpower subscale) were positively correlated with the OBAS Controllability factor, but negatively correlated with scales that measure external causes of obesity (COS: Physical and Social subscales) because individual controllability and individual causes are similar constructs. Scales that measure negative stereotypes and attitudes toward people who are obese were also expected to be positively correlated with the OBAS Controllability factor

because previous research suggests that people who have negative perceptions of people who are obese are more likely to believe people who are obese are in control of their weight (e.g., Klaczynski et al., 2004). Controllability was also thought to be positively correlated with the just world belief scales (BJSOS and GBJW) because people who believe that people "get what they deserve" are more likely to think individuals contribute to their own health problems (e.g., Nudelman & Shiloh, 2011). The Controllability factor was not predicted to be related to the AFA: Fear of Fat factor or the Social Distance Scale.

In addition, the pattern for the Responsibility factor is expected to be similar to the pattern for convergent and divergent validity for Controllability because Responsibility and Controllability are expected to be positively correlated (e.g., Mantler et al., 2003) and related similarly to the other constructs. With respect to Dispositional Blame factor, the pattern is expected to be similar to Controllability and Responsibility because Dispositional Blame is hypothesized to be positively correlated with Controllability and Responsibility—with one exception— Dispositional Blame is also expected to be positively correlated with Social Distance similar to previous research that has examined victim blaming (Johnson, Mullick & Mulford, 2002). Furthermore, Situational Blame is expected to be negatively correlated with Controllability, Responsibility, and Dispositional Blame, as well as the measures for which Controllability, Responsibility, and Dispositional Blame are expected to be positively correlated. Situational Blame is also expected to be negatively correlated with Social Distance (Johnson et al., 2002).

Results

Preliminary psychometric analysis

Item statistics

Descriptive statistics for each item, separated by the each of the four factors and by item stem language ("obese" or "fat"), are presented in Table 2, **Table 3**, **Table 5**, and **Table 5**. For all items, the minimum and maximum values consisted of the full range of the scale (−3 to 3), except Item 2db from the "obese" dispositional blame scale ("People who are obese are at fault for their weight"), which had a range of −2 to 3. This may indicate that this item was not good at measuring lower levels of obesity dispositional blame attributions. With respect to individual item means across all four factors, in general, participants were more likely to endorse agreement that people who are obese/fat have controllability and responsibility over their weight (most item means were greater than 0); participants were more likely to endorse disagreement that people who are obese/fat are dispositionally blameworthy for their weight (many item means were less than 0). Finally, participants were more likely to endorse disagreement that the food industry and other environmental factors were situationally to blame for the public's obesity/fatness. Although the subsequent invariance analysis is necessary to determine whether item endorsement differed significantly by scale language—whether items included "obesity" or "fat" as the stems—in general, item descriptive suggest they may not differ significantly. Contrary to hypotheses, informally examining item means suggests participants endorsed more agreement with controllability and responsibility when the stem included "obesity" rather than "fat" (i.e., more positive means for obesity

than fat) and less agreement with dispositional and situational blame when the stem included “fat” rather than “obesity” (i.e., more negative means for fat than obesity).

Overall, Cronbach’s alpha reliability were good (all α ranged from .79 to .95, see Table 2 to **Table 5**. Table 2 to **Table 5** also display the corrected item-total correlations and Cronbach’s alpha if the item were deleted. For instance, item 10r would increase alpha to .84 and .82 for “obesity” and “fat,” respectively. Because alphas assume unidimensionality, however, they are not appropriate statistics for assessing reliability unless dimensionality has been empirically modeled. The inter-item correlations for the four factors for “obesity” and “fat” are presented in **Table 6** through

Table 13. Most of the items had a medium to high correlation with each other within each factor. For both stems on the Controllability factor, however, item1c (i.e., "People are obese/fat as a result of a medical or biological condition") had relatively lower inter-item correlations with the other items (ranging from .16 to .40 on both stems); this is not surprising considering this item was reverse coded. For the Responsibility factor, there appear to be a few problem items. Item 10r, which was reverse coded, has relatively low inter-item correlations (ranging from −.05 to .11 on both stems). Items 3r ("People who are obese/fat understand how their behaviors contribute to their weight") and 5r ("People who are obese/fat are aware of the consequences of poor eating and exercise") also have some relatively low inter-item correlations (.04 to .19 and −.05 to .22 on both stems) though they were correlated with each other at .53/.54). Both of these items seem to measure knowledge or insight into their obesity, so perhaps this is a separate construct not captured within the Responsibility factor. With respect to the dispositional blame factor, although some of the items have lower inter-item correlations, there does not seem to be a discernable pattern among any problem items for both stems. The inter-item correlations for the Situational Blame factor are all relatively high and it appears there are no problem items.

Psychometric analysis

Latent trait analyses were estimated using a graded response model, which is a latent trait model that can estimate models when data are non-normal (i.e., skewed) and data with ordinal response options. IFA essentially divides each ordinal item into a series of cumulative binary sub-items, known as thresholds (e.g., 1 vs. 2-6, 1-2 vs. 3-6, and so forth). It then uses a probit link function, so that rather than predicting the probability of a

response in the higher category directly, the predicted outcome is instead the value of the standard normal curve that corresponds to the area to the left associated with that probability. Thus, the measurement model parameters for each item include a factor loading, which is the regression of the probit response onto the latent factor, as well as thresholds up to the number of possible response options minus 1. Given the seven possible response options, six thresholds will be estimated for each item, which can be interpreted as the probit of the probability of responding in the lower category of each cumulative sub-item given a latent factor score of 0.

The reliability of the 40 OBAS items was assessed in an online national sample (*N*=601) using IFA in Mplus v. 6.12 (Muthén & Muthén, 1998-2010). All items had response options on a seven-point ordered category Likert scale with anchors ranging from −3 (strongly disagree) to 3 (strongly agree) and a midpoint 0 (neither agree nor disagree). Larger positive values indicate more agreement with the attribution (e.g., 3) and larger negative values indicate more disagreement (e.g., −3). For one item (item 2r), response option −3 was not selected for "obese" (see **Table 3**). To correct for this so that Mplus can estimate the models, response option −3 was collapsed into response option −2 for "fat" for this item (this affected only a single response option out of 24,040 possible responses, which is less than .01%). There was missing data for one item response (item 9sb for "obese") and is assumed to be Missing Completely at Random (MCAR) with WLSMV.

Item fit

First, to make sure items were similarly contributing to each factor, I assessed the ten items for each of the hypothesized factors (Controllability, Responsibility, Dispositional

Blame, and Situational Blame) separately for each stem type ("obese" or "fat") including: 1) global fit, 2) local fit, 3) parameter significance, and 4) effect size and reliability. For model identification, item thresholds and factor loadings were estimated freely, the latent factor means to 0 and factor variances to 1. To assess global fit, Table 14 presents the final model fit statistics for each factor by stem type and includes the obtained model χ^2, the χ^2 degrees of freedom, and associated significance test p-value for which non-significance suggest good fit. Table 14 also includes the Comparative Fit Index (CFI) for which values higher than .95 suggest good fit as well as the Root Mean Square Error of Approximation (RMSEA) point estimate and 90% confidence interval for which values lower than .06 suggest good fit (Byrne, 2001).

Local fit is examined to see why the models may not have global fit or to examine whether there are more specific fit problems. To assess local fit, residual correlations were computed via Mplus' RESIDUAL output option that provides the difference between the model-predicted and data-estimated polychoric correlations. Positive values indicate the two items are more related than predicted and negative values indicate the items are less related than predicted. Although there are not standard cut-off values that would indicate an item with local misfit, the values can be used to identify any problem items in conjunction with the modification indices.

Next, I inspected the model parameters, such as the standardized factor loadings (for how items correlated with the factor), R^2 values, and residual variances for both statistical and practical significance. Lastly, reliability and effect sizes were examined via test information function plots[6] that describe how reliable the scale is over the range of Theta

[6] Reliability is calculated as Reliability = Information/Information+1

(in IFA slopes relating Theta to the item response are non-linear). Any model comparisons for best fit were examined with a χ^2 difference test using the DIFFTEST option for the WLSMV estimator, for which a significant χ^2 indicates the smaller model fits worse than the larger model (and the larger model should be retained).

Controllability. According to the global fit statistics, Controllability had good fit according to CFI for the obese stem (.98) and the fat stem (.99), but did not have good fit according to RMSEA for the obese stem (.13) and the fat stem (.10). In examining local fit, none of the residual correlations was large, suggesting there were no sources of local misfit. The factor loadings for each item were significantly related to the factor for both stem types (all p <.001). For the obese stem, standardized loadings ranged from .40 to .89; for the fat stem, standardized loadings ranged from .39 to .92, with most loadings greater than .80 (item 1c, which was reverse-coded, was the only item with lower correlations at .40 and .39, respectively). Similarly, R^2 values were all significant and indicated the items were all related to the latent factor. Moreover, modification indices did not suggest any considerable changes needed to be made and there were no items that demonstrated a pattern of local misfit with respect to residual correlations (all were <.20). No changes were made to either Controllability factors because model fit appeared to be sufficient and the final sub-scale included all 10 items. The final fit statistics are presented in Table 14. Reliability function plots by stem type are presented in Figure 1. The Controllability scale has a reliability greater than .97 (information of 30 equals reliability of .97) and reliably measures theta (the factor) between −2 and 2. The fat stem appears to have slightly more reliability than the obese stem.

Responsibility. According to the global fit statistics, Responsibility did not reach good fit according to CFI for the obese stem (.93) and the fat stem (.91), and did not have good fit according to RMSEA for the obese stem (.22) and the fat stem (.21). The factor loadings for the fat stem were each significantly related to the factor (all p <.001); however, the standardized loading for obese stem item 10r with (a reverse coded item "people who are obese are forced by external pressures to act on behaviors that lead to gaining weight") was not significant (p = .08). For the obese stem, significant standardized loadings ranged from .29 to .90; for the fat stem, standardized loadings ranged from .16 to .91, with most loadings greater than .80 (fat stem item 10r was only .16 and also may be one reason for poor fit). Similarly, all R^2 values were significant and related to the latent factor, except for item 10r with both stems (obese stem p = .38, fat stem p =.08). For both stems, modification indices suggested that items 3r and 5r may covary and thus should be set to be correlated; the residual correlation between these items suggested they were more related than expected (.53 and .50 for the obese and fat stem, respectively). No additional items demonstrated a pattern of local misfit with respect to residual correlations (all were <.20).

To improve global fit, therefore, I first removed item 10r from both stem groups. CFI for the obese stem (.95) and the fat stem (.93) improved, as did RMSEA for the obese stem (.17) and the fat stem (.18). Because CFI was still under .95 and RMSEA were still high, I allowed the residuals for items 3r ("understand how their behaviors contribute to their weight") and 5r ("are aware of the consequences of poor eating and exercise") to correlate in the model because the modification indices suggested as such, and they theoretically and practically do appear to be facially similar. By doing this, CFI for the

obese stem (.99) and the fat stem (.98) improved, as did RMSEA for the obese stem (.08) and the fat stem (.09). The final sub-scale, therefore, included 9 items and two items whose residuals were correlated. The final fit statistics are presented in Table 14. Reliability via test information function plots by stem type is presented in Figure 1. The Responsibility scale has a reliability greater than .80 (information of 4 equals reliability of .80) and reliably measures theta (the factor) between −5 and 5. The obese stem appears to have slightly more reliability than the fat stem.

Dispositional blame. According to the global fit statistics, Dispositional Blame did not reach good fit according to CFI for the obese stem (.92) and the fat stem (.93), and did not have good fit according to RMSEA for the obese stem (.18) and the fat stem (.19). The factor loadings for each item were significantly related to the factor for both stem types (all p <.001). Standardized loadings for the obese stem ranged from .19 to .82; for the fat stem from .19 to .81—however, most standardized loadings were around .40 -.50 for most items. Although the factor loading for item 1db (reverse coded "should be excused for their weight") was statistically significant, the standardized loading was only .19 for both stem items. R^2 values were all significant and indicated the items were all related to the latent factor. For both stems, modification indices suggested that items 7db and 8db may covary and thus the residuals should be correlated (especially for the obese stem). Also, modification indices suggested that items 2db and 3db may covary and thus the residuals should be set to be correlated (especially for the fat stem). No items demonstrated a pattern of local misfit with respect to residual correlations (all were <.20).

To improve global model fit, I first removed item 1db from both stem type factors; however, when removing item 1db, the model still did not fit well so item 1db was

retained. Because CFI was still under .95 and RMSEA were still high, I set the residuals for items 7db ("are to blame even if they eat healthy foods") and 8db ("are to blame even if they exercise regularly") to correlate in the model as they theoretically and practically do appear to be facially similar. By doing this, CFI for the obese stem (.95) and the fat stem (.94) improved, as did RMSEA for the obese stem (.15) and the fat stem (.18). Again, because CFI was still under .95 for the fat stem and RMSEA was still high for both, I allowed the residuals for items 2db ("are at fault for their weight") and 3db ("are to blame for their obesity") to correlate in the model as suggested by the modification indices, and I agreed they appear to be facially similar. By doing this, CFI for the obese stem (.96) and the fat stem (.95) improved, as did RMSEA for the obese stem (.14) and the fat stem (.16). The final sub-scale, therefore, included 10 items, in which the residuals for two sets of items were correlated. The final fit statistics are presented in Reliability via test information function plots by stem type is presented in Figure 1. The Dispositional Blame scale has a reliability of about .97 (information of 30 equals reliability of .97) and reliably measures theta (the factor) between −3 and 3. The obese stem appears to have slightly more reliability than the fat stem.

Situational blame. According to the global fit statistics, Situational Blame had good fit according to CFI for the obese stem (.95) and the fat stem (.96), but did not have good fit according to RMSEA for the obese stem (.24) and the fat stem (.22). The factor loadings for each item were significantly related to the factor for both stem types (all p <.001) and standardized loadings for the obese stem ranged from .78 to .92; for the fat stem from .76 to .93. Similarly, R^2 values were all significant and indicated the items

were all related to the latent factor. No additional items demonstrated a pattern of local misfit with respect to residual correlations (all were <.20).

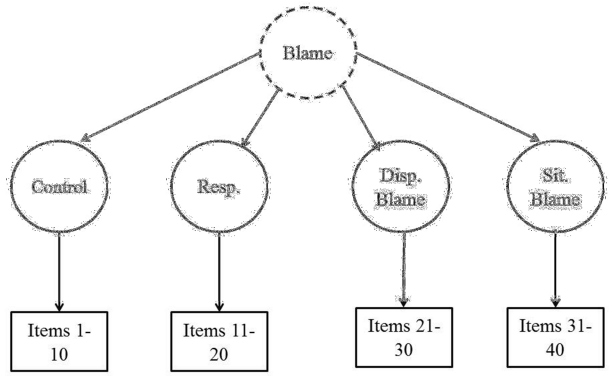
Moreover, modification indices for both stem items suggested that if some of the item residuals were correlated, then model fit would improve. In examining the suggestions, it appears that the Situational Blame items actually measures two separate factors—one that measures attributions of blame to the food industry and restaurants, and one that measures attribution of blame toward the government. To empirically test this, I compared a two-factor situational blame model, in which the separate food industry and government blame factors were correlated, to the single factor model using a χ^2 DIFFTEST. The one-factor model fit worse than the two-factor model for both the obese stem χ^2 (1) = 96.39, p <.001, and the fat stem χ^2 (1) = 87.95, p <.001. According to the global fit statistics, CFI for the obese stem (.98) and the fat stem (.98) both improved, as did RMSEA for the obese stem (.17) and the fat stem (.17). RMSEA was still higher than desired and modification indices for the two-factor obese stem model indicated that two items' residuals possibly covaried; therefore the residuals for sb1 ("The food industry should be ashamed that it promotes unhealthy foods") and sb9 ("The food industry should be criticized for the public's obesity") were correlated in a subsequent model as they facially appeared to measure similar qualities. CFI for both stems remained (.98) and RMSEA for the obese stem (.14) and the fat stem (.15) improved. The two factors were also significantly correlated (obese stem: r = .78, p <.001; fat stem: r = .85, p <.001).

The final sub-scale included two correlated factors (a Food Industry Dispositional Blame factor and a Government Policy Dispositional Blame factor), for which the residuals of two items on the Food Industry Dispositional Blame were correlated. The

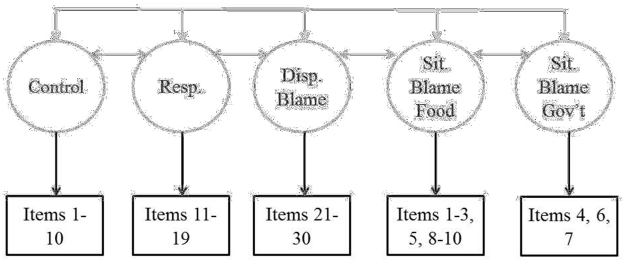
final fit statistics are presented in Table 14. Reliability via test information function plots by stem type is presented in Figure 1. The Situational Blame Food Industry scale has a reliability greater than .80 (information of 4 equals reliability of .80) and reliably measures theta (the factor) between −3 and 3. The fat stem is more reliable than the obese stem. Reliability for the Government Policy Dispositional Blame factor, however, was poor for both stems and did not reach .80 (information of 4), most likely because the scale only included three items.

Factor structure

After examining the fit of each of the factors individually, as described previously, a combined model was estimated. All alternative factor structures are displayed in



Hypothesized Higher Order Factor Structure



Five-factor Model

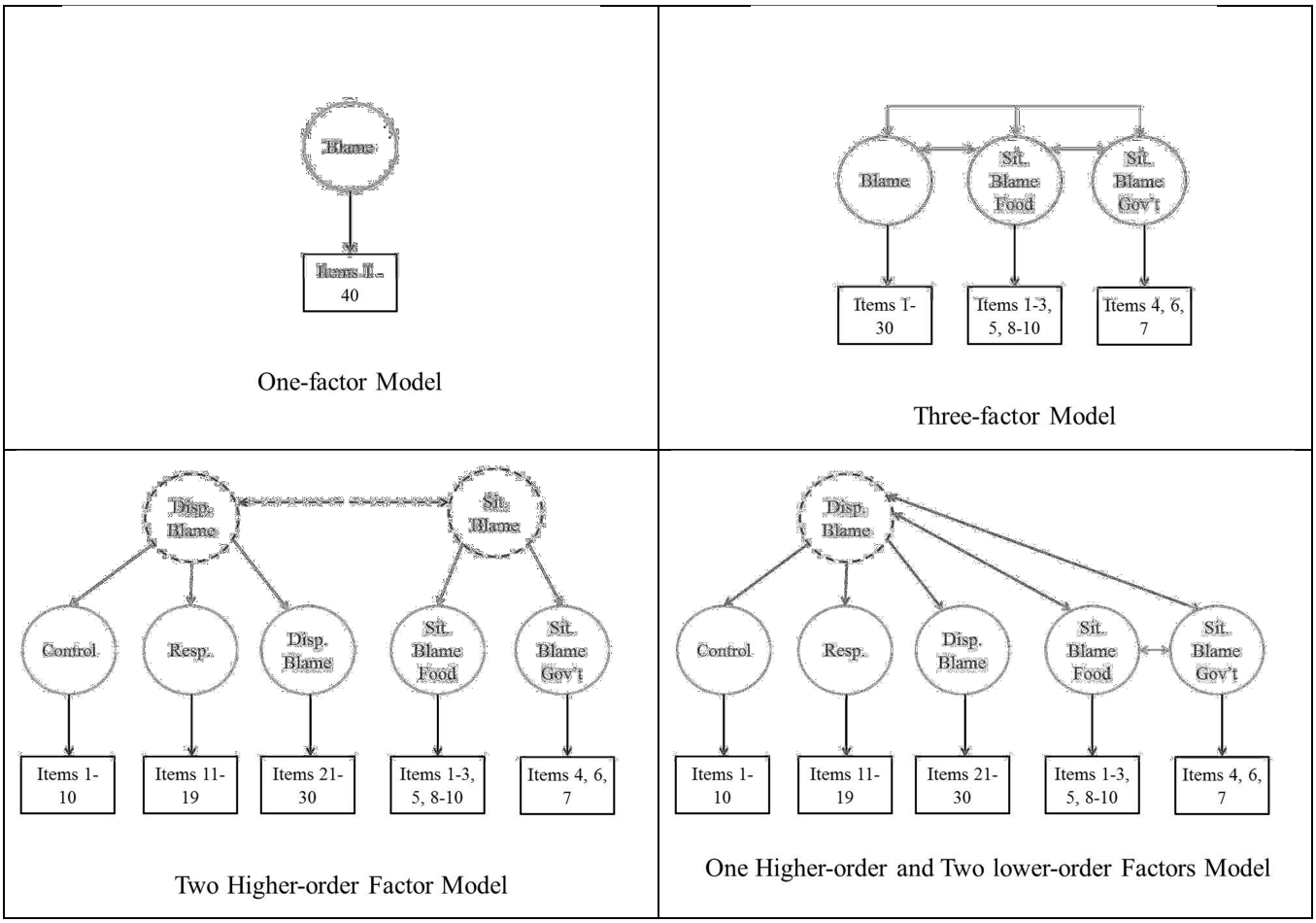


Figure 2. The original hypothesis was a higher-order Obesity Blame Attribution factor, with four lower-order factors that measured Controllability, Responsibility, Dispositional Blame, and Situational Blame (with Situational Blame being negatively correlated with the other three factors). Following the item fit analysis, however, Situational Blame was split into two factors that measured Food Industry Dispositional Blame and a Government Policy Dispositional Blame. As such, the hypothesis has adjusted to include five lower-order factors. The five factors were fit simultaneously (but separately by stem type) with covariances estimated freely among them. A total of 39 items were included because 1 item has been dropped from the Responsibility sub-scale. Each factor was identified by fixing the first item loading on each factor to 1, estimating the factor variance, and then fixing the factor mean to 0, while estimating all possible item

thresholds (six for each item given seven response options, except for item resp2 that only had six response options chosen) and remaining item loadings. As with the measurement models described previously, WLSMV estimation including a probit link and the THETA parameterization (such that all item residual variances were constrained to 1) was used to estimate all higher-order models (Muthén & Muthén, 1998-2010). Model fit statistics describe the fit of the item factor model to the polychoric correlation matrix among the items. Nested model comparisons were conducted using the DIFFTEST procedure.

As shown in Table 15, the fit of the obese stem model with five correlated factors was good, and when compared with a single-factor model (with all 39 items loaded onto a single factor), the single-factor model fit significantly worse than the five-factor model χ^2 (14) = 1292.19, p <.001. Correlations of .8 or higher were found amongst three factors (Controllability, Responsibility, and Dispositional Blame), providing evidence that the three factors may be part of a single higher-order factor. The Food Industry Dispositional Blame and a Government Policy Dispositional Blame factors did not significantly correlate with the Controllability, Responsibility, and Dispositional Blame factors, but they were significantly correlated with each other, providing evidence that they may be part of a second higher-order factor. The fit of the fat stem model with five correlated factors was good and when compared with a single-factor model, the one-factor model fit significantly worse than the five-factor model χ^2 (14) = 1227.71, p <.001. The pattern of correlations for the fat stem was the same as for the obese stem.

Because the correlations were not significant between the Situational Blame factors and the other three factors, and the correlations were so high between

Controllability, Responsibility, and Dispositional Blame, I compared the five-factor model to a three-factor model, whereby Controllability, Responsibility, and Dispositional Blame were on a single factor and Situational Blame were two correlated factors. The three-factor model fit significantly worse than the five-factor model for the obese stem χ^2 (11) = 319.87, p <.001, and fat stem χ^2 (11) = 232.11, p <.001, again suggesting Controllability, Responsibility, and Dispositional Blame may be separate factors that may be part of a higher-order factor.

The higher-order factor structure was tested by removing the covariances among the Controllability, Responsibility, and Dispositional Blame factors and estimating loadings for the three factors as a single higher-order factor (whose variance was fixed to 1 and mean fixed to 0). Two higher-order factors were tested whereby Controllability, Responsibility, and Dispositional Blame were the first factor and Food Industry Dispositional Blame and a Government Policy Dispositional Blame were the second factor. To identify this model, the factor loadings for the Food Industry and Government Policy were set to be equal so that the Dispositional Blame higher-order factor would estimate because factors with only two lower-order factors is not locally identified otherwise. The two higher-order factors were correlated.

With respect to the obese stem, the fit of the higher-order factor model remained good, and a nested model comparison to the five-factor model (with all possible correlations estimated instead) via the DIFFTEST procedure revealed no change in fit, χ^2 (5) = 9.57, p = .09. In examining the variance accounted for by the higher-order factor for each lower-order factor, the higher-order factor accounted for a significant amount of variance for each factor. However, the two higher-order factors were not significantly

correlated with each other $r = -.03$, $p = .65$. Likewise, for the fat stem, a nested model comparison revealed a no change in fit, $\chi^2 (5) = 6.00$, $p = .31$; and the higher-order factor accounted for a significant amount of variance for each factor. However, the two higher-order factors were not significantly correlated with each other $r = -.08$, $p = .13$. The final factor structure for the OBAS, therefore, included two higher-order factors: A) a Dispositional Blame factor that included Controllability, Responsibility, and Dispositional Blame; and B) a Situational Blame factor that included Food Industry Dispositional Blame and a Government Policy Dispositional Blame.

Histograms for displaying the distribution of factor scores across the sample for both higher-order factors are presented in Figure 3 and Figure 4. For both the obese and fat stem, theta for the Blame higher-order factor was normally distributed around the mean = 0 and variance = 1. This suggests that the three Controllability, Responsibility and Dispositional Blame factors measured the latent trait across varying levels of theta. On the other hand, because there is a floor effect in the factor scores for the Situational Blame higher-order factor for both stems, there is not good measurement at the low end of the factor.

Invariance analysis

Measurement invariance

Measurement and structural invariance of the OBAS was tested to compare participants' attributions when the question stems included "people who are obese"

versus "people who are fat." Models were estimated in Mplus v. 6.12 (Muthén & Muthén, 1998-2010) with WLSMV estimation with a probit link and THETA parameterization. More specifically, the measurement invariance analysis examined whether the OBAS measured attributions of blame similarly with stems "people who are obese" and "people who are fat" to test whether item wording is inter-changeable and whether comparing mean values is meaningful with respect to the latent trait. The structural invariance analysis examined whether each stem type differed according to the factor variances, covariances, and factor means—which represent actual differences between stem type on the construct.

In an invariance analysis, a series of increasingly strict constraints are placed on the model parameters (loadings, thresholds, residual variance, and residual covariance) to test the equivalence of the solution between the obese stem and fat stem. The model fit statistics for each of the models tested describe the fit of the item factor model to the polychoric correlation matrix among the 39 items for each stem type. When WLSMV is used, the difference in χ^2 values for nested models in not distributed as a χ^2; thus, nested model comparisons were conducted using Mplus' DIFFTEST option and the SAVEDATA command was used to calculate differences in χ^2. If the difference was significant when comparing the nested models, this suggested the models are not equivalent (not invariant) between stem types; thus non-significance suggests models are equivalent (invariant).

First, the configural invariance model was identified where the factor structure (i.e., two higher-order factors) was estimated with each stem type to test whether they shared the same broad factor structure. Item loadings and thresholds were estimated by

fixing the factor variances to 1 and factor means to 0 in each group for identification. Because residual variances are not uniquely identified in the configural invariance model, they were fixed to 1 in both groups. Table 17 presents the model fit statistics for the configural invariance model, which had good model fit (CFI = .97; RMSEA = .06). Following the configural model estimation, analyses continued by applying parameter constraints in successive models to examine whether there is measurement or structural non-invariance between the obese stem and fat stem items.

To test metric invariance ("weak" invariance), which examines whether stem type produces similar factor loadings, the baseline configural model was compared to a model that constrained all of the factor loadings (i.e., each item factor loading was set to be equal for each stem, but freely estimated). For model identification, the factor variances for the obese stem were fixed to 1 but freely estimated for the fat stem; factor means were fixed to 0 for both stem types; all residual variances were constrained to 1 across stem type; and all item thresholds were estimated. The metric invariance model (constrained loadings) fit significantly worse than the configural model (free loadings) DIFFTEST (34) = 65.91, $p < .001$. Modification indices suggested that control item 6 (6c: "people who are obese/fat can personally control their weight") would produce better model fit if the obese stem and fat stem item loadings were not constrained to be equal (allowed to be different). When letting the loading item 6c estimate freely, standardized factor loadings revealed that item 6c was more related to the factor with the obese stem (.76) than the fat stem (.66). This could indicate that participants are more likely to attribute control to people who are "obese" than people who are "fat." This model still fit significantly worse than the configural model DIFFTEST (33) = 58.32, $p < .001$.

This process was repeated two more times with item 8r (responsibility item 8 "people who are obese/fat can restrain themselves from overeating") and then responsibility item 7 (7r: choose behaviors that lead to gaining weight") until the model did not fit worse than the configural model (see Table 17). Similar to the non-constrained item in the controllability factor, items 8r and 7r demonstrated higher factor loadings on the obese stem (.49 and .32, respectively) than the fat stem (.90 and .80, respectively) when freely estimated—suggesting these two items are related more to the factor with the "obese" stem than the "fat" stem. The final metric model, therefore, resulted in three different item loadings for the obese and fat stem (items 6c, 8r and 7r).

Next, scalar invariance ("strong" invariance), which tests whether at the same level of the trait participants from each group would select the same response option, was tested against the metric invariance model by constraining all of the item thresholds and setting the factor means to 0. The first scalar invariance model (scalar A) fit significantly worse than the metric invariance model, DIFFTEST (210) = 250.28, p =.02. Modification indices suggested that constraining responsibility item 3, threshold 5 (item 3r) between stem types was problematic ("people who are obese/fat understand how their behaviors contribute to their weight"); thus, that threshold was freely estimated between groups in the subsequent model (scalar B). Threshold 5 is the comparison between −3, −2, −1, 0, 1 vs. 2, 3 or participants' probability of selecting 2 ("moderately agree") or 3 ("strongly agree") over the lower values. When freely estimated, item 3r threshold 5 for the obese stem (.09) was lower than the fat stem (0.42), which means that participants required a higher level of the responsibility attribution trait to endorse more agreement on this item when given that fat stem, as compared to the obese stem. The scalar invariance model

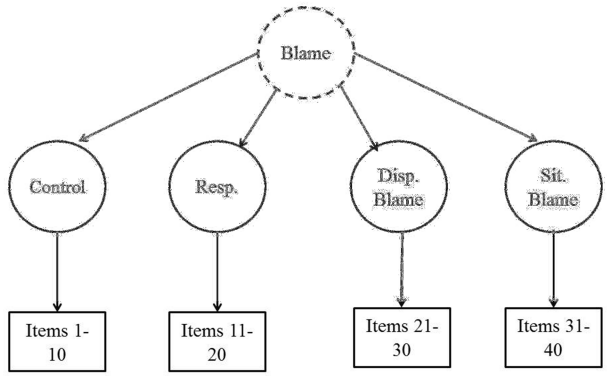
(scalar B) did not fit significantly worse than the metric invariance model, DIFFTEST (209) = 240.76, p =.07. As such, scalar invariance was achieved for all items except for the three non-metric items (items 6c, 8r and 7r) and 1 threshold (3r threshold 5).

Residual invariance ("strict" invariance) was tested against the final partial scalar invariance model (scalar B) by constraining the item residual variances, which tests whether the amount of item variance not related to the factor is equivalent across stem type. For this step, model estimation proceeds backwards so that a model was estimated with all the residual variances freely estimated for the fat stem, and compared to a model with all the residual variances fixed to 1. For identification, the residual variances for obese stem were fixed to 1 in both models and all other parameters were estimated as described in scalar invariance model B. The model was not able to converge, which is a common problem and some argue is not necessary for measurement invariance (because we do not really know what the factor is, so how do we know what the factor is not), so this step was skipped. The final lower-order model, therefore, has partial scalar invariance.

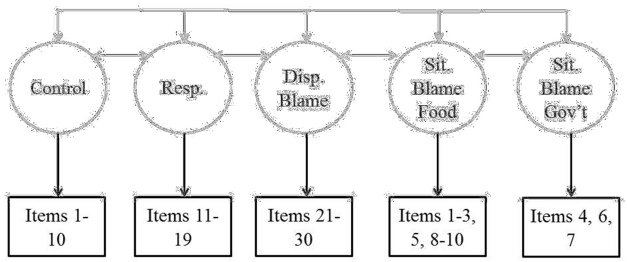
Structural invariance

Once partial measurement invariance was obtained, structural invariance was tested by examining invariance of the loadings for the five factors on their respective higher-order factor, factor loadings, five lower-order factor variances, the single higher-order factor variance, higher-order factor covariances, and lower-order and higher-order factor means to test for true group differences. First, the equivalence of the higher-order factor loadings were tested between stem types—whether the five lower order factors contributed similarly to the higher order Dispositional Blame and Situational Blame

factors. Factor loadings were held equivalent between the two stem types and fit was compared to the previous scalar B model. To identify the model, the first item in each lower-order factor was set to 1 as a marker item, with the rest freely estimated, and the higher-order factor variances were set to 1 in the obese stem but freely estimated in the fat stem. Initial rounds of this model, however, would not estimate because of a non-positive-definite solution resulting from the under-identified two-factor higher-order Situational Blame factor. As such, a 3-1-1 alternative factor structure was tested where Controllability, Responsibility, and Dispositional Blame remained as part of the higher-order blame factor, but the two Situational Blame factors were estimated as two separate factors for the remainder of the analysis (see



Hypothesized Higher Order Factor Structure



Five-factor Model

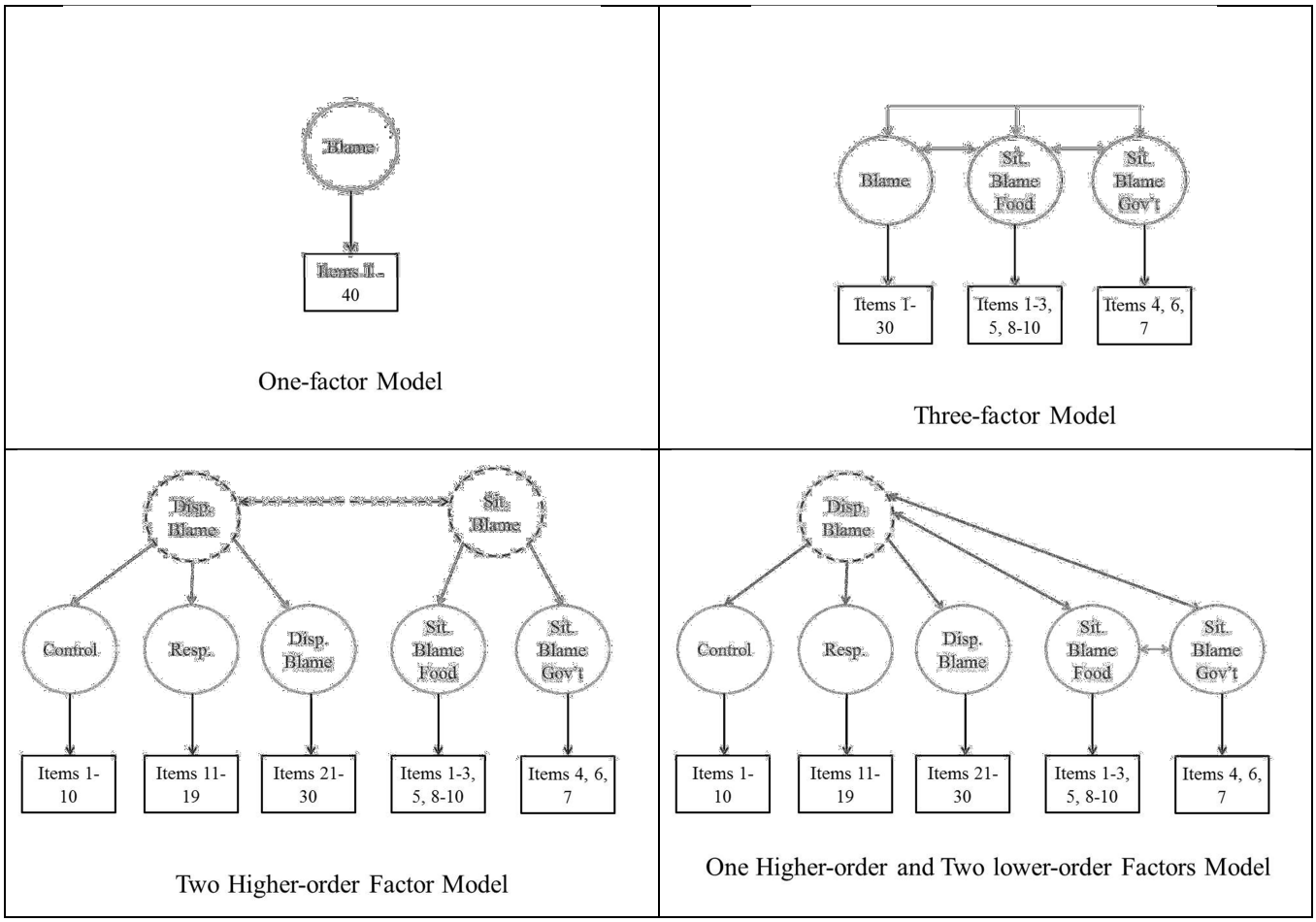


Figure 2). An alternative scalar model (scalar B2) was re-estimated using this factor structure for purposes of the DIFFTEST. The constrained higher-order factor loading model did not fit significantly worse than the scalar B2 model, DIFFTEST (2) = 3.92, p =.14, demonstrating that the three lower-order factors loaded equivalently onto the higher-order Blame factor across stem type.

To test the equivalence of the disturbances (lower-order factor variances), the factor variances for the fat stem, which had previously been estimated freely, was constrained to 1 similar to the factor variance for the obese stem. The DIFFTEST (3) = 1.39, p = .71 revealed that the model with the constrained factor variances did not fit significantly worse than the previous model tested (Higher-Order Factor Loadings model). Therefore, the obese stem and fat stem showed similar variability with respect to

the three disturbances. The higher-order factor variance for the Blame factor was tested by setting the Blame factor variance to 1 in the fat stem group. The DIFFTEST (1) = 0.10, p = .75 revealed that the model with the constrained factor variances did not fit significantly worse than the previous model tested (Factor Variance model). Therefore, the obese stem and fat stem showed similar variability with respects to the Blame higher-order factor. The invariance of the factor covariances (Higher-order Dispositional Blame, Situational Blame Food Industry and Situational Blame Government) was tested by constraining the factor covariances between each stem type. The DIFFTEST (3) = 2.91, p = .41 revealed that the model with the constrained factor covariances did not fit significantly worse than the previous model tested (Higher-order Factor Variance model).

In examining the factor intercepts for the five factors (from the last scalar B2 model where factor means were freely estimated), the only factor for which the fat stem was significantly different from 0 (the factor mean for the obese stem) was the Dispositional Blame factor (difference = −0.40, SE = 0.19, $p < .05$), indicating that the fat stem produced more agreement with dispositional blame than the obese stem. Although only marginally significant, the Responsibility factor (difference = −0.50, SE = 0.29, p = .08) and the Situational Blame Food Industry factor (difference = −0.16, SE = 0.09, p = .08) also suggested that the fat stem produced more agreement with Responsibility and Situational Blame toward the food industry, than the obese stem. There were no significant differences for the Controllability factor (difference = −0.40, SE = 0.19, p = .34), nor Situational Blame toward the Government (difference = −0.09, SE = 0.29, p = .35).

To examine whether the higher-order factor mean for the Blame factor explains intercept differences in the higher-order factor, a final model was estimated where all lower-order factor intercepts were set to 0 in both groups, the higher-order factor mean was set to 0 in the obese stem group, but was set to be freed in the fat stem group. The DIFFTEST (4) = 7.93, p = .09 revealed that the model with the constrained factor intercepts did not fit significantly worse than the previous model tested (Factor Covariance model). As such, mean differences between the Higher-order Blame factor were not significantly different (difference = −0.14, SE = 0.09, p = .10) demonstrating that item stems produced similar levels of agreement for blaming people who are "obese" and people who are "fat." See Table 17 for a complete presentation of the goodness of fit, DIFFTEST estimates, and parameters that were freed during the successive model comparisons.

Convergent and discriminant validity

Evidence of convergent validity is demonstrated by high correlations with similar measures, whereas discriminant validity is demonstrated by low correlations with dissimilar measures (Messick, 1989). For convergent and discriminant validity, therefore, interscale correlations were examined between the Obesity Blame Attribution Scale (OBAS) factors and other subscales hypothesized to be related to the OBAS. Because the invariance analysis demonstrated that the fat stem and obese stem had some differences, the interscale correlations were examined separately. At first, interscale correlations were analyzed in Mplus v. 6.12 (Muthén & Muthén, 1998-2010) with WLSMV estimation with a probit link and THETA parameterization; however, including all the scales at once was problematic because the program needed too many iterations to estimate. To reduce

the number of iterations, instead, two scales at a time were estimated. Although most interscale correlations could estimate using this process, Mplus was still unable to process all of the interscale correlations. To address this, factor scores for each scale were estimated separately and saved. Factor scores from all scales were merged to a single dataset and interscale correlations were analyzed in SPSS (see Table 18 in separate excel file). [7]

Contrary to the convergent and divergent validity hypothesis (see Table 1), the OBAS factors were not positively or negatively correlated with many of the other subscales and the pattern of correlations was different for each stem type. For the obese stem, Situational Blame toward the Food Industry was positively correlated to all four of the Belief about Justice for Self and Others Scale: Distributive Justice Beliefs for Others $r(301) = .19$, $p<.01$, Distributive Justice Beliefs for Self $r(301) = .18$, $p<.01$, Procedural Justice Beliefs for Others $r(301) = .16$, $p<.01$, and Procedural Justice Beliefs for Self $r(301) = .15$, $p<.01$. Situational blame toward the government was positively correlated to three of the Belief about Justice for Self and Others Scale: Distributive Justice Beliefs for Others $r(301) = .16$, $p<.01$, Distributive Justice Beliefs for Self $r(301) = .16$, $p<.01$, and Procedural Justice Beliefs for Others $r(301) = .12$, $p<.05$. The BJSOS measures beliefs in justice for self and others, with higher scores indicate stronger beliefs. Thus, the small positive correlation with the Situational Blame Food Industry and Government factors suggests there is a small relationship between situational blame attributions for obesity and beliefs in justice.

[7] In comparing the interscale correlations that were able to estimate in Mplus (estimates relationships directly across the factors) to the correlations estimated using factor scores, significance tests did not differ and parameter estimates appeared to be similar.

On the other hand, for the fat stem, both Situational Blame factors were related to two of the Anti-fat Attitudes Questionnaire subscales: a) Dislike, and b) Fear of Fat. Both Situational Blame factors had a small positive relationship with the Dislike subscale, suggesting that as dislike for fat people increases, the Situational Blame Food Industry $r(299) = .14$, $p<.05$ and Government increases $r(299) = .13$, $p<.05$. Both Situational Blame factors had a small negative relationship with the Fear of Fat subscale, suggesting that as self-relevant concerns about fatness increases, Situational Blame Food Industry $r(299) = -.12$, $p<.05$ and Government decreases $r(299) = -.15$, $p<.01$. In addition, with the fat stem the Obesity Stereotypes Positive subscale had a small positive relationship with the Situational Blame Food Industry factor $r(299) = .13$, $p<.05$; participants who endorsed positive traits toward people who are obese were more likely to blame the food industry for obesity.

Discussion Study 1

The aim of Study 1 was to validly and reliably measure blame attributions and constructs hypothesized to be required for blame attributions, in preparation for predicting blame attributions and support for obesity-targeted policies in Study 2. As previous work on blame theoretical models have proposed, blame is a complex construct (Alicke, 2000; Shaver 1985), but few studies have empirically examined the separate constructs theorized as necessary prerequisites to blame (Mantler et al., 2003). Furthermore, many studies use the constructs interchangeably (e.g., Crandall, 1994; Weiner, 1994; see Malle, Guglielmo, & Monroe, 2014), contrary to blame theories noting their difference (Malle, et al., 2014; Shaver, 1985; 1996).

Shaver (1985/1996) notes that the differences between causality (which has also been termed controllability or controllable causality) and responsibility are traced back to their origins in philosophy. Whereas controllability emerges from epistemology (i.e., the theory of discovering the meaning of knowledge) with the central task of understanding an event, responsibility emerges from moral philosophy (i.e., ethics or systemizing concepts around right and wrong behavior) with the central task of "answerability for conduct" (Shaver, 1996, p. 245). In other words, as Shaver identifies, causality asks "how" or "what" and responsibility shifts the focus to ask "whom." Most agree that causality is a necessary prerequisite for responsibility (Weiner, 1994, Shaver, 1996). Blame, as Shaver (1996) further explains, extends beyond responsibility to incorporate whether the target has an excuse or justification for the wrong behavior; and whereas responsibility is a cognitive decision, blame is an affective decision. Although using terms interchangeably has created quite a kerfuffle for operationalizing variables in research, it could be argued that laypeople, such as these research participants, are not able to distinguish these terms in practice. As such, arguments over the semantics of controllability, responsibility and blame may be interesting within the ivory tower, but may be less relevant for everyday attributions made by the "naïve psychologists" expressed by Heider.

To address this lack of measurement and to examine whether participants perceived them as separable constructs within the context of blaming people who are obese, a 40-item Obesity Blame Attribution Scale (OBAS) was created. The OBAS included four factors (i.e., controllability, responsibility, dispositional blame, and situational blame each consisting of 10 items), for which the factor structure was

empirically tested with latent trait procedures. Because blame attributions may differ according to the language used (Puhl, Peterson, & Luedicke, 2006), participants were randomly assigned to either complete the scale that included the language "People who are obese…" or the language "People who are fat…." To measure validity, the OBAS obese stem and OBAS fat stem were correlated with several additional scales hypothesized to be positively, negatively or not at all related to the OBAS.

The findings revealed mixed support for the hypothesized factor structure. Contrary to the hypothesis of a single higher order factor structure, the final scale included 39 items that measured five factors, which composed of two uncorrelated higher-order blame factors. The OBAS Dispositional Blame higher-order factor included Controllability, Responsibility, and Dispositional Blame. The OBAS Situational Blame factor included Food Industry Situational Blame and a Government Policy Situational Blame. As hypothesized and consistent with attribution theories and blame theories, Controllability, Responsibility and Dispositional Blame were separate but related constructs that composed a higher-order Dispositional Blame factor, which essentially means that there is a common trait that accounts for the covariance amongst these three factors. We know that they are separate constructs, because the single factor model (where all 40 items loaded onto a single "blame" factor) fit worse than the five-factor model. The three factors that made up the higher-order Dispositional Blame factor were highly correlated (ranging from .84 to .94 in both the fat and obese stem) suggesting that from a practical perspective, people may have a hard time distinguishing between the constructs even if they are theoretically distinguishable—at least within this context.

I hypothesized that the Dispositional Blame and Situational Blame factors were negatively correlated, but part of the same high-order factor, based on Hedier's (1958) Hydraulic Function—the more one attributes to dispositional factors, the less one will attribute to situational factors. Instead, the results suggested that the two higher-order blame factors were not related. One reason there may not have been support for the Hydraulic Function is that the OBAS measured dispositional and situational blame separately instead of using single items in which response options were measured on an internal-external or dispositional-situational continuum. Although most work on attribution theory has operated under the assumption that the cause of behavior fits within one of these two classifications, however, studies that have measured attributions with internal-external or dispositional-situational response options have also not found support for the Hydraulic Function (e.g., Johnson, et al., 2002). Future research should continue to refine items and investigate additional contexts to test whether the Hydraulic Function is a meaningful part of Attribution Theory.

Another issue is that situational blame may not have been measured well with this scale. According to the means for each item, as well as the distribution of factor scores, the items appear to have a floor effect and did not measure higher levels of situational blame. This could be due to poor item development (i.e., not creating items that adequately capture the trait). Another possibility, however, may be that people do not endorse high levels of blaming the food industry and government policies for obesity. The latter point is consistent with research that has identified that people have strong dispositional attributions for obesity (e.g., Brownell et al., 2010; Holub et al., 2011; Puhl & Heuer, 2010; Weiner, 1993) and the Culpable Control model that states people tend to

hold agents blameworthy over environmental factors (Alicke, 2000). In other words, perhaps the scale was unable to capture the trait because the trait does not exist (or does not exist in this sample). Yet another limitation may be that the Situational Blame factor was split into two factors (food industry and governmental policy) and therefore did not measure general situational blame, but rather specific blame toward these agencies. Future research should examine whether there are differences in blame by agency type or if blame toward all "food environment" agencies is similar; and if there is some way to measure situational blame toward environmental factors generally without pointing to specific agencies.

Research has found that weight-based language can either be stigmatizing or motivating. For instance, in 2010 the British Public Health Minister urged health-care providers to use the term "fat" instead of "obese" because it would be more motivating for patients to lose weight because of the negative emotional reaction to being called "fat" versus "obese" (Martin, 2010). To test whether there were practical differences based on the language used in the scale, participants either responded to the OBAS with either the term fat or obese. The results of the invariance analysis revealed that the measurement model and structural model for the OBAS obese stem and OBAS fat stem were mostly similar. The measurement model only demonstrated non-invariance on three items (one from the Controllability factor and two from the Responsibility factor) and one threshold. All three items were more related to the factor with the obese stem than the fat stem. This pattern may suggest that participants perceived these items as being more relevant to Controllability and Responsibility for people who are "obese" than people who are "fat." For the most part, the factor structure between the two stems was

similar. The only difference was that the fat stem produced more agreement with Dispositional Blame than the obese stem as indicated by a significant difference between the factor means (difference = −0.40, SE = 0.19, $p < .05$). This supports previous research that finds both terms may be equally blaming and stigmatizing. Although not within the context of trait measurement, a previous study in the context of language used by health-providers demonstrated that participants viewed "obese" and "fat" as similarly stigmatizing, undesirable, and blaming when compared to eight additional terms including "chubby," "heavy," "overweight," "high BMI," "weight," "morbidly obese," "unhealthy weight," and "weight problem" (Puhl & Peterson, 2006). Only "morbidly obese" was perceived as more blaming than "fat" or "obese." The authors noted that despite the range of responses, mean ratings for all terms were relatively high for blaming and stigmatizing and no term was perceived as void of blame and stigma (all means were greater than 2 on a 1 to 5 scale). Future research may include these other terms to test whether blame attributions shift based on language used.

With respect to the validity comparisons with other scales thought to be related to the OBAS, most of the hypotheses were not supported. Intra-scale correlations demonstrated that the OBAS fat stem and obese stem were correlated with very few scales, and that the stem type contributed to different correlations. The OBAS obese stem Situational Blame factors (food industry and government policy) were positively correlated with almost all of the Belief about Justice for Self and Others Scales (BJSOS; Lucas et al., 2011). According to Lerner's Just World Theory (1980), people strive to believe the world is just and fair, which helps produce feelings of control. Although beliefs in a just world are often associated with feelings of enhanced well-being (Dalbert,

2001), people with high just world beliefs may also have harsh social attitudes toward disadvantaged individuals (Crandal, 1994; Hafer & Begue, 2005), such as those with stigmatizing illnesses like AIDS (Connors & Heaven, 1990). When people have the inability to resolve an injustice through prosocial means, they are more likely to blame the target for the injustice to preserve the belief in the just world (Hafer & Begue, 2005).

In this case, participants with higher just world beliefs on the BJSOS were more likely to blame the food industry and governmental policies, but were not more likely to blame the person who is obese—as I hypothesized and as would be expected by previous research. One explanation may stem from the notion that negative attitudes, such as blame, emerge when people cannot remedy the situation positively. In the case of the food industry and government policies—two agencies presumably outside the control of most people—participants may not see a positive remedy and blame the agencies to preserve their beliefs in a just world. Alternatively, blaming the government could be perceived as the positive remedy in and of itself. Although the Situational Blame OBAS factors were correlated with the BJSOS, they were not correlated with the Global Beliefs in a Just World Scale (GBJWS), which also measures just world beliefs. In examining each scale, the biggest difference between the BJSOS and GBJWS is that the BJSOS measures both beliefs about others and the self, and the GBJWS only measures just world beliefs about the self. Closely examining the correlations for the BJSOS, the Situational Blame OBAS was more positively related to the other-based scales than the self-based scales. Because the Situational Blame OBAS factors measure external attributions of blame, it may be that just world beliefs toward others is more relevant than just world beliefs for the self.

One surprising finding was that the OBAS fat stem Situational Blame factors were correlated with different subscales than the OBAS obese stem. Contrary to the hypotheses, Antifat Attitudes Dislike scale was positively correlated to the Situational Blame factors and the Antifat Attitudes Fear of Fat scale was negatively correlated to the Situational Blame factors. The hypothesized expectation was that scales that measured negative traits toward people who are obese would not be related to Situational Blame. The Situational Blame food industry factor was also positively correlated with the Obesity Stereotype Scale-Positive. As such, people who ascribe positive associations with people who are obese are more likely to blame the food industry for the rise in obesity. This finding is congruent with Heider's Hydraulic Function (1958). If a person who is obese is perceived positively with words such as "brave" or "strong sense of morality," then perhaps they are perceived as less responsible for their weight and the food industry is instead perceived as more responsible.

The OBAS Controllability, Responsibility and Dispositional Blame factors were not correlated with any other scales. Many of the scales measured negative attitudes toward people who are obese (i.e., social distance, negative stereotypes, anti-fat attitudes). This suggests that blaming people who are obese may not be related to negative attitudes about obesity, but rather are more related to blame factors related to causal controllability and responsibility. This is incongruent with Crandall's (1994) position that holding anti-fat attitudes may contribute to chronically attributing causal controllability and blame to people who are obese for their weight. One explanation for the findings that Dispositional Blame attributions were not related to any measures of negative attitudes may be due to the prevalence of obesity and research that has found

that attitudes are more punitive for global attributions than specific attributions (Brank, Hayes, & Weisz, 2006; Johnson, et al., 2002). Prevalence rates of obesity would suggest that participants may have intimate knowledge about a close family member/friend who is obese. Intimately knowing someone who is obese may mean that participants are thinking about things such as mitigating information about that person's lifestyle. When answering the OBAS, therefore, participants may have made specific attributions with this exemplar in mind, instead of making global attributions as was hypothesized to be measured with the OBAS. One of the goals for Study 2, therefore, is to more closely examine the OBAS and its predictive ability for specific versus global blame attributions, as well as its utility in predicting support for obesity-targeted law and policy. Furthermore, Study 2 sought to examine whether negative perceptions of people who are obese are related to specific attributions of blame toward a target because they were not related to general attributions measured with the OBAS.

Table 1. Hypothesized and actual validity for scales and the OBAS obese stem items

	Obesity Blame Attribution Scale									
Scale	Control		Resp.		Disp. Blame		Sit. Blame Food		Sit. Blame Gov't	
	Hyp.	Act.	Hyp.	Act.	Hyp.	Act.	Hyp.	Act.	Hyp.	Act.
COS: Internal	+	0	+	0	+	0	−	0	−	0
BJSOS: Dis Other	+	0	+	0	+	0	−	+	−	+
BJSOS: Proc Other	+	0	+	0	+	0	−	+	−	+
BJSOS: Dis Self	+	0	+	0	+	0	−	+	−	+
BJSOS: Proc Self	+	0	+	0	+	0	−	+	−	0
GBJW	+	0	+	0	+	0	−	0	−	0
AFA: Willpower	+	0	+	0	+	0	−	0	−	0
OSS: Negative	+	0	+	0	+	0	**0**	**0**	**0**	**0**
AFA: Dislike	+	0	+	0	+	0	**0**	**0**	**0**	**0**
SDS	**0**	**0**	**0**	**0**	+	0	**0**	**0**	**0**	**0**
AFA: Fear of Fat	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
COS: Physical subscale	−	0	−	0	−	0	0	0	0	0
COS: Social	−	0	−	0	−	0	+	0	+	0
OSS: Positive	−	0	−	0	−	0	+	0	+	0

Note. + indicates positively correlated; − indicates negative correlation; 0 equals divergent validity or null relationship. Bold cells display where the hypothesized relationship matched the actual relationship. Hyp = hypothesized; Act.=Actual

Hypothesized and actual validity for scales and the OBAS fat stem items

	Obesity Blame Attribution Scale									
Scale	Control		Resp.		Disp. Blame		Sit. Blame Food		Sit. Blame Gov't	
	Hyp.	Act.	Hyp.	Act.	Hyp.	Act.	Hyp.	Act.	Hyp.	Act.
COS: Internal	+	0	+	0	+	0	−	0	−	0
BJSOS: Dis Other	+	0	+	0	+	0	−	0	−	0
BJSOS: Proc Other	+	0	+	0	+	0	−	0	−	0
BJSOS: Dis Self	+	0	+	0	+	0	−	0	−	0
BJSOS: Proc Self	+	0	+	0	+	0	−	0	−	0
GBJW	+	0	+	0	+	0	−	0	−	0
AFA: Willpower	+	0	+	0	+	0	−	0	−	0
OSS: Negative	+	0	+	0	+	0	**0**	**0**	**0**	**0**
AFA: Dislike	+	0	+	0	+	0	+	+	+	+
SDS	**0**	**0**	**0**	**0**	+	0	0	−	0	−
AFA: Fear of Fat	**0**	**0**	**0**	**0**	**0**	**0**	0	−	0	−
COS: Physical subscale	−	0	−	0	−	0	**0**	**0**	**0**	**0**
COS: Social	−	0	−	0	−	0	+	0	+	0
OSS: Positive	−	0	−	0	−	0	+	+	+	0

Note. + indicates positively correlated; − indicates negative correlation; 0 equals divergent validity or null relationship. Bold cells display where the hypothesized relationship matched the actual relationship. Hyp. = Hypotheszied, Act. = Actual

Table 2. Item Descriptives for OBAS Controllability Factor by Item Language ("Obese" and "Fat")

		N	*M*	*SD*	Min	Max	Corrected Item Total Correlation	Cronbach's α if Deleted
Item 1c	Obese	302	−0.52	1.47	−3.00	3.00	.37	.93
	Fat	299	−0.52	1.61	−3.00	3.00	.38	.93
Item 2c	Obese	302	1.85	1.07	−3.00	3.00	.74	.92
	Fat	299	1.71	1.15	−3.00	3.00	.80	.91
Item 3c	Obese	302	1.71	1.13	−3.00	3.00	.81	.91
	Fat	299	1.59	1.18	−3.00	3.00	.84	.91
Item 4c	Obese	302	1.46	1.39	−3.00	3.00	.72	.92
	Fat	299	1.33	1.39	−3.00	3.00	.70	.92
Item 5c	Obese	302	1.58	1.30	−3.00	3.00	.77	.91
	Fat	299	1.54	1.26	−3.00	3.00	.77	.91
Item 6c	Obese	302	1.19	1.46	−3.00	3.00	.65	.92
	Fat	299	1.17	1.50	−3.00	3.00	.58	.93
Item 7c	Obese	302	1.33	1.43	−3.00	3.00	.79	.91
	Fat	299	1.28	1.35	−3.00	3.00	.75	.92
Item 8c	Obese	302	0.96	1.66	−3.00	3.00	.78	.91
	Fat	299	0.83	1.56	−3.00	3.00	.78	.91
Item 9c	Obese	302	0.95	1.52	−3.00	3.00	.74	.91
	Fat	299	0.92	1.53	−3.00	3.00	.84	.91
Item 10c	Obese	302	1.27	1.35	−3.00	3.00	.82	.91
	Fat	299	1.14	1.40	−3.00	3.00	.84	.91

Note. Obese α = .92; Fat α = .92

Table 3. Item Descriptives for OBAS Responsibility Factor by Item Language ("Obese" and "Fat")

		N	*M*	*SD*	Min	Max	Corrected Item Total Correlation	Cronbach's α if Deleted
Item 1r	Obese	302	1.48	1.36	−3.00	3.00	.70	.76
	Fat	299	1.20	1.32	−3.00	3.00	.63	.75
Item 2r	Obese	302	1.59	1.22	−2.00	3.00	.76	.76
	Fat	299	1.35	1.20	−3.00	3.00	.76	.74
Item 3r	Obese	302	1.10	1.41	−3.00	3.00	.24	.82
	Fat	299	0.76	1.45	−3.00	3.00	.26	.80
Item 4r	Obese	302	1.42	1.30	−3.00	3.00	.74	.76
	Fat	299	1.30	1.24	−3.00	3.00	.72	.75
Item 5r	Obese	302	1.55	1.24	−3.00	3.00	.22	.81
	Fat	299	1.40	1.27	−3.00	3.00	.24	.80
Item 6r	Obese	302	0.55	1.64	−3.00	3.00	.52	.78
	Fat	299	0.47	1.66	−3.00	3.00	.55	.76
Item 7r	Obese	302	1.58	1.18	−3.00	3.00	.73	.77
	Fat	299	1.47	1.20	−3.00	3.00	.66	.75
Item 8r	Obese	302	0.77	1.65	−3.00	3.00	.42	.80
	Fat	299	0.46	1.57	−3.00	3.00	.32	.79
Item 9r	Obese	302	1.36	1.44	−3.00	3.00	.64	.77
	Fat	299	1.40	1.39	−3.00	3.00	.56	.76
Item 10r	Obese	302	−.01	1.53	−3.00	3.00	.07	.84
	Fat	299	0.11	1.53	−3.00	3.00	.13	.82

Note. Obese α = .81; Fat α = .79

Table 4. Item Descriptives for OBAS Dispositional Blame Factor by Item Language ("Obese" and "Fat")

		N	*M*	*SD*	Min	Max	Corrected Item Total Correlation	Cronbach's α if Deleted
Item 1db	Obese	302	0.92	1.50	−3.00	3.00	.36	.88
	Fat	299	0.79	1.53	−3.00	3.00	.23	.89
Item 2db	Obese	302	0.75	1.61	−2.00	3.00	.74	.78
	Fat	299	0.56	1.59	−3.00	3.00	.70	.80
Item 3db	Obese	302	0.75	1.66	−3.00	3.00	.72	.78
	Fat	299	0.41	1.64	−3.00	3.00	.72	.80
Item 4db	Obese	302	1.57	1.24	−3.00	3.00	.45	.81
	Fat	299	1.54	1.30	−3.00	3.00	.44	.82
Item 5db	Obese	302	−0.20	1.70	−3.00	3.00	.55	.80
	Fat	299	−0.50	1.66	−3.00	3.00	.67	.80
Item 6db	Obese	302	−0.48	1.80	−3.00	3.00	.62	.79
	Fat	299	−0.74	1.81	−3.00	3.00	.65	.80
Item 7db	Obese	302	−0.74	1.70	−3.00	3.00	.61	.79
	Fat	299	−0.85	1.65	−3.00	3.00	.69	.80
Item 8db	Obese	302	−0.68	1.68	−3.00	3.00	.66	.79
	Fat	299	−0.97	1.60	−3.00	3.00	.74	.80
Item 9db	Obese	302	−1.11	1.69	−3.00	3.00	.56	.80
	Fat	299	−1.33	1.60	−3.00	3.00	.56	.81
Item 10db	Obese	302	−1.50	1.63	−3.00	3.00	.57	.80
	Fat	299	−1.61	1.61	−3.00	3.00	.53	.82

Note. Obese α = .88; Fat α = .89

Table 5. Item Descriptives for OBAS Situational Blame Factor by Item Language ("Obese" and "Fat")

		N	*M*	*SD*	Min	Max	Corrected Item Total Correlation	Cronbach's α if Deleted
Item 1sb	Obese	302	0.67	2.01	−3.00	3.00	.70	.94
	Fat	299	0.48	2.16	−3.00	3.00	.67	.95
Item 2sb	Obese	302	−0.41	1.91	−2.00	3.00	.84	.94
	Fat	299	−0.54	1.98	−3.00	3.00	.85	.94
Item 3sb	Obese	302	−0.28	1.93	−3.00	3.00	.79	.94
	Fat	299	−0.60	2.00	−3.00	3.00	.86	.94
Item 4sb	Obese	302	−0.61	1.90	−3.00	3.00	.73	.94
	Fat	299	−0.70	1.96	−3.00	3.00	.79	.94
Item 5sb	Obese	302	0.18	1.87	−3.00	3.00	.81	.94
	Fat	299	−0.18	1.99	−3.00	3.00	.82	.94
Item 6sb	Obese	302	−0.67	1.90	−3.00	3.00	.72	.94
	Fat	299	−0.89	1.94	−3.00	3.00	.75	.94
Item 7sb	Obese	302	0.01	2.09	−3.00	3.00	.80	.94
	Fat	299	−0.11	2.01	−3.00	3.00	.71	.95
Item 8sb	Obese	302	−1.06	1.91	−3.00	3.00	.80	.94
	Fat	299	−1.17	1.89	−3.00	3.00	.77	.94
Item 9sb	Obese	301	0.19	1.99	−3.00	3.00	.80	.94
	Fat	299	−0.13	2.15	−3.00	3.00	.81	.94
Item 10sb	Obese	302	−1.03	1.85	−3.00	3.00	.81	.94
	Fat	299	−1.27	1.89	−3.00	3.00	.81	.94

Note. Obese α = .95; Fat α = .95

Table 6. Inter-item correlations for Controllability ("obesity")

	Item 1c	Item 2c	Item 3c	Item 4c	Item 5c	Item 6c	Item 7c	Item 8c	Item 9c	Item 10c
Item 1c	1.00	0.28	0.30	0.27	0.32	0.26	0.32	0.31	0.28	0.40
Item 2c	0.28	1.00	0.72	0.58	0.73	0.50	0.61	0.60	0.57	0.64
Item 3c	0.30	0.72	1.00	0.60	0.71	0.60	0.69	0.68	0.64	0.72
Item 4c	0.27	0.58	0.60	1.00	0.67	0.45	0.58	0.67	0.57	0.67
Item 5c	0.32	0.73	0.71	0.67	1.00	0.46	0.60	0.68	0.57	0.69
Item 6c	0.26	0.50	0.60	0.45	0.46	1.00	0.71	0.52	0.56	0.58
Item 7c	0.32	0.61	0.69	0.58	0.60	0.71	1.00	0.62	0.66	0.70
Item 8c	0.31	0.60	0.68	0.67	0.68	0.52	0.62	1.00	0.66	0.68
Item 9c	0.28	0.57	0.64	0.57	0.57	0.56	0.66	0.66	1.00	0.63
Item 10c	0.40	0.64	0.72	0.67	0.69	0.58	0.70	0.68	0.63	1.00

Table 7. Inter-item correlations for Responsibility ("obesity")

	Item 1c	Item 2c	Item 3c	Item 4c	Item 5c	Item 6c	Item 7c	Item 8c	Item 9c	Item 10c
Item 1c	1.00	0.31	0.35	0.16	0.29	0.34	0.36	0.26	0.33	0.37
Item 2c	0.31	1.00	0.78	0.61	0.67	0.52	0.68	0.64	0.60	0.75
Item 3c	0.35	0.78	1.00	0.67	0.70	0.52	0.71	0.68	0.69	0.77
Item 4c	0.16	0.61	0.67	1.00	0.65	0.42	0.60	0.63	0.60	0.62
Item 5c	0.29	0.67	0.70	0.65	1.00	0.41	0.64	0.67	0.67	0.66
Item 6c	0.34	0.52	0.52	0.42	0.41	1.00	0.52	0.40	0.52	0.49
Item 7c	0.36	0.68	0.71	0.60	0.64	0.52	1.00	0.63	0.62	0.73
Item 8c	0.26	0.64	0.68	0.63	0.67	0.40	0.63	1.00	0.65	0.69
Item 9c	0.33	0.60	0.69	0.60	0.67	0.52	0.62	0.65	1.00	0.72
Item 10c	0.37	0.75	0.77	0.62	0.66	0.49	0.73	0.69	0.72	1.00

Table 8. Inter-item correlations for Dispositional Blame ("obesity")

	Item 1r	Item 2r	Item 3r	Item 4r	Item 5r	Item 6r	Item 7r	Item 8r	Item 9r	Item 10r
Item 1r	1.00	0.73	0.12	0.64	0.16	0.48	0.64	0.36	0.63	0.08
Item 2r	0.73	1.00	0.14	0.70	0.14	0.52	0.71	0.34	0.71	0.11
Item 3r	0.12	0.14	1.00	0.13	0.53	0.10	0.12	0.22	0.04	0.01
Item 4r	0.64	0.70	0.13	1.00	0.17	0.60	0.77	0.35	0.60	0.07
Item 5r	0.16	0.14	0.53	0.17	1.00	0.05	0.11	0.19	0.03	-0.05
Item 6r	0.48	0.52	0.10	0.60	0.05	1.00	0.61	0.18	0.44	0.01
Item 7r	0.64	0.71	0.12	0.77	0.11	0.61	1.00	0.31	0.66	0.00
Item 8r	0.36	0.34	0.22	0.35	0.19	0.18	0.31	1.00	0.37	0.10
Item 9r	0.63	0.71	0.04	0.60	0.03	0.44	0.66	0.37	1.00	0.06
Item 10r	0.08	0.11	0.01	0.07	-0.05	0.01	0.00	0.10	0.06	1.00

Table 9. Inter-item correlations for Situational Blame ("obesity")

	Item 1r	Item 2r	Item 3r	Item 4r	Item 5r	Item 6r	Item 7r	Item 8r	Item 9r	Item 10r
Item 1r	1.00	0.67	0.10	0.57	0.10	0.46	0.52	0.29	0.57	0.13
Item 2r	0.67	1.00	0.19	0.75	0.09	0.56	0.64	0.28	0.62	0.21
Item 3r	0.10	0.19	1.00	0.16	0.54	0.16	0.14	0.15	0.06	0.02
Item 4r	0.57	0.75	0.16	1.00	0.17	0.58	0.67	0.24	0.56	0.13
Item 5r	0.10	0.09	0.54	0.17	1.00	0.14	0.15	0.13	-0.01	0.02
Item 6r	0.46	0.56	0.16	0.58	0.14	1.00	0.54	0.23	0.42	-0.02
Item 7r	0.52	0.64	0.14	0.67	0.15	0.54	1.00	0.22	0.55	0.13
Item 8r	0.29	0.28	0.15	0.24	0.13	0.23	0.22	1.00	0.19	0.08
Item 9r	0.57	0.62	0.06	0.56	-0.01	0.42	0.55	0.19	1.00	0.12
Item 10r	0.13	0.21	0.02	0.13	0.02	-0.02	0.13	0.08	0.12	1.00

Table 10. Inter-item correlations for Controllability for “fat”

	Item 1db	Item 2db	Item 3db	Item 4db	Item 5db	Item 6db	Item 7db	Item 8db	Item 9db	Item 10db
Item 1db	1.00	0.41	0.36	0.30	0.29	0.36	0.24	0.16	0.16	0.28
Item 2db	0.32	1.00	0.80	0.53	0.49	0.58	0.50	0.51	0.43	0.46
Item 3db	0.35	0.80	1.00	0.53	0.50	0.56	0.47	0.50	0.43	0.43
Item 4db	0.29	0.53	0.53	1.00	0.34	0.38	0.26	0.33	0.21	0.23
Item 5db	0.29	0.49	0.50	0.34	1.00	0.50	0.30	0.37	0.35	0.46
Item 6db	0.37	0.58	0.56	0.38	0.50	1.00	0.37	0.38	0.38	0.60
Item 7db	0.13	0.50	0.47	0.26	0.30	0.37	1.00	0.67	0.51	0.36
Item 8db	0.14	0.51	0.50	0.33	0.37	0.38	0.67	1.00	0.52	0.43
Item 9db	0.18	0.43	0.43	0.21	0.35	0.38	0.51	0.52	1.00	0.41
Item 10db	0.28	0.46	0.43	0.23	0.46	0.60	0.36	0.43	0.41	1.00

Table 11. Inter-item correlations for Responsibility ("fat")

	Item 1db	Item 2db	Item 3db	Item 4db	Item 5db	Item 6db	Item 7db	Item 8db	Item 9db	Item 10db
Item 1db	1.00	0.41	0.36	0.30	0.29	0.36	0.24	0.16	0.16	0.28
Item 2db	0.41	1.00	0.81	0.46	0.61	0.52	0.52	0.53	0.36	0.41
Item 3db	0.36	0.81	1.00	0.48	0.60	0.53	0.52	0.60	0.40	0.39
Item 4db	0.30	0.46	0.48	1.00	0.40	0.38	0.34	0.37	0.18	0.20
Item 5db	0.29	0.61	0.60	0.40	1.00	0.52	0.52	0.54	0.39	0.44
Item 6db	0.36	0.52	0.53	0.38	0.52	1.00	0.50	0.50	0.41	0.62
Item 7db	0.24	0.52	0.52	0.34	0.52	0.50	1.00	0.69	0.57	0.41
Item 8db	0.16	0.53	0.60	0.37	0.54	0.50	0.69	1.00	0.59	0.40
Item 9db	0.16	0.36	0.40	0.18	0.39	0.41	0.57	0.59	1.00	0.38
Item 10db	0.28	0.41	0.39	0.20	0.44	0.62	0.41	0.40	0.38	1.00

Table 12. Inter-item correlations for Dispositional Blame ("fat")

	Item 1sb	Item 2sb	Item 3sb	Item 4sb	Item 5sb	Item 6sb	Item 7sb	Item 8sb	Item 9sb	Item 10sb
Item 1sb	1.00	0.62	0.63	0.50	0.66	0.45	0.53	0.54	0.74	0.57
Item 2sb	0.62	1.00	0.84	0.56	0.77	0.57	0.55	0.74	0.73	0.78
Item 3sb	0.63	0.84	1.00	0.53	0.74	0.51	0.52	0.70	0.67	0.72
Item 4sb	0.50	0.56	0.53	1.00	0.58	0.78	0.75	0.57	0.58	0.58
Item 5sb	0.66	0.77	0.74	0.58	1.00	0.55	0.60	0.66	0.74	0.67
Item 6sb	0.45	0.57	0.51	0.78	0.55	1.00	0.72	0.62	0.52	0.61
Item 7sb	0.53	0.55	0.52	0.75	0.60	0.72	1.00	0.58	0.57	0.53
Item 8sb	0.54	0.74	0.70	0.57	0.66	0.62	0.58	1.00	0.66	0.83
Item 9sb	0.74	0.73	0.67	0.58	0.74	0.52	0.57	0.66	1.00	0.65
Item 10sb	0.57	0.78	0.72	0.58	0.67	0.61	0.53	0.83	0.65	1.00

Table 13. Inter-item correlations for Situational Blame ("fat")

	Item 1sb	Item 2sb	Item 3sb	Item 4sb	Item 5sb	Item 6sb	Item 7sb	Item 8sb	Item 9sb	Item 10sb
Item 1sb	1.00	0.61	0.64	0.48	0.67	0.43	0.49	0.51	0.71	0.52
Item 2sb	0.61	1.00	0.85	0.67	0.82	0.59	0.54	0.70	0.76	0.73
Item 3sb	0.64	0.85	1.00	0.69	0.81	0.60	0.57	0.71	0.76	0.74
Item 4sb	0.48	0.67	0.69	1.00	0.62	0.78	0.76	0.64	0.61	0.67
Item 5sb	0.67	0.82	0.81	0.62	1.00	0.57	0.54	0.62	0.77	0.66
Item 6sb	0.43	0.59	0.60	0.78	0.57	1.00	0.75	0.66	0.57	0.72
Item 7sb	0.49	0.54	0.57	0.76	0.54	0.75	1.00	0.52	0.59	0.57
Item 8sb	0.51	0.70	0.71	0.64	0.62	0.66	0.52	1.00	0.61	0.79
Item 9sb	0.71	0.76	0.76	0.61	0.77	0.57	0.59	0.61	1.00	0.64
Item 10sb	0.52	0.73	0.74	0.67	0.66	0.72	0.57	0.79	0.64	1.00

Table 14. Model Fit Statistics for each factor by stem type

Model	# items	# est. parameters	Chi-Square Value	Chi-Square DF	Chi-Square p-value	CFI	RMSEA Estimate	RMSEA Lower CI	RMSEA Higher CI	RMSEA p-value
"Obese" stem										
Control.	10	70	203.03	35	.001	.98	.13	.11	.14	.001
Resp.	9	63	125.34	26	.001	.99	.11	.09	.13	.001
Disp. Blame	10	72	221.61	33	.001	.96	.14	.12	.16	.001
Sit. Blame	10	72	231.84	33	.001	.98	.14	.12	.16	.001
"Fat" stem										
Control.	10	70	137.58	35	.001	.99	.10	.08	.12	.001
Resp.	10	63	79.73	26	.001	.99	.08	.06	.10	.001
Disp. Blame	10	72	271.85	33	.001	.95	.16	.14	.17	.001
Sit. Blame	10	72	251.18	33	.001	.98	.15	.13	.17	.001

Table 15. Structural model fit Statistics for each factor by stem type

Model	# items	# est. parameters	Chi-Square Value	Chi-Square DF	Chi-Square p-value	CFI	RMSEA Estimate	RMSEA Lower CI	RMSEA Higher CI	RMSEA p-value
"Obese" stem										
5 factor	39	286	1151.92	688	.001	.97	.06	.06	.07	.001
1 factor	39	272	8749.33	702	.001	.70	.20	.19	.20	.001
3 factor	39	275	2088.35	699	.001	.95	.08	.08	.09	.001
Higher-order 2 Factor	39	282	1421.52	693	.001	.96	.06	.06	.06	.001
"Fat" stem										
5 factor	39	286	1441.29	688	.001	.97	.06	.06	.07	.001
1 factor	39	272	8131.63	702	.001	.72	.19	.18	.19	.001
3 factor	39	275	1853.26	699	.001	.96	.07	.07	.08	.001
Higher-order 2 Factor	39	282	1387.29	693	.001	.97	.06	.05	.06	.001

Table 16. Factor correlations by stem type for five-factor model

	Controllability	Responsibility	Disp. Blame	Sit. Blame Food	Sit. Blame Govern.
Controllability	1.00	.94**	.87**	.01	.05
Responsibility	.94**	1.00	.84**	−.05	−.01
Disp. Blame	.86**	.86**	1.00	−.07	−.05
Sit. Blame Food	−.07	−.11*	−.09	1.00	.78**
Sit. Blame Govern.	−.04	−.06	−.01	.85**	1.00

Note. Above the diagonal is "obese" stem and below the diagonal is "fat" stem; ** $p<.001$

Predicted factor correlations by stem type for two-factor higher-order model

	Controllability	Responsibility	Disp. Blame	Sit. Blame Food	Sit. Blame Govern.
Controllability	1.00	.94	.87	−.02	−.02
Responsibility	.97	1.00	.84	−.02	−.02
Disp. Blame	.91	.91	1.00	−.02	−.02
Sit. Blame Food	−.07	−.09	−.10	1.00	.78
Sit. Blame Govern.	−.06	−.08	−.07	.89	1.00

Note. Above the diagonal is "obese" stem and below the diagonal is "fat" stem; significance tests are not available in predicted factor correlations

Table 17. Measurement invariance model fit statistics for obese and fat stem groups

		Overall Fit Indices						DIFFTEST			
	Invariance Test	χ^2	*df*	CFI	RMSEA	RMSEA CI	*p*	Models	χ^2	*df*	*p*
1	Configural	2805.53*	1386	.97	.06	.06, .06	<.01				
2	MetricA	2696.42*	1420	.98	.06	.06, .06	<.01	2 vs. 1	65.91	34	<.01
3	MetricB (item 6c)	2684.68*	1419	.98	.05	.05, .06	<.05	3 vs. 1	58.32	33	<.01
4	MetricC (item 8r)	2673.88*	1418	.98	.05	.05, .06	<.05	4 vs. 1	48.98	32	<.05
5	MetricD (item 7r)	2659.17*	1417	.98	.05	.05, .06	<.05	5 vs. 1	41.98	31	.09
6	ScalarA	2886.93*	1627	.98	.05	.05, .05	.34	6 vs. 5	250.28	210	.02
7a	ScalarB (item 3r, T5)	2881.66*	1626	.98	.05	.05, .05	.35	7 vs. 5	240.76	209	.07
7b	ScalarB (3 factor model item 3r, T5)	2920.38*	1624	.98	.05	.05, .06	.20				
8	Higher-Order Factor Loadings	2894.16*	1626	.98	.05	.05, .05	.30	8 vs. 7b	3.92	2	.14
9	Factor Disturbances	2844.45*	1631	.98	.05	.05, .05	.55	9 vs. 8	1.40	3	.71
10	Higher-order Variances	2470.75*	1632	.98	.04	.04, .05	1.00	10 vs. 9	0.10	1	.75
11	Factor Covariances	2272.99*	1635	.98	.04	.03, .04	1.00	11 vs. 10	2.91	3	.41
12	Factor Means	2278.02*	1639	.98	.04	.03, .04	1.00	12 vs. 11	7.93	4	.09

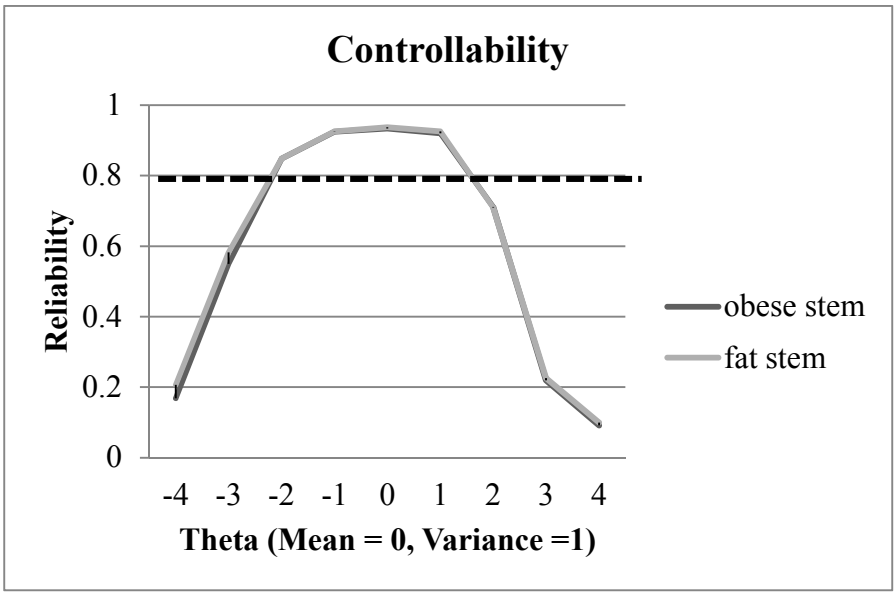
Note. * indicates significant goodness of fit χ^2 (p <.001). Metric invariance tests invariance of factor loadings; Scalar invariance tests invariance of thresholds; Residual invariance tests invariance of the item residuals; Factor Covariance tests invariance between the factor covariances; Factor Variance tests invariance between the factor variances.

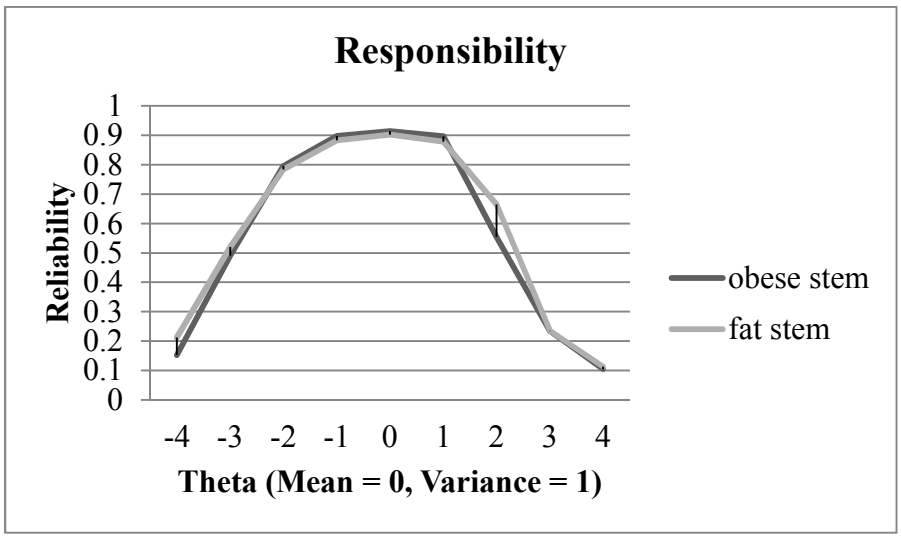
Table 18. Interscale correlations

	Control	Resp	Disp Blame	Sit Blame Food Industry	Sit Blame Gov't	COS: Internal	BJSOS: Dist. Other	BJSOS: Proc. Other	BJSOS: Dist. Self	BJSOS: Proc. Self	GBLW	AFA: Willpower	OSS: Negative	AFA: Dislike	SDS	AFA: Fear of Fat	COS: Physical	COS: Social	OSS: Positive
Control	1.00	**.97**	**.90**	.00	.03	-.10	.02	.05	.02	.05	.00	.04	.01	.03	-.05	-.01	.01	-.08	.02
Resp	**.97**	1.00	**.89**	-.05	-.01	-.08	.03	.05	.04	.06	.00	.06	.03	.02	-.04	.01	-.01	-.07	.01
Disp Blame	**.91**	**.90**	1.00	-.07	-.05	-.06	.03	.06	.04	.06	.03	.04	.01	.00	-.07	-.07	-.01	-.04	.04
Sit Blame Food Industry	-.06	-.10	-.11	1.00	**.84**	.00	**.19**	**.18**	**.16**	**.15**	.09	-.05	-.03	.01	.06	-.02	.06	.00	.00
Sit Blame Gov't	-.03	-.07	-.06	**.88**	1.00	.00	**.16**	**.16**	**.12**	.11	.05	-.03	.00	.02	.04	.01	.03	-.02	-.01
COS: Internal	.04	.02	.04	-.05	-.03	1.00	**.31**	**.31**	**.25**	**.25**	**.24**	**.31**	**.52**	**.20**	**-.35**	**.13**	**-.56**	**.79**	**-.30**
BJSOS: Dist. Other	.05	.05	.05	-.02	.01	**.40**	1.00	**.95**	**.89**	**.83**	**.73**	**.15**	**.25**	.06	-.09	.10	**-.26**	**.13**	-.02
BJSOS: Proc. Other	.03	.03	.04	.01	.04	**.35**	**.95**	1.00	**.86**	**.90**	**.74**	**.13**	**.21**	.06	-.08	.10	**-.26**	**.13**	-.01
BJSOS: Dist. Self	.11	.09	.10	-.03	.03	**.38**	**.89**	**.83**	1.00	**.95**	**.86**	**.12**	**.15**	.00	.00	.05	**-.24**	.09	.04
BJSOS: Proc. Self	.08	.07	.08	-.01	.05	**.35**	**.85**	**.89**	**.95**	1.00	**.85**	.11	**.12**	.00	.00	.06	**-.24**	.10	.05
GBLW	.07	.07	.07	-.05	.01	**.39**	**.77**	**.77**	**.89**	**.89**	1.00	**.13**	.07	.00	.00	.00	**-.24**	.07	.06
AFA: Willpower	-.03	-.02	-.07	.09	.05	-.02	-.06	-.05	-.08	-.05	-.07	1.00	**.18**	**.59**	**-.20**	**.31**	**-.22**	**.23**	-.06

OSS: Negative	.08	.07	.11	-.10	-.05	**.37**	.09	.07	.05	.05	.09	-.07	1.00	**.36**	**-.43**	.08	**-.26**	**.44**	**-.33**
AFA: Dislike	-.06	-.05	-.08	**.14**	**.13**	.01	-.05	-.07	.00	-.02	.01	**.44**	-.04	1.00	**-.42**	**.24**	-.03	**.23**	**-.16**
SDS	-.05	-.02	-.05	-.01	-.02	**-.25**	-.04	-.02	-.01	.01	-.04	.03	**-.50**	-.02	1.00	**-.11**	**.19**	**-.30**	**.37**
AFA: Fear of Fat	-.05	-.03	-.08	**-.12**	**-.15**	.02	-.01	.02	-.05	.00	.00	**.32**	-.03	**.18**	-.03	1.00	-.04	**.16**	-.06
COS: Physical	-.06	-.05	-.06	-.02	-.03	**-.49**	**-.20**	**-.20**	**-.19**	**-.19**	**-.17**	.00	**-.13**	-.10	.08	.01	1.00	-.10	**.26**
COS: Social	.04	.02	.03	-.08	-.07	**.76**	**.25**	**.19**	**.23**	**.19**	**.23**	-.04	**.37**	-.03	**-.23**	.02	.01	1.00	**-.19**
OSS: Positive	-.10	-.09	-.09	**.13**	.10	**-.28**	.01	.02	.04	.06	.02	.08	**-.41**	-.01	**.41**	.02	**.24**	**-.21**	1.00

Note. Bold cells are significant at p<.01; Obese stem correlations are above the diagonal and fat stem items are below the diagonal. Lightest gray indicates hypothesized positive relationship with OBAS factors, medium gray indicates no relationship with OBAS factors, and dark gray indicates negative relationship with OBAS factors.





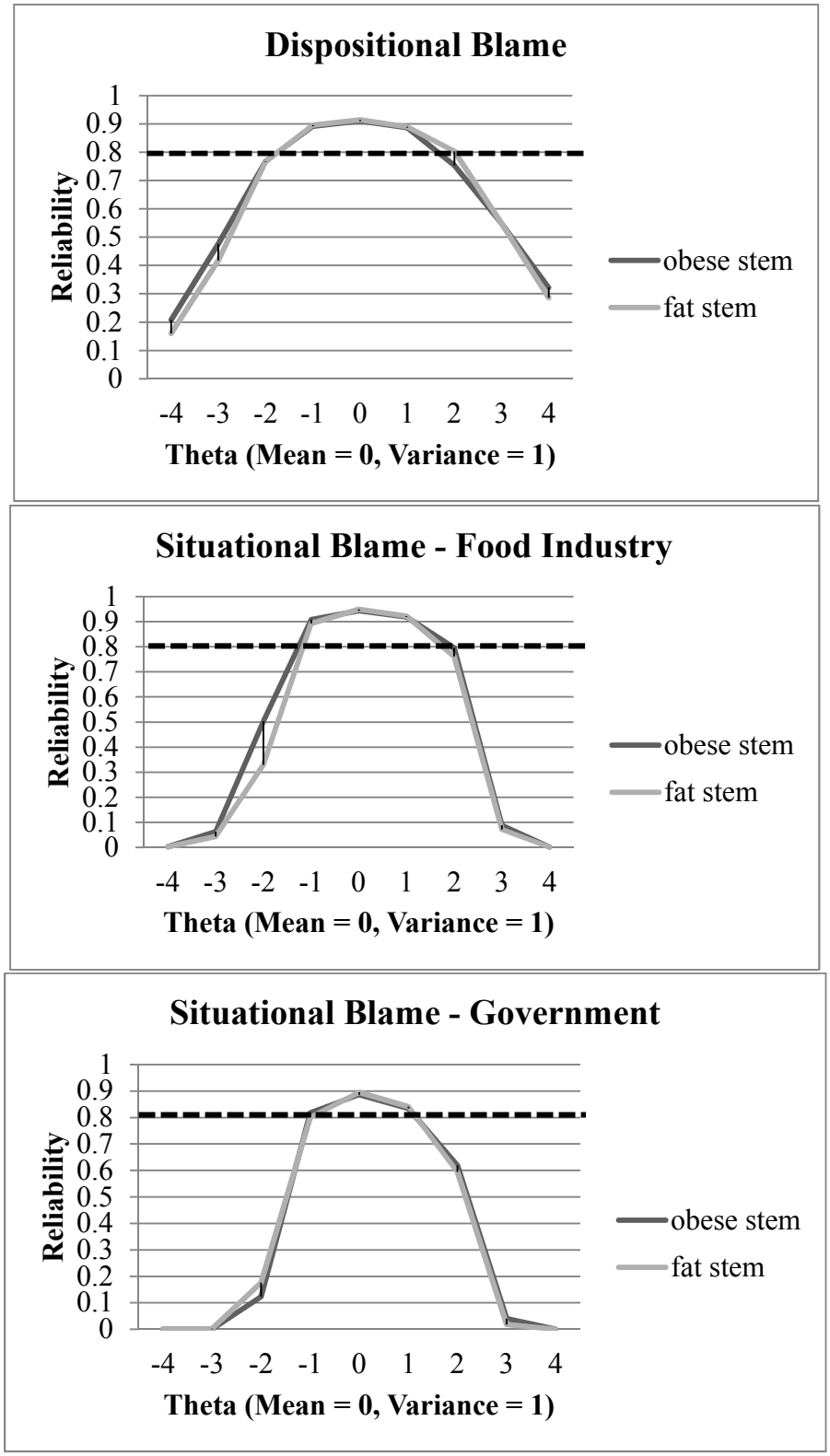


Figure 1. Test information for each lower-order factor by stem type

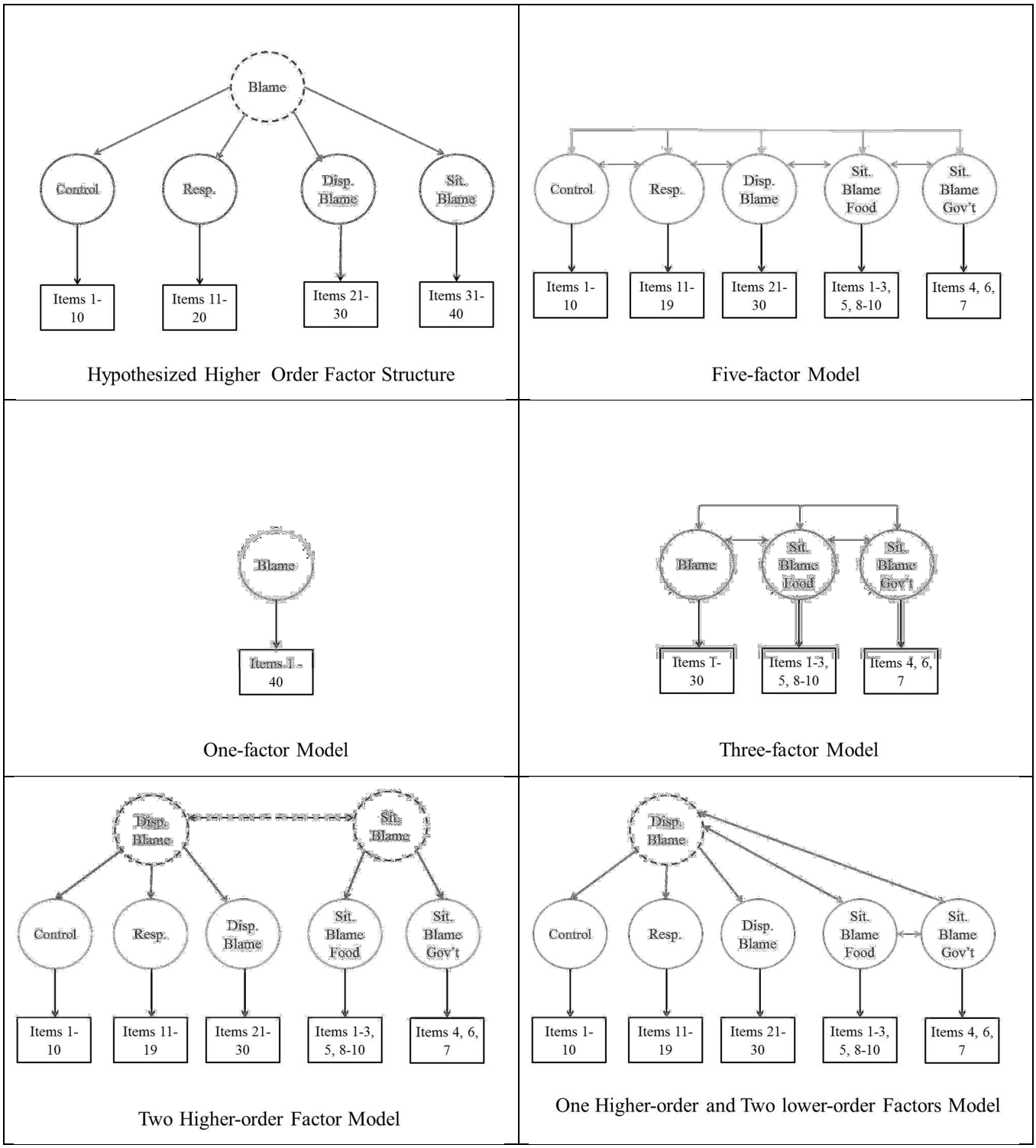


Figure 2. Alternative factor structures. Item 20 (Responsibility factor item 10) was removed and not reflected in the higher-order factor models. Higher order factors are in dotted circles. Lower-order factors are solid circles.

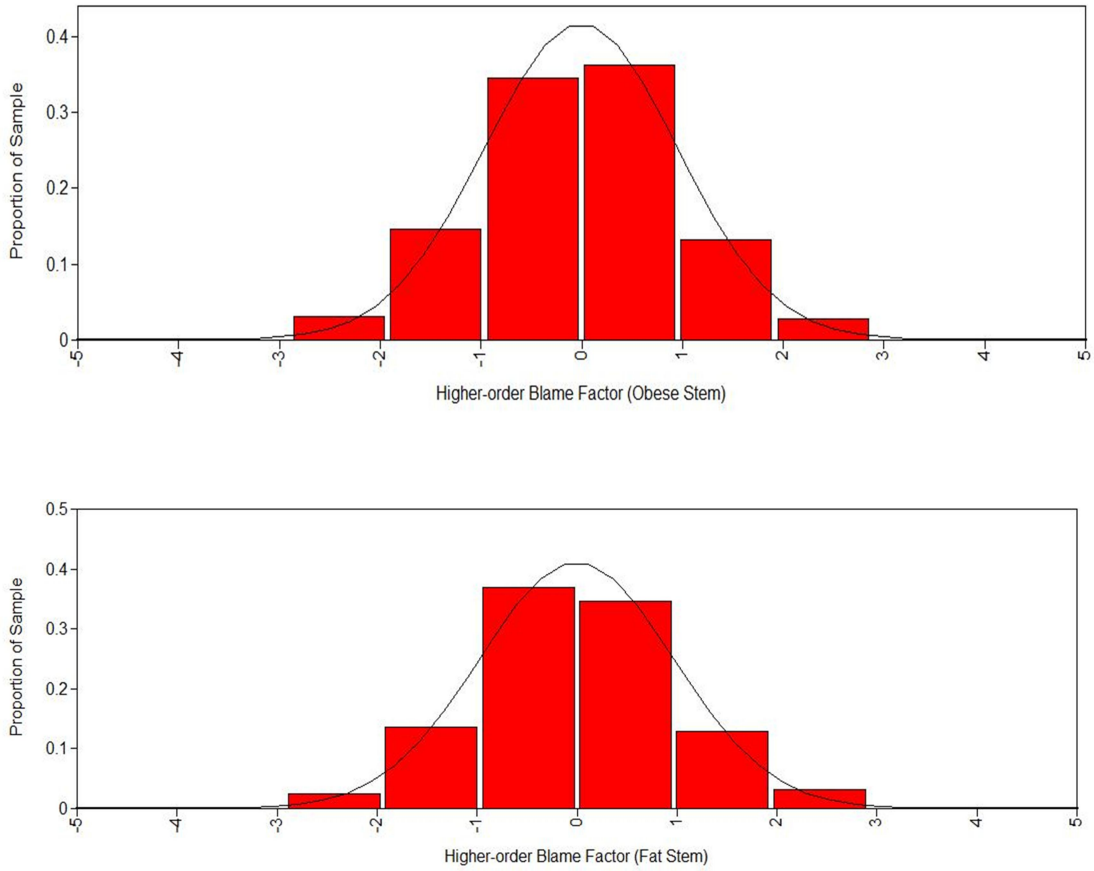


*Figure 3.*Theta for higher-order dispositional blame factor by stem type

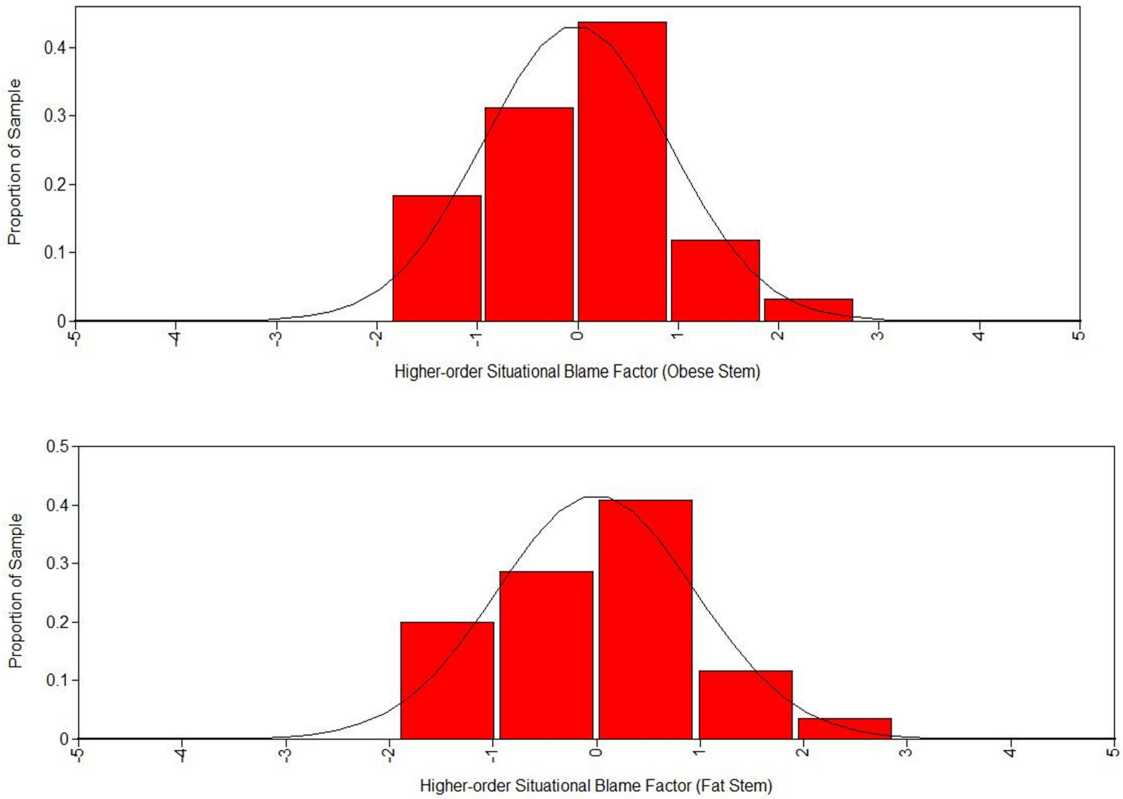


Figure 4. Theta for higher-order situational blame factor by stem type

CHAPTER 3
STUDY 2: ANTECEDENTS AND SUPPORT FOR OBESITY LAW AND POLICY

The current study examined several predictors thought to be related to attributions of blame toward people who are obese and support for obesity-related law and policy. Using both Shaver's (1985) Theory of Blame model and Alicke's Culpable Control model (2000) as frameworks for modeling blame attributions, several predictors were examined, including the blame-related judgments causality (or controllability as it is also termed) and responsibility, which are central to Shaver's model and termed "structural linkages" in Alicke's model. Because Alicke's model proposes that affective and attitudinal reactions to the event and the people involved in the event (termed "spontaneous evaluations") predicts blame, I measured general obesity blame attributions, anti-fat attitudes, stereotype content, and emotional reactions. Although previous research utilizing the theory has manipulated target characteristics with the goal of eliciting spontaneous evaluations (e.g., Alicke & Zell, 2009), I chose to measure affective and attitudinal reactions to examine whether measured responses toward a target could satisfy the spontaneous response criteria. Furthermore, because previous research has found that beliefs about the causes of obesity affect support for various public health approaches aimed at reducing obesity (Barry et al., 2009), the current research extended this by examining how blame attributions contribute to support for a law and policy that is framed with either dispositional or situational blame.

Method

Participants

Participants were recruited from Amazon's Mechanical Turk (M-Turk), an Internet service that allows access to over 500,000 members who are available to participate in online research (Buhrmester, et al., 2011; Paolacci, et al., 2010). Participants were recruited if they completed Study 1. Once data collection from Study 1 was completed and participants were removed for not completing the study or answering attention questions incorrectly, a random sample of 335 participants (of $N = 601$ from Study 1) were emailed to participate in Study 2. One reminder email was sent to participants who did not complete Study 2 within four days after receiving the first email. The sample included 244 participants, which is a response rate of 73%. Six participants were removed because their data from Study 1 could not be matched to Study 2 and two additional participants were removed because they indicated they did not read the description about the target during manipulation checks.

The final sample included 236 participants ($M_{age} = 38.7$, $SD = 12.56$). Sixty percent were female. Eighty-four percent identified as White, 7% identified as Black, 3% Hispanic/Latino, 7% Asian, 2% Native American, and less than 1% identified as something other than the options provided. When asked to select what weight group they identified with, 12% identified as obese, 29% as overweight, 44% as average weight, 13% as somewhat thin, and 2% as extremely thin. Of the sample, 36% identified as Democrat, 20% as Republican, 27% as Independent, and 17% identified as other or not belonging to a political party. Political ideology was measured with a five-point scale in which most participants identified as very liberal or liberal (46%), then moderate (31%),

and conservative or very conservative (23%). Most participants in the sample had not heard of healthy vending machine policies before taking the study (82%).

Procedures

The design was a 2 (Attribution Type: global or specific) x 2 (Weight: average or obese) x 2 (Health Choice: unhealthy or healthy) design, modeled after a previous study that manipulated social attractiveness and mitigating information in criminal blame attributions (Alicke & Zell, 2009). Data were collected online at two time points. To disguise the purpose of the study, participants completed the Obesity Blame Attribution Scale (OBAS) created in Study 1 and Anti-fat Attitudes (AFA) at time 1. At time 2, participants were given the cover story that the objective of the study was to understand community sentiment for proposed vending machine laws. To provide context for the study and to increase the believability of the cover story, participants viewed a neutral news clip about new vending machine laws. Participants also rated (e.g., healthiness, tastiness, likeliness of purchasing) several snacks pictorially displayed on the computer ostensibly to measure what people would purchase if the new vending machine law was implemented (these ratings were not included in the study but were used for selecting the snacks in Study 3 and are presented in Appendix G). Next, participants were informed the researchers surveyed community members about the vending machine laws. Within the survey results, the manipulations were presented (Attribution Type, Weight Group, and Health Choice). For the dependent measures, participants made several attributions about the person/group "surveyed." Finally, each participant indicated support for one of two vending machine laws that included dispositional or situational blame language in the legislative findings section, as well as likeliness of support on a 7-point scale.

Materials

Pre-screening dependent measures

Blame attributions. The Obesity Blame Attribution Scale (OBAS) created and subjected to latent trait procedures in Study 1 was used to measure general blame attributions toward people who are obese/fat. As described in Study 1, the original OBAS included 40 items that included four hypothesized lower-order factors and one higher-order Blame factor. Analysis of the structure and measurement of the OBAS, however, revealed a 39-item scale that consisted of five factors and two higher-order Dispositional and Situational Blame factors. The Dispositional Blame higher-order factor included: Controllability (10 items), Responsibility (9 items), and Dispositional Blame (10 items). The Situational Blame higher-order factor included: Situational Food Industry Blame (7 items) and Situational Government Blame (3 items). Higher scores on each subscale indicate stronger attributions. Participants in Study 1 were randomly assigned to either the fat stem or obese stem condition. Items were presented in Study 1.

Attitudes toward people who are obese. The Anti-fat Attitudes Questionnaire (AFA; Crandall, 1994) is a 13-item scale that measures negative attitudes toward people who are obese with three subscales. The Dislike subscale (7 items) measures prejudice toward fat people. The Dislike subscale includes items such as: "I really don't like fat people much." The Fear of Fat subscale (3 items) measures one's self-relevant concerns about fatness. The Fear of Fat subscale includes items such as: "I feel disgusted with myself when I gain weight." The Willpower subscale (3 items) measures belief about controllability. The Willpower subscale includes items such as: "Some people are fat because they have no willpower." Each subscale is measured using a Likert-type

response format (0 = very strongly disagree; 9 = very strongly agree) and is scored by averaging the responses for that subscale. Higher scores on each subscale indicate stronger anti-fat attitudes. Items are presented in Appendix B.

Independent measures

Type of attribution. According to Johnson and colleagues (2002), global and specific blaming are theoretically significant to determine whether blame attributions are specific to the person (a person who is obese) or global to the person's group (people who are obese). To assess global versus specific attributions toward the target, participants either received survey results from a "person" (specific) or a "group" (global) randomly selected to provide her/their sentiment about the laws. In the specific attribution condition, participants received a photograph of either an obese or average weight woman (same woman before and after weight loss matched on all other characteristics) to bolster the specific attribution manipulation. A photograph was not provided for the target group.

Weight group. The ostensible survey results provided demographic information (including weight described as either "average" or "obese" based on the CDC's height and weight calculation for BMI; height and weight were also provided). The photograph of the target was manipulated and depicted the same woman before and after weight loss (see below). The photograph was taken from the Internet and was selected because the angle was the same and all of the characteristics were the same (except weight). Using before and after weight loss photographs is preferable to manipulating the same photograph because it was thought to be more realistic.

Health Choice. In general, people are judged negatively for eating poorly (Stein & Nemeroff, 1995) and previous research has found that when people who are obese are depicted in stereotypical ways, they are perceived more poorly than when depicted in non-stereotypical ways (McClure, Puhl, & Heuer, 2011); and when presented as making unhealthy choices, this could aggravate negative biases. Furthermore, dual process models suggest that when an event is unexpected, perceivers may switch from automatic processing to a more controlled processing and may rely less on heuristics such as affect and biases. To examine the effects of aggravating or mitigating information, the current study manipulated whether the target person or group stated she/they "likes junk food in vending machines" (aggravating) or "likes nutritious foods in vending machines" (mitigating). Depending on the manipulated weight of the target, the unhealthy and healthy feedback will either be stereotype consistent or stereotype inconsistent.

Dependent measures

Stereotype content. Alicke's Culpable Control model (2000) proposes that blame attributions are related to spontaneous evaluations that include reactions to the target. As such, stereotypes toward the target were measured with The Stereotype Content Model (SCM) because the SCM has been well-researched and is hypothesized to be predictive of corresponding affective reactions. The SCM predicts that stereotyped groups elicit specific warmth and competence stereotypes that correspond to four clusters (Glick & Fiske, 2001; Fiske et al., 2002): (a) Those perceived as low-competence and high-warmth

elicit pity and sympathy because they are perceived as not causing their negative outcome and are likable; (b) those who are low-warmth but high-competence elicit envy because they are perceived as causing their positive outcome but in a hostile manner; (c) those who are low on both warmth and competence elicit anger, disgust, and contempt because they are perceived as being "free-loaders" and perceived as being able to avoid their negative outcome; (d) and those who are high on both, elicit positive emotions such as admiration because they are perceived as being in control of their positive outcomes (Fiske et al., 2002). Warmth and Competence were measured with 6 items each with response options on a 5-point Likert scale ranging from "not at all" (0) to "extremely" (4). Items are presented in Appendix H.

Other-based social emotions. Following Alicke's Culpable Control model—which predicts that emotional evaluations of others influence attributions of blame—the study measured emotional appraisals toward the target. Social emotions are based on the social appraisals we use to process social information (Harelli & Parkinson, 2008), such as attitudes towards other groups (Fiske et al., 2002). According to Harelli and Pakinson (2008), emotions are considered social if they are relevant to a social context and include appraisals that take into account social rules, conventions or norms, or aspects of agency (e.g., responsibility and blame). The other-based social emotions measured included pity, sympathy, disgust, anger, contempt, envy, distrust, empathy, and disappointment. Participants indicated how much they felt that emotion toward the woman/group of women (depending on the Type of Attribution manipulation) on a 5-point scale that ranged from "very slightly or not at all," "a little," "moderately," "quite a bit," and

"extremely." Higher scores indicate experiencing a stronger emotional reaction. Items are presented in Appendix I.

Controllability, responsibility, and blame. According to Alicke (2000), the psychology of blame includes graded control and responsibility judgments in which observers estimate the degree to which the target has control over or is responsible for the event, rather than dichotomously deciding either presence or absence. As such, attributions toward the target were measured using three items from a previous study on blame attributions toward people with serious illness (Mantler et al., 2003), but modified from "serious illness" to "obesity." Each was measured with a single item: "It was something that this individual/group did that caused her weight;" "This individual/group is responsible for her/their weight;" and "This individual/group is to blame for her/their weight." Response options were on a 7-point Likert scale ranging from "strongly disagree" (0) to "strongly agree" (6).

Support for public policy. Participants were provided with two proposed vending machine policies that varied by the type of blame. The manipulated language for each policy was embedded in the legislative findings (the rationale for the policy) and included elements of blame, responsibility, and controllability. In the dispositional blame condition, the policy stated that individual factors were to blame for the obesity problem followed by several factors that caused obesity. It concluded by stating the obesity problem can be improved by holding people who are obese responsible for changing their behavior when they make choices at the vending machines. In the situational blame condition, the policy stated that environmental factors are to blame for the obesity problem followed by several situational factors that cause obesity. The statement

concluded by stating the obesity problem can be improved by holding the food industry responsible for changing the food options available in vending machines. Participants were asked to select the policy they would support (a forced choice) and also how likely they would be to support it on a 7-point scale ranging from "very unlikely" (0) to "very likely" (6). Both policies are presented in Appendix J.

Hypotheses

(1) Hypothesis 1: According to the SCM (Fiske et al., 2002), previous research on the perceived controllability of being obese (Weiner, 1998, 1993), anti-fat attitudes (Crandall, 1994), and previous research on other-based emotion reactions toward people who are obese (Cottrell & Neuberg, 2005), it is hypothesized that the obese target will be perceived in the SCM low-competence and low-warmth cluster and will elicit the emotional appraisals anger, disgust, and contempt. There are no specific hypotheses about the average weight target with respect to these variables because an average weight person does not fit within the framework for examining stereotype content.

(2) Hypothesis 2: It is hypothesized that attributions of controllability, responsibility, and blame toward the target person/group will differ based on the manipulated variables. Specifically, there will be a main effect for the Weight Group cue such that the average weight person/group is perceived more favorably than the obese person/group. It is expected that the Health Choice cue will moderate this effect such that the obese person/group who likes junk food will be judged more harshly than the average weight person/group who likes junk food because previous research has shown that people are judged negatively for eating poorly (Stein &

Nemeroff, 1995). Moreover, the Type of Attribution will also moderate attribution based on the Weight Group cue. Specifically, controllability, responsibility, and blame will be greater for the obese group than the obese individual because attitudes are more punitive for global than specific attributions (Brank et al., 2006).

(3) Hypothesis 3: Theorists have posited that blame attributions are predicted by a decision-stage model whereby controllability and responsibility sequentially contribute to blame (Shaver, 1985). Conversely, dual process models like the Culpable Control model suggest that blame attributions will also be predicted by affective and attitudinal responses to targets and events. It is hypothesized that, as outlined in the Culpable Control model (Alicke, 2000), controllability and responsibility would predict blame, but that responses such as general obesity blame attributions, anti-fat attitudes, stereotype content, and other-based social emotions (as proxy measures for spontaneous evaluations) would also predict blame attributions either directly or indirectly. Affective and attitudinal responses have a direct effect when they influence blame attributions independent of structural linkage information (controllability and responsibility) or simultaneous to linkage information. Affective and attitudinal responses have an indirect effect when they influence structural linkage information, thereby increasing or decreasing blame attributions.

(4) Hypothesis 4: In turn, it is hypothesized that blame attributions will predict support for participants' chosen vending machine law. Specifically, participants with high blame attributions toward the target will choose the law with

dispositional blame language, whereas participants with low blame attributions toward the target will choose the law with situational blame language. Moreover, participants who have high blame attributions toward the target will be more likely to support their chosen policy, regardless of what policy they chose, than those with lower blame attributions toward the target because people with stronger blame attitudes will have stronger attitudes toward supporting such policies.

Analytic strategy

Prior to examining the multivariate relationship between all the variables in a path model, preliminary analyses were conducted to examine where people who are obese fit within the four clusters of the Stereotype Content Model (SCM) according to hypothesis 1. Previous SCM research has not included people who are obese and a descriptive understanding of where they lie within the context of the four clusters will better inform the selection of other-based emotions that should be included in the path model. The theoretical model (Hypotheses 2 through 4) was tested in which the manipulated variables and other individual difference independent variables were analyzed simultaneously, creating a multivariate regression within a path model. Because of the sample size and the number of estimated parameters (loadings, intercepts, residual variances, and paths), it was not possible to estimate a Structural Equation Model (SEM) with latent variables, nor with plausible values (which creates multiple datasets of factor scores for each person that represents multiple imputations drawn from the predictive distribution of the latent variable) because of the invariance constraints. Instead, factor scores were included as observed variables within the subsequent path analyses to

represent each latent variable previously estimated within measurement models. This use of factor scores is better than averaging items to create an observed score because the factor scores are based on the tested factor structure, all of which had acceptable to good fit according to global fit statistics (see Table 19).

Results

Hypothesis 1a: Where do people who are obese map onto the four-cluster warmth–competence structure as compared to previous research? The SCM (Fiske et al., 2002) predicts that stereotyped groups will be perceived along one of four clusters. To test this, group differences on the SCM warmth and competence factors were examined by averaging the six items for each subscale together. The items were averaged together for this analysis only, similar to the authors' recommendations and previous research with the factors (e.g., Fiske et al., 2002), so that comparisons could be made to the four-cluster structure of the Stereotype Content Model. To do so, a one-way ANOVA was estimated for just the main effects of Weight Group on warmth and competence ratings. Figure 5 includes the mean competence and warmth values for the obese and average weight group with the four-cluster structure that includes the means for the stereotyped groups from the original published article (Fiske et al., 2002, Study 1 Figure 2, non-student sample). In support of the hypothesis, the obese group mapped onto the low competence and low warmth cluster that included welfare recipients, poor Blacks, and poor Whites. The average weight group was near the mean for each factor (the center of the four clusters).

Hypothesis 1b: What emotional appraisals does Weight Group elicit? Emotional appraisals are predicted to vary according to the four clusters of the SCM (Fiske et al.,

2002) and other research on emotional appraisals (Harelli & Parkinson, 2008). The main effects of Weight Group on other-based emotional reactions were examined in a one-way ANOVA. According to the means in **Table 20**, there is partial support for the hypotheses that people who are obese would elicit disgust, contempt, and anger. People who are obese elicited more disgust than people who are average weight, however, there were no significant differences for anger or contempt. Although the alternative hypothesis—that people who are obese might be perceived along the low-competence and high-warmth cluster of stereotyped groups—was not supported, there were significant differences for the emotions associated with that cluster. Participants indicated more pity for people who are obese than average weight and sympathy for people who are obese than people who are average weight.

Path models

Hypothesis 2: Are blame attributions best predicted by a prescriptive decision-stage model (Shaver, 1985) or a descriptive dual-process model of blame (Alicke, 2000)? According to attribution and blame theories (Alicke, 2000; Heider, 1958; Shaver, 1985; Heider, 1958), attributions are the cognitive processes laypeople use for making blame judgments to explain behaviors and outcomes when encountering a target and may vary according to characteristics of that target. According to Shaver's Theory of Blame, blame attributions are explained by controllability and responsibility in sequential stages, such that each is a necessary precursor for the next. As such, causal controllability predicts responsibility, responsibility predicts blame and responsibility mediates the relationship between causal controllability and blame. On the other hand, Alicke's Culpable Control model is a dual-process model of blame in which controllability and responsibility still

predict blame, in addition to affective and attitudinal responses also predicting blame attributions. The largest difference, therefore, is that Shaver's model assumes only the criteria a rational actor would consider, whereas Alicke's model accounts for psychological processes that deviate from rational expectations.

To test the remaining hypotheses, two path models were estimated using Mplus v. 6.11 (Muthén & Muthén, 1998-2010) weighted-least-square-mean variance (WLSMV) estimation and THETA parameterization. The first Prescriptive Blame model (Model 1) included the target characteristics manipulated variables (Type of Attribution, Weight Group, and Health Choice) and their interactions predicting only the blame judgement-related variables (i.e., direct attributions of controllability, responsibility and blame toward the target), and then Blame predicting Support for the Obesity-targeted Policies and Likelihood of Support (see Figure 6). This model aimed to examine Shaver's decision-stage model in which the target characteristics predict blame-related judgments irrespective of other external influences.

The Descriptive Blame model (Model 2) aimed to examine Alicke's Culpable Control model in which affective and attitudinal responses also predict blame-related judgments. The Descriptive Blame model included the target characteristics manipulated variables (Type of Attribution, Weight Group, and Health Choice) and their interactions, and all of the hypothesized variables including blame judgement-related variables (i.e., direct attributions of controllability, responsibility and blame toward the target), affective and attitudinal response variables, and then Blame predicting Support for the Obesity-targeted Policies and Likelihood of Support (see Figure 7).

The affective and attitudinal responses selected for this study included general obesity Dispositional and Situational Blame attributions measured with the two OBAS higher-order factors, anti-fat attitudes measured with the AFA, stereotype content Warmth and Competence, and the emotional appraisal Disgust. Following the preliminary SCM warmth–competence and emotional appraisal analyses, it was decided that Disgust would be included in Model 2 because it was the only low-warmth and low-competence cluster emotional appraisal found to differ by Weight Group (i.e., anger and contempt did not elicit group differences and the other emotional appraisals are not theoretically predictive of low-warmth and low-competence groups).

Table 21presents the bivariate correlations for all potential predictors in the model, which helped to inform variable selection for the path models. Due to some higher correlations between affective and attitudinal response predictors, there was concern of multicollinearity. To address this concern, a variance inflation factor (VIF) was calculated for each of the predictors by doing a linear regression of that predictor on all the other predictors, and then obtaining the R^2 from that regression and computing1/(1-R^2). The VIF indicates how much variance of the coefficient is inflated because of its linear relationship to the other predictors. A VIF greater than 2.5 is considered problematic (Allison, 2012). Both warmth and competence were collinear with each other and thus, a higher-order factor score was estimated in Mplus. Second, the two higher order OBAS factor scores were included, rather than the lower-order factor scores, because the lower-order factors within each high-order factor were highly correlated with each other. Moreover, the majority of the five separate factor scores were not correlated with any of the outcome variables differently than the higher-order factors—giving

support for including the higher-order factors in the model for parsimony. The only significant correlation was between the competence factor score and the OBAS Dispositional Blame factor score; however, the correlation was small, and the competence and warmth variables were combined to create a single warmth-competence factor score because of their multicollinearity.

Model 1: Prescriptive Blame model

The Prescriptive Blame model had good fit (χ^2 (20) = 33.06, p = .03; CFI = 0.98; RMSEA = .05, CI 90%: .02 - .08, p = .41) according to the recommendations by Byrne (2001) and as outlined in Study 1. Contrary to hypotheses, there was only one significant interaction for Weight Group x Health Choice, but the other two interactions were not significant. As we were interested in testing the theoretical blame model and not necessarily simple effects for each independent variable, we removed the non-significant interactions. The final estimated path model with the non-significant interactions removed also had good fit (χ^2 (16) = 31.85, p = .01; CFI = 0.97; RMSEA = .03, CI 90%: .03 - .10, p = .21) and there were no modification indices suggestions for improving model fit. Figure 6 presents the path model structure with all paths included in the model. Table 22 presents standardized parameter estimates.

The Prescriptive Blame model revealed significant main effects for Weight group for each independent variable. Participants attributed significantly more Controllability, Responsibility and Blame to the obese target (coded as −0.5) compared to the average weight target (coded as 0.5). There were no significant main effects for Health Choice or Type of Attribution on any of the blame-related judgments. There was a significant interaction between Weight Group and Health Choice suggesting that the simple effect of

Health Choice was stronger for the obese target as compared to the average weight target for attributions of blame toward the target. As such, participants perceived the obese target as significantly more blameworthy when making unhealthy choices, than the average weight person making unhealthy choices. Supporting Shaver's prescriptive stage-model Theory of Blame, Controllability significantly predicted Responsibility; and Controllability and Responsibility both significantly predicted Blame. The model predicted 45% of the variance for specific Blame attributions toward the target.

Part of the hypotheses for the Prescriptive Model is that Controllability mediates the relationship between the target characteristics and Responsibility and Blame, and that Responsibility mediates the relationship between Controllability and Blame. Although mediation is not specifically outlined in Shaver's model, the decision-stage model implicitly suggests this relationship as Controllability is described as a necessary prequel for Responsibility and Responsibility is described as a necessary prequel to Blame. To statistically test this hypothesis, the following mediating relationships (X→M→Y) were estimated using MODEL INDIRECT available in Mplus: (a) Weight→Controllability→Blame, (b) Weight→Responsibility→Blame, (c) Controllability→Responsibility→Blame. As Weight was only independent variable that significantly predicted blame-related judgments, mediation was only estimated for Weight Group. In support of Shaver's Theory of Blame, both Controllability and Responsibility mediated the relationship between Weight Group and Blame; and Responsibility mediated the relationship between Controllability and Responsibility. Table 24 displays the indirect effects for each of the mediation analysis.

Model 2: Descriptive Blame model

For the Descriptive Blame model, a multiple-group model with all parameters constrained as equal was estimated to compare model fit and estimate parameters for participants who received the OBAS fat stem compared to participants who received the OBAS obese stem. This model fit was acceptable CFI (χ^2 (52) = 94.77, p < .001; CFI = 0.89; RMSEA = .08, CI 90%: .06 - .11, p = .03); however, fit issues were not addressed because comparing groups in this manner resulted in a small sample per cell because of the 2 (Attribution Type) x 2 (Weight Group) x 2 (Choice) x 2 (OBAS stem) design. As such, stem type was included in the path model as a binary predictor variable, which is an alternative method for comparing the effects of stem type, while retaining all participants in a single model. This single-group model had acceptable fit (χ^2 (32) = 50.92, p = .02; CFI = 0.96; RMSEA = .05, CI 90%: .02 - .08, p = .47), but stem type was not a significant predictor for any of the regression paths and thus, stem type was removed from analyses for parsimony (and improving fit was not addressed)—essentially collapsing the people who received the fat stem and obese stem items into a single group. The collapsed stem model did not have good fit (χ^2 (26) = 72.53, p <.001; CFI = 0.91; RMSEA = .09, CI 90%: .06 - .11, p < .001). The largest source of misfit according to the modification indices was that the OBAS Dispositional Blame and Situational Blame factors were related to Support for the Policy and Likelihood of Support for the policy. The model adding the OBAS factors to predicting the Support for Policy variables had good fit (χ^2 (22) = 26.52, p =.23; CFI = 0.99; RMSEA = .03, CI 90%: .01 - .07, p = .80). Contrary to hypotheses, there were no significant interactions, including the Weight x

Health Choice interaction that was predictive in the Prescriptive Model. All of the interactions were removed due to non-significance and the model was re-estimated.

The final estimated path model without the non-significant interactions had good fit (χ^2 (16) = 20.78, p = .19; CFI = 0.99; RMSEA = .04, CI 90%: .01 - .07, p = .69) and there were no modification indices suggestions for improving model fit that were within the theoretical framework. Figure 7 presents the path model structure with all paths included in the model. Table 23 presents standardized parameter estimates. In first examining the parameters that were also in the earlier Prescriptive Blame model, the pattern was mostly the same with some exceptions. Participants attributed more Controllability, but *less* Responsibility to the obese target (coded as −0.5) compared to the average weight target (the Prescriptive model indicated *more* Responsibility). There were no significant differences for Blame for weight group as was the case in the earlier Prescriptive model. Unlike the previous model in which Attribution Type was not significant, the individual target (coded as −0.5) resulted in greater Responsibility attributions than the group target. Similar to the Prescriptive Model, health choice did not predict any of the blame-related attributions. Similarly, Controllability still significantly predicted Responsibility; Controllability and Responsibility both still significantly predicted Blame.

Then, I examined whether the manipulated independent variables predicted any of the hypothesized mediating affective and attitudinal response variables. Weight Group and Health Choice significantly predicted both Warmth-competence and Disgust. Specifically, the obese target and the unhealthy choice target elicited less Warmth-competence, but more Disgust. The individual target was significantly less likely to elicit

Disgust than the group target, but there were no Attribution Type effects on the Warmth-competence variable. Anti-fat attitudes also predicted Warmth-competence and Disgust in the hypothesized direction—higher Anti-fat attitudes were related to less Warmth-competence and greater Disgust. As general Dispositional and Situational Obesity Blame attributions measured with the OBAS increased, perceptions of Warmth-competence also increased.

In examining the relationship between the affective and attitudinal responses and the blame-related judgments, as hypothesized, general Dispositional Blame attributions predicted all three blame judgment-related variables in the hypothesized direction. General Situational Blame predicted lower Blame attributions toward the target, but not Controllability or Responsibility. Contrary to hypotheses, however, Warmth-competence, Anti-fat attitudes and Disgust did not predict any of the three blame-related judgments. It was surprising that many of the affective and attitudinal response variables were not significant in the models predicting the blame-related judgment variables even though most had significant bivariate correlations. VIF multicollinearity statistics did not demonstrate that any of the variables had problematic multicollinearity.

In support of both theories, Controllability and Responsibility attributions were significant unique predictors in the multivariate regression path for Blame, but only the OBAS remained a significant predictor of Blame. Anti-fat attitudes, Warmth-competence, and Disgust no longer uniquely predicted blame attributions. For the Descriptive Blame model, the model predicting specific attributions of Blame toward the target accounted for 54% of the variance. Previously, the Prescriptive Blame model accounted for 45% of the variance for specific Blame attributions toward the target. It

appears that the bulk of the variance can be accounted for with specific attributions of Controllability and Responsibility toward the target, with some additional variance (9%) accounted for by the affective and attitudinal responses.

Again, MODEL INDIRECT was used to estimate the following mediating relationships (X→M→Y): (a) Weight→Controllability→Blame, (b) Weight→Responsibility→Blame, (c) Controllability→Responsibility→Blame, as well as the added relationship (d) OBAS Dispositional→Controllability→Blame, (e) OBAS Dispositional→Responsibility→Blame, (e) OBAS Situational→Controllability→Blame, (f) OBAS Situational→Responsibility→Blame. As Weight Group and the OBAS factors were the only independent variable that significantly predicted blame-related judgments, mediation was only estimated for these relationships. Both Controllability and Responsibility still mediated the relationship between Weight Group and Blame in this model; and Responsibility mediated the relationship between Controllability and Responsibility. Furthermore, Controllability and Responsibility mediated the relationship between general Dispositional Blame attributions and specific Blame attributions toward the target. Table 24 displays the indirect effects for each of the mediation analysis.

Support and likelihood for support

Hypothesis 3: Do blame attributions predict support for policies with either dispositional or situational blame language? And are those with high blame attributions more likely to support the policy they chose? Previous research has found that individual beliefs about the causes of obesity affect support for public health approaches aimed at reducing obesity (Barry et al., 2009). The last step in the path model estimated whether blame attributions predicted support for either the dispositional blame language policy

(coded as 0) or the situational blame policy, and participants' likelihood of supporting their chosen policy. Results demonstrated that attributions of Blame significantly predicted support for the vending machine policy—those with higher Blame toward the target were more likely to support the Dispositionally-framed policy. General Dispositional blame attributions also predicted support for the Dispositionally-framed policy and General Situational blame attributions predicted support for the Situationally-framed policy. Blame toward the target, conversely, did not predict likelihood of support, but General Situational blame attributions predicted likelihood of support. Moreover, Support and Likelihood to Support had a small positive correlation suggesting that those who chose the Situationally-framed policy were more likely to support the policy than those who chose the Dispositionally-framed policy.

Discussion Study 2

The goal of this study was threefold. First, I was interested in understanding general attributions and attitudes toward people who are obese, attributions of blame, what predicts blame attributions and how those attributions relate to support for laws aimed at improving health behaviors. Second, I was interested in comparing two competing theoretical models of blame—one a prescriptive model of blame that is rooted in the rational actor model of how people ought to make blame attributions, the second a descriptive model rooted in dual process theory that acknowledges the influence of psychological motivations and biases in making blame attributions. Third, I was interested in the utility of the Obesity Blame Attribution Scale (OBAS) created in Study 1 as a predictive measure of general blame attributions.

With respect to the first goal of the study, the results demonstrated that weight as a cue prompted specific stereotypes, attitudes, and emotions. Although well researched (Cuddy, Fiske, Glick, & Xu, 2008), to our knowledge, the Stereotype Content Model has not yet explored obesity within the four-cluster paradigm. According to the mean values of warmth and competence elucidated in the current study, people who are obese would fall along the low warmth-low competence cluster similar to welfare recipients and poor Blacks and Whites. Although it is a limitation that we did not collect warmth and competence ratings from a variety of stereotyped groups because it was beyond the scope of the current project, these results do provide preliminary findings for where people who are obese may fall when comparing them to other groups in a within-sample design. To extend the theoretical work on the SCM, bivariate correlations also demonstrated that perceptions of low warmth-low competence were related to higher Anti-fat attitudes, higher OBAS Dispositional Blame and lower OBAS Situational Blame.

These findings also provided context for whether the other-based emotional appraisals that are elicited for obese targets fit within the SCM framework. As our findings revealed, within the low warmth-low competence cluster predicted emotions, participants only endorsed more disgust toward people who are obese compared to people who are average weight, but not anger or contempt as would be predicted. Previous research examining these three emotions on perceptions of people who are obese similarly found more feelings of disgust (and contempt) than anger (Vartanian, Thomas, & Vanman, 2013). According to research on moral emotions, anger is elicited when a group is perceived as taking one's resources (e.g.., poor people on government assistance) or infringing on the freedoms of others; contempt is elicited when people

violate their duties within the community or social structure; and disgust is elicited people cause degradation and impurity to themselves or others (Rozin, et al., 1999). These three emotions have also been described as approach-avoidance emotions such that contempt and disgust promote avoidance and anger promotes approach. Perhaps the circumstances with people who are obese is that they are not perceived as taking resources or violating duties within the community, despite the argument that obesity costs taxpayers indirectly through things such as increased medical bills and more missed days of work (Finkelstein et al., 2009).

Instead, judgments of disgust may stem from the disease-connoting concept (Oaten et al., 2009; Lieberman, Tyber, & Latner, 2012; Park et al., 2007) in which obesity is thought to serve as a heuristic cue for pathogen infection because obesity is a deviation from species-typical health (Oaten et al., 2009). Others have proposed that obesity elicits the pathogen-avoidance system because people who are obese present a greater risk of disease than average weight people, and this has created a learned relationship between contagion and weight (Liberman et al., 2012). Disgust has also been specifically linked to the stereotype that people who are obese have no self-control (Vartanian, 2010), which has been linked to being perceived as having lower social status (Vartanian & Silverstein, 2013). Theoretical work on the SCM describes the warmth and competence dimensions as stemming from assessments important for surviving in the social world—assessing the person's perceived intent in the social world and the person's perceived ability to act on that intent. Thus, being perceived as low warmth-low competence fits within previous research that people who are obese are perceived as having low self-control and low status. From our results, these cognitive warmth-

competence assessments, at least in part, are also positively related to anti-fat attitudes and dispositional blame. One surprising finding for Dispositional Blame (but not for Situational Blame) is that greater blame attributions were related to more Warmth-competence. One plausible conclusion is that when participants have high Dispositional Blame attributions, they perceive targets as more culpable (having more control, responsibility and subsequent blame over their weight), and therefore possessing a certain level of competence. In examining the language present in the OBAS items, especially the Responsibility factor (which is part of the higher-order Dispositional Blame factor), there are phrases such as "choose behaviors," "are aware," "understand how." These suggest beliefs about capabilities – which the competence scale is proposed to measure.

Although not included in the path model for theoretical reasons (and parsimony), obesity also elicited an increase in other negative emotions. The obese target elicited more pity, sympathy, empathy and disappointment. According to the SCM, emotions such as these are elicited when the target is perceived along paternalistic ambivalent stereotypes of warm but incompetent. Within this cluster, targets are still perceived as unable to act on their intent, but having a relatively benign intent to begin with. Although our data did not suggest people who are obese fit within this cluster, perhaps they elicited more sympathizing emotions because many Americans struggle with weight issues or know someone who does. Unlike other groups that have low warmth-low competence (*e.g.*, poor people, welfare recipients), participants may have endorsed these emotions because of self-referencing. Self-referencing is a cognitive strategy where an observer relates the information about the target to his or her own self-structure. As such,

participants may place themselves in the shoes of a target who has problems with self-control related to food.

With respect to the blame-related judgment variables (also known as the structural linkage variables), in support of our hypotheses and previous research, participants had stronger controllability beliefs toward the obese target in both the prescriptive and descriptive models. On the other hand, there was a surprising finding with respect to responsibility. The obese target was perceived as having *more* responsibility over her (their) weight in the prescriptive model that only included the manipulated variables and controllability, but having *less* responsibility in the descriptive model that included the manipulated variables, controllability and the additional attitude measures. One reason may be due to the varying denotations of the term "responsibility." The question that measured responsibility did not specifically define responsibility and participants could have interpreted this in different ways. Perhaps when controlling for attitudes in the Descriptive model, the effect of weight on perceptions of responsibility changed because once negative attitudes and blame attributions were included in the model, the variance left over was actually measuring "responsible" in a positive way such as the denotation in "I am a responsible person who eats well" instead of the typical "responsibility" over one's actions as blame theories would state.

Contrary to hypotheses and previous research, whether the attributions were toward the group or individual and whether the target made healthy choice or unhealthy choice statements, had very little effect on the outcome variables. In the prescriptive model, health choice did interact with weight group so that health choice exacerbated blame attributions for obese targets compared to average weight targets; however, this

effect was not present in the descriptive model when the additional attitude measures were included. Because there was not a main effect for health choice predicting blame, this suggests that in this study it was not just people in general who were judged negatively for eating poorly (Stein & Nemeroff, 1995) but that people who are obese are judged even more negatively (blameworthy, in this case) when they eat poorly. McClure and colleagues (2011) similarly found that negative attitudes were aggravated when comparing nonstereotypical flattering photographs (an obese woman who was exercising and an obese woman who was well-dressed) to a stereotypical non-flattering photograph (an obese woman who was eating junk food and an obese woman shown from behind emphasizing large body size). The current work extends this previous research by including more standardized stimuli and including additional aggravating/mitigating information in the form of ostensible verbal statements, instead of the information depicted in the photograph.

To address both the first and second goals of this study, we were also interested in comparing competing blame theories. Although this study does not definitely answer the theoretical debate on prescriptive versus descriptive models of blame, the results seems to lend support for both models. In both the descriptive and predictive models, and in support of both Shaver's and Alicke's theories of blame, controllability and responsibility were significant predictors of blame with medium standardized regression weights. In the prescriptive model, the characteristics of the target, controllability, and responsibility accounted for almost half of the variance for blame attributions toward the target. In the descriptive model with controllability and responsibility (what Alicke terms structural linkages), the addition of the affective and attitudinal response variables only increased

the variance accounted for by an additional 9%. Alicke's Culpable Control model predicts that affective and attitudinal responses may either directly or indirectly predict blame attributions. There is partial support for the presumption that affective and attitudinal responses simultaneously affect structural linkages and blame attributions. Whereas most of the affective and attitudinal responses measured did not significantly predict structural linkages or blame attributions, general dispositional obesity blame attributions did simultaneously predict structural linkages (controllability and responsibility) and blame attributions.

Contrary to hypotheses, the only affective and attitudinal response variable that we included in this study that predicted specific blame attributions were the OBAS Dispositional factor and OBAS Situational Factor. At first blush, this does not seem like a monumental finding. After all, blame attributions should predict blame attributions. Closer examination of each variable, however, does demonstrate two things: (a) predictive validity for the OBAS as part of the third goal of the study, and (b) a relationship between general attitudes and specific attributions because the OBAS measured general blame attributions about "people who are obese/fat" at time 1 and the dependent variable measured specific attributions of blame to the target person or group that was "interviewed" for our study about vending machine policies at time 2. Although the anti-fat attitudes, emotional reactions and warmth-competence ratings did not predict structural linkages or blame in the descriptive model, they did have bivariate relationships with the variables of interest. The multicollinearity assessment did not yield any multicollinearity (except with warmth and competence, for which we created a single higher-order factor score).

It is possible that spontaneous evaluations are not best measured with affective and attitudinal responses to scales that measure these constructs. Previous research applying the CCM has traditionally manipulated target characteristics, such as likability, which have significantly predicted blame attributions (Alicke & Zell, 2009). In the current study, the manipulated weight group variable did significantly predict blame attributions, whereas the measured variables did not. Although understanding the underlying mechanisms for spontaneous evaluations is central to the theory, capturing these mechanisms may be methodologically difficult. In support of this contention, Kanazawa (1992) recommends that experimenters not use "too much experimental prompt or probe to obtain [causal] attributions" (p.661), which includes asking participants to provide causal attributions. One method provided by Kanazawa (1992) is to have participants engage in free-response and use attribution statements as the dependent measures. Another methodological tool may be a reaction time paradigm, a common methodology in dual-process model research toward stigmatized groups (e.g., Pryor et al., 2004).

The hypothesis that blame attributions would predict support for public policy was supported. Although obesity was not a large concern for American politics prior to 2000, it became part of the political agenda following the Surgeon General's Report in 2001. For example, at the Federal level, the Affordable Care Act includes a provision requiring restaurants and vending machines to post nutritional information; at the local level, mayor Bloomberg of New York City implemented a law restricting the sale of sodas greater than 16 ounces (this has since been overturned by the court). Now that it is part of the political agenda, understanding what factors influence support and public

opinion of such law and policy is important because public opinion and perceived legitimacy in law is predictive of compliance with the law. According to Tyler (1990), because lawmakers are interested in securing compliance with the laws they make, it is ideal to establish conditions that lead to the public generally agreeing with their decisions and policies. Within the public health domain, public support and opinion may be even more important because, in the words of Tyler (1990), "laws are passed and enforced to mandate behavior that people would prefer to avoid" (p.19). As we know, health behaviors are particularly vulnerable to the belief that the government should not intrude (Gostin, 2010; Zernicke, 2003). If the law is to be used as a tool for addressing obesity (Gostin, 2010), then it would be most effective to do so in a manner in which the public agrees.

In addition to support for law and policy, it is also important to understand what effects, if any, laws have on actual behavior. On one hand, it is possible that law and policy has its intended effects on behavior. On the other hand, it is possible that law and policy does not have its intended effects. Empirically testing the assumptions law and policy has about behavior can provide insight into whether laws and policies are, effective, ineffective (no effect on behavior), or contribute to behavior that are in opposition to the intent of the law or policy. The goal of Study 3 is to do just this by examining the effects of the obesity-targeted law created for Study 2.

Table 19. Global fit statistics for variables that measured as observed factor scores from estimated models

Model	# items	# est. parameters	Chi-Square Value	Chi-Square DF	Chi-Square p-value	CFI	RMSEA Estimate	RMSEA Lower CI	RMSEA Higher CI	RMSEA p-value
AFA Factor	13	117	233.13	65	.001	.97	.11	.09	.12	.001
SCM Factor	12	60	450.61	54	.001	.94	.18	.16	.19	.001
OBAS Factors	39	322	2881.66	1626	.001	.98	.05	.05	.05	.35

Note. AFA – Anti-fat Attitudes; SCM – combined warmth and competence factor from the Stereotype Content Model. OBAS – Obesity Blame Attribution Scale developed in Study 1. The OBAS has good fit. The AFA and SCM have acceptable fit but modifications were not made to improve model fit because it was thought best to remain close to the authors' recommendations. The only exception was the combination of warmth and competence into a single higher-order factor score because of multicollinearity issues in the path model

Table 20. Emotional reactions toward obese and average weight target

	Obese		Average			
	M	*SD*	*M*	*SD*	*F*(*df*)	*P*
Anger	0.22	0.59	0.21	0.62	0.01	.98
Disgust	0.60	0.85	0.24	0.65	13.61	<.001
Contempt	0.37	0.74	0.33	0.74	0.13	.72
Pity	0.81	0.98	0.26	0.64	26.51	<.001
Sympathy	1.27	1.18	0.51	0.82	33.11	<.001
Admiration	0.56	1.03	1.13	1.20	15.65	<.001
Envy	0.21	0.74	0.49	1.00	5.86	<.05
Distrust	0.45	0.75	0.33	0.65	1.77	.19
Empathy	1.34	1.23	0.87	1.06	9.96	<.01
Disappointment	0.99	1.16	0.50	0.98	12.67	<.001

Table 21. Bivariate correlations among variables in path model predicting blame

	Type	Weight	Choice	AFA	OBAS-Control	OBAS-Resp	OBAS-DB	OBAS-SB Food	OBAS-SB Gov't	OBAS-HO-DB	OBAS-HO-SB	Disgust	Comp	Warmth	SCM HO	Control	Resp.	Blame	Support	Likely Support
Type	1.00																			
Weight	.01	1.00																		
Choice	.00	.03	1.00																	
AFA	-.05	-.08	-.07	1.00																
OBAS-Control	.01	-.11	-.04	**.59**	1.00															
OBAS-Resp	.00	**-.14**	-.03	**.56**	**.97**	1.00														
OBAS-DB	-.05	**-.14**	-.02	**.64**	**.91**	**.91**	1.00													
OBAS-SB Food	-.10	.13	.03	.04	**-.17**	**-.16**	**-.19**	1.00												
OBAS-SB Gov't	-.11	.12	.01	.04	**-.19**	**-.19**	**-.22**	**.85**	1.00											
OBAS-HO-DB	.01	-.12	-.03	**.59**	**.99**	**.98**	**.93**	**-.17**	**-.19**	1.00										
OBAS-HO-SB	-.10	**.14**	.02	.04	**-.19**	**-.19**	**-.23**	**.96**	**.96**	**-.19**	1.00									
Disgust	**.13**	**-.23**	**-.18**	**.29**	**.20**	**.20**	**.21**	-.10	-.07	**.20**	-.09	1.00								
Comp	.10	**.52**	**.34**	**-.24**	-.11	-.09	**-.13**	**.19**	.12	-.10	**.17**	**-.32**	1.00							
Warmth	.01	**.29**	**.37**	**-.20**	-.07	-.03	-.08	**.23**	**.16**	-.06	**.20**	**-.28**	**.83**	1.00						
SCM HO	.07	**.47**	**.36**	**-.23**	-.10	-.07	-.12	**.21**	**.14**	-.10	**.18**	**-.32**	**.99**	**.91**	1.00					
Control	.07	**-.28**	-.02	**.21**	**.39**	**.40**	**.38**	-.11	**-.13**	**.39**	**-.13**	**.16**	**-.16**	-.07	**-.14**	1.00				
Resp	-.08	-.03	-.05	**.24**	**.41**	**.41**	**.41**	**-.14**	**-.16**	**.41**	**-.16**	**.14**	-.10	-.08	-.10	**.47**	1.00			
Blame	-.03	**-.29**	-.04	**.31**	**.49**	**.48**	**.55**	**-.28**	**-.31**	**.49**	**-.31**	**.22**	**-.27**	**-.16**	**-.25**	**.52**	**.44**	1.00		
Support	-.08	.11	.11	**-.26**	**-.38**	**-.40**	**-.38**	**.24**	**.23**	**-.39**	**.25**	-.10	.12	.10	.12	**-.26**	**-.18**	**-.32**	1.00	
Likely Support	.03	.06	.00	-.09	-.06	-.04	-.12	**.29**	**.30**	-.05	**.32**	.04	.02	.00	.01	.03	.01	-.02	.13	1.00

*. Correlation is significant at the 0.05 level (2-tailed). **. Correlation is significant at the 0.01 level (2-tailed). DB = Dispositional Blame, SB = Situational Blame, HO = higher-order

Table 22. Parameter estimates for prescriptive path model (model 1)

Model	*Beta*	*B*	*SE*	*Est./SE*	*P*
Control					
Type	−0.01	−0.01	0.08	−0.11	0.91
Weight	−0.11	−0.23	0.10	−2.23	<.05
Choice	−0.02	−0.04	0.15	−0.30	0.77
Weight X Choice	−0.05	0.21	0.28	0.76	0.45
Responsibility					
Control	0.55	0.67	0.06	10.53	<.001
Type	−0.01	−0.01	0.08	−0.11	0.91
Weight	−0.09	−0.23	0.10	−2.23	<.05
Choice	−0.06	−0.14	0.10	−1.33	0.18
Weight X Choice	0.05	0.23	0.30	0.77	0.44
Blame					
Responsibility	0.36	0.48	0.06	8.26	<.001
Control	0.32	0.35	0.05	6.73	<.001
Type	−0.01	−0.01	0.08	−0.11	0.91
Weight	−0.21	−0.56	0.16	−3.50	<.001
Choice	−0.05	−0.14	0.10	−1.33	0.18
Weight X Choice	−0.13	−0.67	0.31	−2.20	<.05
Support					
Blame	−0.50	−0.43	0.08	−5.68	<.001
Likelihood of Support					
Blame	0.06	0.04	0.05	0.82	0.41
Covariances					
Support ⟷ Likelihood	0.23	0.23	0.09	2.53	<.01

Table 23. Parameter estimates for descriptive path model (model 2)

Model	*Beta*	*B*	*SE*	*Est./SE*	*p*
SCM					
Type	0.07	0.13	0.10	1.32	0.19
Weight	0.44	0.80	0.10	8.24	<.001
Choice	0.33	0.61	0.10	6.40	<.001
Disp. Blame	0.16	0.15	0.06	2.36	<.05
Sit. Blame	0.16	0.17	0.05	3.42	<.001
AFA	−0.27	−0.31	0.07	−4.60	<.001
Disgust					
Type	0.16	0.39	0.19	2.04	<.05
Weight	−0.28	−0.69	0.19	−3.69	<.001
Choice	−0.21	−0.52	0.19	−2.72	<.01
Disp. Blame	−0.02	−0.03	0.13	−0.20	0.84
Sit. Blame	−0.09	−0.12	0.11	−1.14	0.25
AFA	0.37	0.57	0.17	3.36	<.001
Control					
Type	0.07	0.16	0.16	1.04	0.30
Weight	−0.24	−0.55	0.17	−3.33	<.001
Choice	−0.01	−0.01	0.16	−0.09	0.93
Disp. Blame	0.40	0.48	0.10	4.89	<.001
Sit. Blame	−0.05	−0.06	0.08	−0.72	0.47
AFA	−0.03	−0.04	0.12	−0.36	0.72
Disgust	0.05	0.05	0.09	0.53	0.60
SCM	0.03	0.04	0.10	0.37	0.71
Responsibility					
Control	0.47	0.53	0.06	9.33	<.001
Type	−0.14	−0.37	0.17	−2.10	<.05
Weight	0.20	0.50	0.18	2.74	<.01
Choice	−0.02	−0.05	0.18	−0.28	0.78
Disp. Blame	0.22	0.30	0.12	2.47	<.01
Sit. Blame	−0.11	−0.15	0.09	−1.65	0.10
AFA	−0.03	−0.04	0.14	−0.29	0.77
Disgust	0.11	0.11	0.11	1.05	0.29
SCM	−0.03	−0.04	0.11	−0.34	0.73

Blame					
Control	0.31	0.39	0.06	6.95	<.001
Responsibility	0.19	0.21	0.05	4.26	<.001
Type	−0.07	−0.21	0.17	−1.24	0.21
Weight	−0.08	−0.24	0.18	−1.37	0.17
Choice	0.02	0.06	0.17	0.35	0.73
Disp. Blame	0.22	0.33	0.11	2.94	<.001
Sit. Blame	−0.19	−0.30	0.08	−3.67	<.001
AFA	0.02	0.04	0.13	0.27	0.79
Disgust	0.07	0.09	0.09	0.92	0.36
SCM	−0.08	−0.13	0.10	−1.27	0.20
Support					
Blame	−0.20	−0.16	0.08	−2.16	<.05
Disp. Blame	−0.31	−0.38	0.13	−2.88	<.001
Sit. Blame	0.20	0.26	0.12	2.21	<.05
Likelihood Support					
Blame	0.22	0.16	0.06	2.75	<.01
Disp. Blame	0.05	0.05	0.10	0.51	0.61
Sit. Blame	0.39	0.47	0.08	5.58	<.001
Covariances					
SCM ⟷ Disgust	−0.28	-0.20	0.05	-4.02	<.001
Support ⟷ Likelihood	0.15	0.15	0.09	1.63	0.10

Table 24. Standardized indirect effects within path models

Path (X→M→Y)	Estimate	*SE*	*p*
Prescriptive Model (Model 1)			
Weight→Controllability→Blame	−0.04		<.05
Weight→Responsibility→Blame	−0.03		<.05
Controllability→Responsibility→Blame	0.18		<.001
Descriptive Model (Model 2)			
Weight→Controllability→Blame	−0.07		<.01
Weight→Responsibility→Blame	0.04		<.05
OBAS Disp→Controllability→Blame	0.12		<.001
OBAS Disp→Responsibility→Blame	0.04		<.05
OBAS Sit→Controllability→Blame	−0.02		.47
OBAS Sit→Responsibility→Blame	−0.02		.08
Controllability→Responsibility→Blame	0.09		<.001

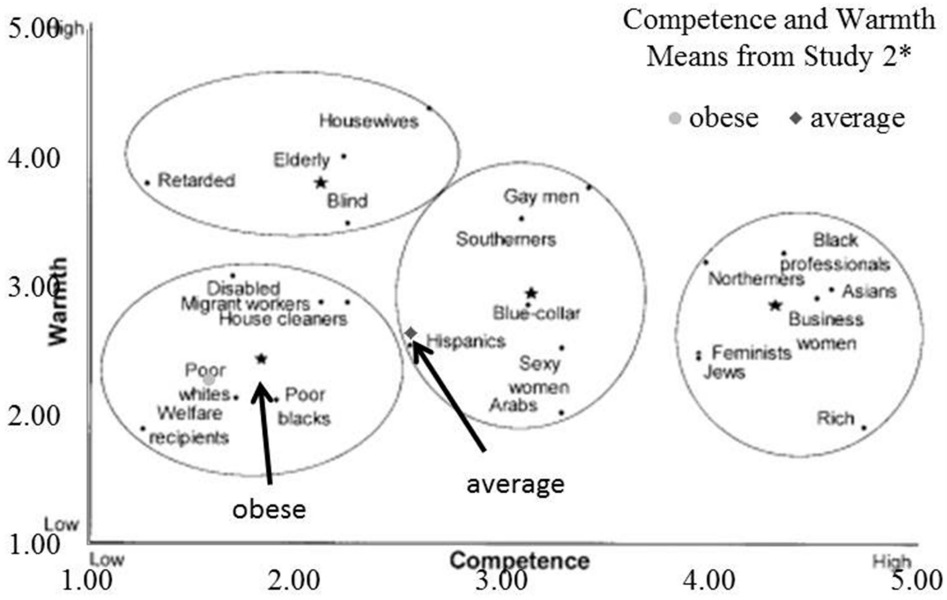


Figure 5. Warmth and competence means for obese and average weight group mapped onto the figure from the original published article (Fiske et al., 2002, Study 1 Figure 2, non-student sample).

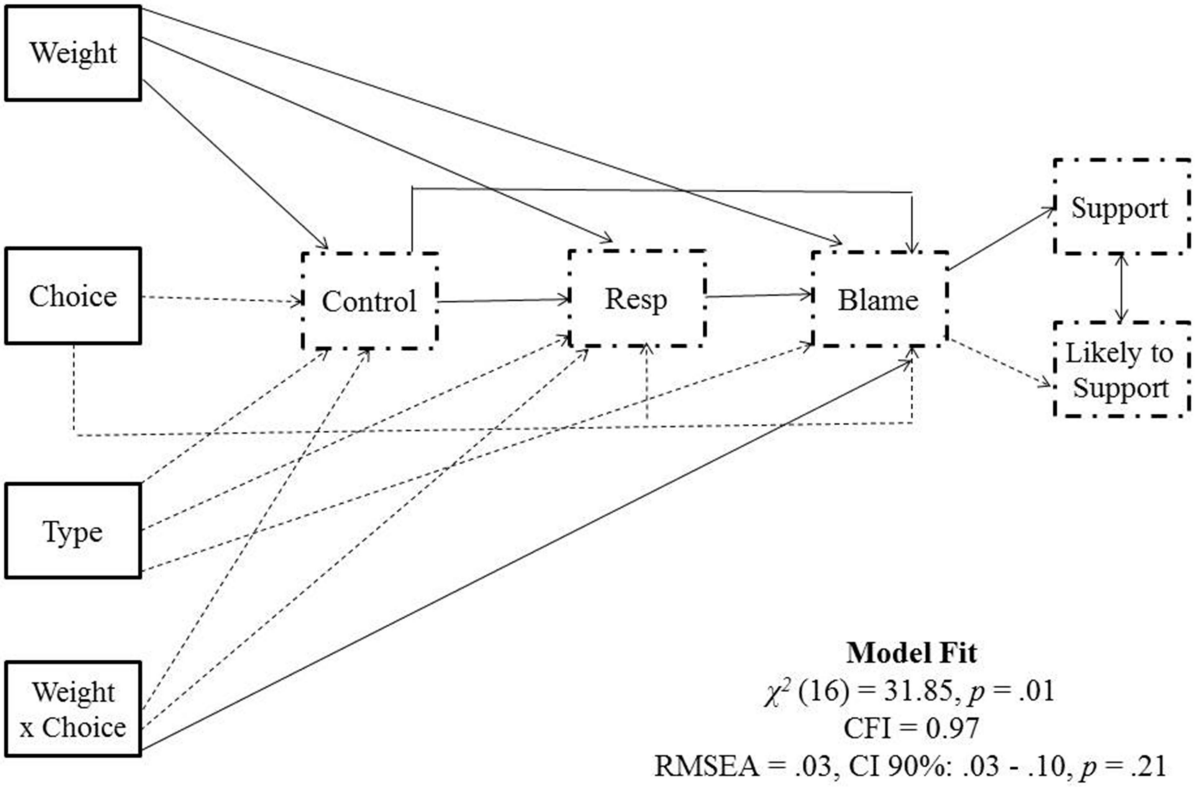


Figure 6. Path Model 1 for prescriptive blame model based on Shaver's (1985) Theory of Blame model. Significant paths are solid and non-significant paths are dashed. Categorical variables are in dotted boxes. Parameter estimates are presented separately in Table 22.

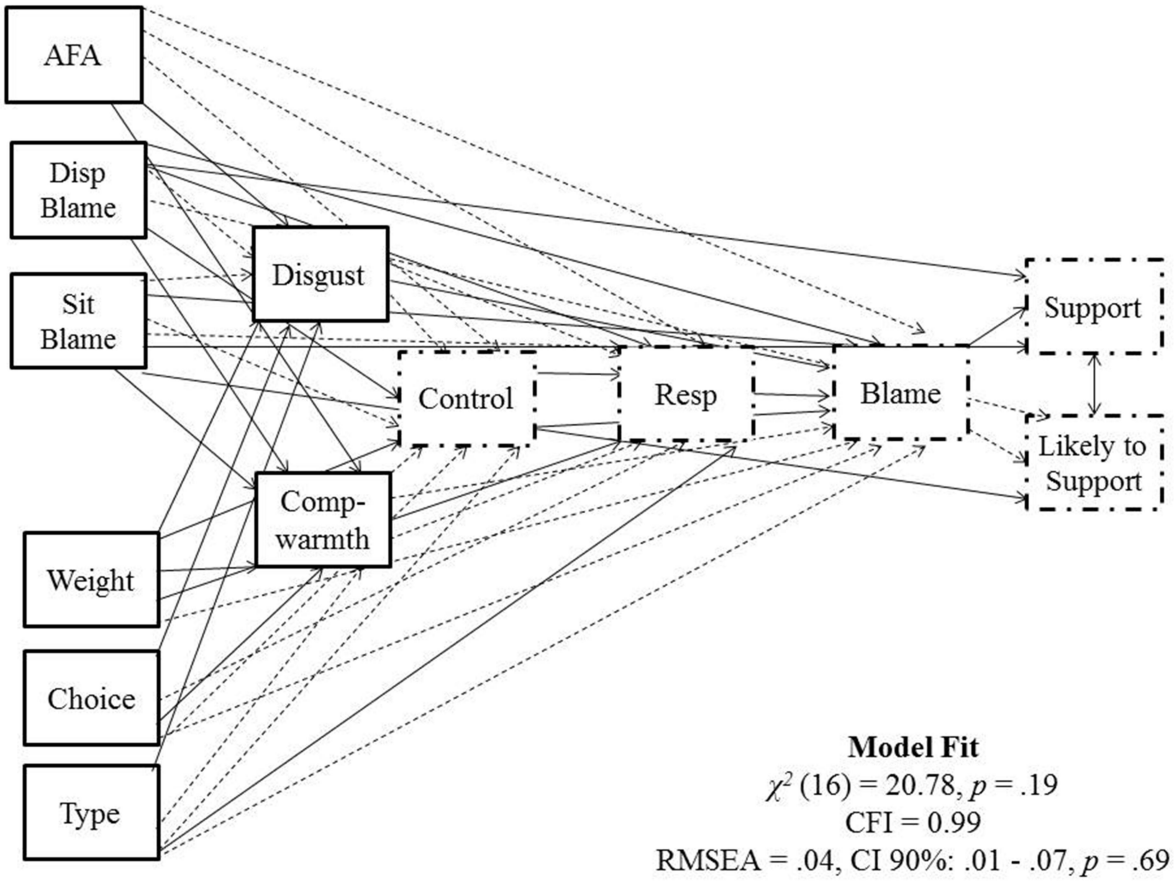


Figure 7. Path model 2 for descriptive blame model based on Alicke's (2000) Culpable Control model. Significant paths are solid and non-significant paths are dashed. Categorical variables are in dotted boxes. Parameter estimates are presented separately in Table 23.

CHAPTER 4
STUDY 3: CONSEQUENCES OF OBESITY LAW AND POLICY

Although previous research has found that policies that blame people who are obese have been perceived as more stigmatizing (Puhl et al., 2012) and that people who are obese who were primed with negative stereotypes had lower intentions to exercise and eat nutritionally, the dependent measures in these studies were limited (Seacat & Mickelson, 2009). For instance, Puhl and colleagues (2012) asked people to rate the stigmatizing effects of health messages but did not actually measure whether the ads increased stigma using experimental methods. Moreover, Seacat and Mickelson (2009) did not measure actual exercise and eating behaviors, but rather self-reported intentions to exercise and eat healthier. With these limitations in mind, the current study experimentally examined how law and policy that blame people who are obese influence food consumption and physical activity behavior, and whether effects differ as a function of dispositional blame (toward people who are obese) or situational blame (toward the environment).

Participants

The participants (*N*=86) for this study included two groups. The community member sample (*n* = 45) was recruited through Craigslist, flyers, newspaper ads, and word of mouth. Community member participants either called or emailed if they were interested in participating and were asked to respond to several questions, including height and weight (the research assistant calculated BMI), to determine eligibility. Community member participants were compensated either $5 or $10 for completing the study (compensation was increased after *n* = 10 to increase participation). The undergraduate student sample (*n* = 41) was recruited via the university's mass screening,

which allows researchers to contact students interested in participating in research based on their responses to the mass screening questionnaire completed at the beginning of the semester. Student participants were emailed if they met the eligibility criteria for calculated BMI based on the height and weight they indicated on the mass screening questionnaire. Student participants were compensated with course credits. Both samples were entered into a lottery to win a $100 gift card as additional incentive for participation. BMI was calculated based on the Center for Disease Control's calculator for adults over the age of 20 (Center for Disease Control and Prevention, 2011). Sample characteristics are displayed in Table 25.

Method

Procedures

Participants were recruited for an ostensible healthy vending machine taste test study. Once participants were determined eligible for the study and an in-laboratory appointment was scheduled, they were emailed a questionnaire to be completed prior to arriving at the study. Participants were told that the researchers were collecting a variety of information that the city would like to know about the taste-testers to get a representative sample of people who live in the city and to save time on the day of the actual study. The true purpose for completing the study prior to the in-laboratory study was to conceal the hypotheses of the study. Once participants arrived to the Taste Testing laboratory in the basement of the building, research assistants read a script that explained the study. Each participant was told that the city hired the psychology department to conduct a series of studies to taste test snack foods in an effort to provide healthy, but

tasty, choices in vending machines and to examine new proposed vending machine policies.

Participants were randomly assigned to one of three conditions and read an excerpt from a proposed law. The policy was typed in a format similar to an actual proposed law and contained the manipulated language that blamed the obesity epidemic on either a) people who are obese (dispositional blame), b) an obesogenic environment (situational blame), c) or no mention of blame (control condition). After participants completed manipulation check questions, they were asked to taste and rate six snack items on a platter (see picture below). Each food item was presented on the same size plate, placed in random order in front of the participant, and given a label that contained a picture of the food product packaging and the food product's name.

The research assistants asked each person to try the items and rate each item using the same questions in Study 2 (e.g., taste, health, salty). Each snack item was weighed prior to being given to the participant outside of participant's view behind a room divider. The weight of each item (in grams) was held constant across all participants. Each snack

item weighed 30 grams, with the exception of the two chip items that were weighed to 21 grams because of the amount of space they took up on the plate. Participants were encouraged to try every item and to consume as much as they would like. Because participants may modify eating behavior when others are present (Roth, Herman, Polivy & Pilner, 2001), research assistants explicitly told participants they were leaving the room for ten minutes. Each snack item was weighed before and after (away from participants) as a measure amount-consumed (Fredrickson et al., 1998; Mori, Chaiken, & Pliner, 1987) and caloric intake (Major, Hunger, Bunyan, & Miller, 2014).

When the research assistants returned, they causally asked participants how everything was and removed the food. To measure ego-depletion, participants completed a series of math problems, which was counter-balanced to be completed just after the taste test task or just before they completed the exit questionnaire upstairs. Research assistants escorted participants until standing equidistance between the elevator and stairs, and explicitly pointed and stated they may take the elevator or the stairs. Participants' decision was recorded as a measure of physical activity choice. The first research assistant returned to the taste testing laboratory to weigh each snack item out of the view of participants and recorded the difference in weight as the food consumption dependent variable.

A second research assistant met the participant on the third floor to confirm whether they took the elevator or stairs. Upstairs, participants completed the exit questionnaire, which included the counter-balanced ego-depletion math problem task (if they did not complete it downstairs), current eating and physical activity habits, intentions for future healthy eating and physical activity, emotional reactions, and

acceptance of stigma. To confirm BMI, participants were asked to hold a hand-held machine after research assistants manually entered the required information into the machine (i.e., height, weight, age, gender), which was all gathered during the pre-study survey (for community members) or mass screening (for students). After the exit questionnaire but before being debriefed, participants were shown a table with additional snacks and flyer for a gym. We recorded what, if any, items participants took from the table.

Materials

Independent measures

Screening measures

Community member participants were recruited via advertisements in the community, and called/emailed the research team if they wanted to complete the study. The research assistant asked a series of filler questions (age, gender, voter registration status, education level, parent's education level, food allergies, dietary restrictions) and height and weight, which were used to calculate BMI for purposes of eligibility. Screening items are presented in Appendix K. Student participants were screened using a mass screening procedure. At the beginning of each academic semester, students are invited to participate in a survey that includes demographic questions and measures submitted by various researchers in the psychology department. For purposes of the current study, only height and weight were used as a means to calculate BMI. Students were recruited via email if they were average weight, overweight, or obese. Participants from both groups were scheduled (by phone or email) and emailed the link to the pre-study dependent measures.

Type of blame manipulation

Legal scholars have noted that many of the strategies governments have proposed/implemented for reducing obesity may be grouped as either attributing responsibility to individuals who are obese or environmental factors, such as the food industry and the government (Benforado et al., 2004; Winstanley, 2007). As such, the blame manipulation was embedded in a written proposed policy for healthy vending machines and varied by: (A) Dispositional Blame, (B) Situational Blame, (C) No Blame control. The policy language was identical to Study 2, except the addition of the No Blame control condition policy. The manipulated language appeared in the legislative findings rationale section of the policy and included elements of blame, responsibility, and controllability as theorized in blame theories. The policies and manipulated language are presented in Appendices J and L.

Pre-study control measures

Public Trust and Confidence in Institutions. As part of the cover story, participants also completed an adapted 35-item Public Trust and Confidence in Institutions measure (Tomkins et al., 2011-2014). The measure was modified to include assessment of public trust and confidence in public health agencies (e.g., Food and Drug Administration, the Center for Disease Control). Although the measure is not directly related to the hypotheses of the current study, the measures are relevant to public policy decisions and support the cover story about public health policy decisions. Items are presented in Appendix M.

Clinical measures. Previous research has shown that weight-based stigma may have negative consequences for the people who are overweight, including depression,

isolation, and social withdrawal (Bannon, et al., 2009; Miller, Rothblum, Barbour, Brand, & Felicil, 1990). To measure individual differences for mental health outcomes, participants completed the 21-item short form Depression Anxiety Stress Scale (DASS-21; Antony et al., 1998) that measures depression, anxiety, and stress. Each item has four response options: "did not apply to me at all"(0), "applied to me to some degree or some of the time" (1), "applied to me to a considerable degree or a good part of the time" (2), and "applied to me very much or most of the time" (3?). Higher scores indicate more symptomology for depression, anxiety, and stress. Because the DASS-21 consists of half of the original items, responses are added together and doubled, which provides very similar results to the original DASS normative sample (Henry & Crawford, 2005). Table 26 contains descriptive statistics by sample (Stress Cronbach's α =.85; Depression Cronbach's α =.90; Anxiety Cronbach's α =.88). Items are presented in Appendix N.

Food preferences. As part of the cover story of the taste test study and for a filler to disguise the research hypotheses, participants completed the Food Choice Questionnaire (FCQ; Steptoe, Pollard, & Wardle, 1995). The FCQ is a 68-item measure that assess nine factors participants may consider when choosing what to eat, such as health, mood, convenience, sensory appeal, natural content, price, weight control, familiarity, and ethical concerns. Response options are on a 4-point Likert scale with "not at all important," "a little important," "moderately important," and "very important." Higher scores indicate that factor is more important to the individual. The entire scale was included as part of the cover story of a taste test study; however, the FCQ-Health subscale was included in analyses because it measures the importance of healthy eating (FCQ-Health Cronbach's α =.84). The FCQ-Health subscale has 6 items with higher

values indicating a greater interest in eating foods because they are healthy. Table 26 contains descriptive statistics by sample. Items are presented in Appendix P.

Concerns with body image. Concerns with body image was measured using the Body Shape Questionnaire (BSQ; Cooper, Taylor, Cooper, & Fairburn, 1987; Dowson & Henderson, 2001) because restrained eating is related to how individuals perceive their bodies and their level of body shame. The short version BSQ is a 14-item scale that measures perceptions and attitudes toward one's appearance and size. Response options are on a 6-point Likert scale and include "never," "rarely," "sometimes," "often," "very often," and "always." An example item is "Has worry about your shape made you diet?" Higher scales indicate greater concerns with body image. Table 26 contains descriptive statistics by sample (Cronbach's α =.97). Items are presented in Appendix Q.

Tendency to diet. One of the primary dependent variables in this study was the amount of food consumed during the taste test study; therefore, we examined participants' tendency to diet using the Revised Restraint Scale (RRS; Polivy, Herman, & Howard, 1988). The RRS is a 10-item scale assessing weight fluctuations, degree of chronic dieting, and related attitudes towards weight and dieting. Example questions include "Do you eat sensibly in front of others but splurge when alone?" and "How many pounds over your desired weight were you at your maximum weight?" The response options for this scale vary depending on the question—all have five response options but some are Likert scale responses while others ask for a quantitative value. Scores are calculated by assigning a 0 for the first response, 1 for the second response, 2 for the third response, 3 for the fourth response, and 4 for the fifth response. Higher scores indicate

more restrained eating (Cronbach's α =.75). Table 26 contains descriptive statistics by sample. Items are presented in Appendix R.

In-lab dependent measures

Manipulation check questions. Just after they read the policy, participants provided their impressions of the policy that served as a manipulation check. To ensure participants read the policy, they were asked three factual questions about the policy: (a) "How much money is spent on vending machines annually?" (the correct answer did not vary across conditions: $500,00) (b) "What was one of the causes for obesity mentioned in the policy? and (c) "What type of factors does the policy blame for obesity?" The correct answer for (b) and (c) varied by the condition as either indicating dispositional cause/blame, situational cause/blame or no cause/blame. Manipulation check questions were forced choice until the correct response was selected. To ensure the policy was eliciting blame, participants were also asked "How much do you think the policy blames [insert participant's answer to blame question]?" on the scale "not at all" (1), "somewhat" (2), "quite a bit" (3), or "completely" (4). Items are presented in Appendix S.

As expected there were significant differences across the three policies [$F(2, 83) = 3.80$, $p < .05$]. According to LSD post-hoc tests, participants perceived the dispositional blame policy as more blameworthy ($M = 2.31$, $SD = 0.86$) than the control policy ($M = 1.78$, $SD = 0.75$) and the situational blame policy ($M = 1.89$, $SD = 0.75$), but the situational blame policy was not perceived as more blameworthy than the control policy. On the same scale 1 to 4 scale, we also asked three questions to ensure the three policies were of equal quality and valence. As expected, participants perceived all three policies as similarly high in quality [$F(2, 83) = 0.16$, $p = .86$; overall $M = 2.67$, $SD = 0.79$] and

evoking similar positive feelings [$F(2, 83) = 0.57$, $p = .57$; overall $M = 2.30$, $SD = 0.92$] and similar negative feelings [$F(2, 83) = 2.07$, $p = .13$; overall $M = 1.71$, $SD = 0.81$].

Amount and type of food consumed. Scholars have suggested that weight-based stigma and stigmatizing public health campaigns may have the unintended effects of increasing food consumption (Puhl et al., 2012). Conversely, others have suggested that body shame may decrease or restrain eating (Fredrickson, et al., 1998). To measure the quantity and type of foods participants ate, we weighed the snacks before the taste testing task and after the taste testing task for a weight difference score in grams (Fredrickson et al., 1998; Mori, et al., 1987).

The food options included paired unhealthy-healthier items that were pilot tested for healthiness in two previous studies (i.e., ratings from Study 2). Online participants provided healthiness ratings for several snack items based on pictures of the snack items. Items were selected for an in-person pilot test of Study 3 with university students ($n = 17$) based on the healthiness rating as well as a desire to have a variety of flavors that might appeal differently to participants (chocolatey, salty, and fruity). In pilot testing, it was revealed that participants perceived baked potato chips as similarly unhealthy to regular potato chips. As such, baked potato chips were replaced with veggie chips and all other foods from pilot testing remained in Study 3. The final snack items included unhealthy items: (a) snickers candy bar, (b) salted wavy potato chips, and (c) skittles; and healthier paired items: (a) kind bar, (b) salted veggie chips, and (c) dried fruit.

As part of the cover story that participants were participating in a vending machine taste test study, participants rated each food item based on seven characteristics: (a) tastiness, (b) healthiness, (c) saltiness, (d) sweetness, (e) how filling, (f) cost

effectiveness, and (g) likelihood of purchasing from a vending machine. Paired-sample t-tests compared the mean values between the unhealthy-healthier paired foods. As expected, participants rated the unhealthy items as significantly less healthy than their paired healthier item. Table 27 presents descriptives and paired sample t-tests for each characteristic.

Physical Activity. Scholars have suggested that weight-based stigma and stigmatizing public health campaigns may have the unintended effects of decreasing motivation for physical activity (Puhl et al., 2012). As a proxy measure for physical activity within a laboratory setting, we had participants meet a research assistant upstairs to complete the Exit Questionnaire. Participants were told that the researchers needed the basement Taste Testing laboratory for the next participant and asked if the participant would mind completing the Exit Questionnaire upstairs. The research assistants walked participants to the end of the hallway equidistance between the stairs and elevator and explicitly told participants they could choose to take the stairs or the elevator. Participants' choice was recorded as a measure of physical activity by the first researcher (and confirmed by the second researcher). Overall, 17% (n = 15) of participants took the elevator and 83% (n = 71) of participants took the stairs.

Ego-depletion measure. Previous research has found that people may engage in restrained eating when experiencing weight-based stigma or discrimination and that short-term restrained eating may contribute to depleted cognitive resources needed to make long-term healthy decisions (Baumeister, Bratslavsky, Muraven, & Tice, 1998). As such, people who engage in restrained eating may binge eat followed a period of restraint. To measure whether participants are engaging in restrained eating, participants completed

the ego-depletion math problems. Following methods employed in previous research (Vohs, et al., 2008), participants were told the researchers were interested in how well people calculated math problems related to cost per unit of vending machine items and were read the following instructions:

> "It is important you do well on these calculations so that the task force knows how well people are able to make these calculations when purchasing snacks in vending machines. This math test is sensitive to brief amounts of practice, therefore, everyone is allowed some practice time before taking the test. You may practice these problems for as long as you want. When you no longer want to practice anymore problems, please ring the bell to alert the experimenter."

All math problems were 3 digit by 3 digit multiplication problems with one decimal place (e.g., 24.0 X 32.6) and consisted of a front and back page. Research assistants recorded the time the problems were started to the time when participants rang the bell. Lower values indicate participants spent less time (in seconds) on the math problems, which is indicative of giving-up or ego-depletion. The math problems were counter-balanced so that they were either administered right after the taste testing or right after participants took the elevator or stairs and began the Exit Questionnaire.

There was a single outlier who spent 41 minutes on the math problems and was subsequently removed (otherwise the range was 0 seconds to 23 minutes). Once the outlier was removed, the average time spent on the math problems was 333 seconds (5.5 minutes). ANOVA revealed that there was a significant order effect $F(1,80) = 5.48$, $p<.05$. Those that completed the study downstairs persisted longer with the math problems ($M = 400.34$, $SD = 316.77$) than participants who completed them upstairs ($M = 265.78$, $SD = 187.29$). One reason may be that choosing between the elevator and stairs (or actually walking up the stairs) was cognitively taxing, however there was not a significant difference on the time to complete the math problems for participants who

took the elevator or the stairs $F(1,80) = 0.62$, $p = .43$. An alternative explanation was that participants upstairs knew they were close to finishing the study and therefore ended the task earlier. Because of the order effect, the order variable will be included as a control variable in any analyses that includes the ego-depletion score.

Emotional reactions. To measure whether the manipulated variables had any emotional effects, participants completed a short version of the Positive and Negative Affects Scale (PANAS; Watson, Clark & Tellegen, 1988). The modified PANAS includes 21 positive and negative emotions with instructions to indicate how they currently feel. Response options are on a 5-point Likert scale including "very slightly or not at all," "a little," "moderately," "quite a bit," and "extremely." Higher scores indicate feeling that emotion more strongly (positive scale Cronbach's $\alpha = .88$; negative scale Cronbach's $\alpha = .81$). Emotions are presented in Appendix T.

Current eating and physical activity habits. As a control measure, we asked participants to report their current eating habits and physical activity/exercise habits. With a single item the question asked, "How would you describe your current eating habits?" and "How would you describe your current exercise/physical activity habits?" Response options were on a 5-point Likert scale with response options "not at all likely" (1), "a little likely," "moderately likely." "quite a bit likely," and "extremely likely" (5).

Intent to eat healthy or exercise. Similar to Puhl and colleagues' (2012) study that examined intentions for complying with public health messages, this study asked participants for their intentions to eat healthy or increase physical activity with a single question for each. With a single item, the question asked "How likely is it that you will eat healthier in the future?' and "How likely is it that you will be more physically active

in the future?' Response options were on a 5-point Likert scale with response options "not at all likely" (1), "a little likely," "moderately likely," "quite a bit likely," and "extremely likely" (5).

Acceptance of stigma. A modified version of the Weight Bias Internalization Scale (WBIS; Durso & Latner, 2008) measured participants' belief that negative stereotypes and negative statements about people who are obese apply to him or her. The modified version created specifically for this study changed words such as "overweight" to "weight" so the measure is applicable to obese and average weight participants. The scale consists of 11 items with response options on a 7-point Likert scale ranging from "strongly agree" to "strongly disagree." Example items include "I hate myself for my weight" and "My weight is a major way that I judge my value as a person." Higher scores indicate more internalization of weight bias (Cronbach's α =.93). Items are presented in Appendix U.

Additional snacks and gym flyer. After BMI was measured and participants were paid (or told they would get research credit), we measured whether participants took additional snacks or a gym flyer. These second measures were employed because participants may have felt observed when they were tasting the foods or choosing between the elevator and stairs, but may have felt less observed if they thought the study was over. The gym flyer was a 5 x 6 color flyer on cardstock with a description of the gym (i.e., a gym for everyday people), an advertised price of $10 a month, and a free tour. The additional snacks were displayed in a basket and included items like chocolate bars, chips, and cheese crackers. Overall, 23% (n = 20) of participants took a gym flyer and 76% (n = 65) did not take a gym flyer. Forty-eight percent (n = 41) of participants

took additional snacks and 51% (n = 44) did not take additional snacks. One community member did not have data for any of the upstairs measures because he/she got lost in the building and did not complete the study (this person contacted the PI and was mailed compensation).

Hypotheses

(1) Hypothesis 1: Previous research has indicated that exposure to negative obesity stereotypes may inhibit participants' reported intent to eat healthy and engage in physical activity (Seacat & Mickelson, 2009). Based on this previous research, we expect that participants who are exposed to the Dispositional Blame condition will be less likely to report that they will engage in future healthy eating and physical activity than the No Blame condition. Hypotheses surrounding the Situational Blame condition are exploratory. It may be that the Situational Blame condition results are similar to the No Blame control condition results because blame is not directed at the individual. On the other hand, Situational Blame could be similar to the Dispositional Blame condition because of the blame language. We expect the blame policy effects to be present even when controlling for BMI, and that those with a higher BMI will report less likelihood of engaging in future healthy behaviors.

(2) Hypothesis 2: To extend previous research that has relied on self-report intentions to eat healthier, we measured how much participants consumed during the taste testing study and whether participants took additional snacks upon exiting the study. It was hypothesized that, similar to reported intentions, participants who were exposed to the Dispositional Blame condition will consume more grams of snacks than the No Blame condition. Again, there were no directional hypotheses for the Situational

Blame condition, but it may be the case that the results for Situational Blame mirror those of the Dispositional Blame condition or No Blame condition, depending on how the Situational Blame policy is perceived. We expect the effect of the blame policy to be present even when controlling for BMI, but that those with a higher BMI will consume more grams of snacks.

(3) Hypothesis 3: Again, as an extension to previous research that has relied on self-report intentions to engage in physical activity, we measured physical activity with the choice to take the elevator or stairs when leaving part 1 of the study and whether participants took a flyer for a local gym upon exiting the study. It was hypothesized that participants who are exposed to the Dispositional Blame condition will be less likely to engage in physical activity than the No Blame condition. Again, there were no directional hypotheses for the Situational Blame condition, but it may be the case that the results for Situational Blame mirror those of the Dispositional Blame condition or No Blame condition, depending on how the Situational Blame policy is perceived. We expect the blame policy effect to be present even when controlling for BMI, but that those with a higher BMI will engage in less physical activity.

(4) Hypothesis 4: An alternative hypothesis is that rather than consuming more calories, participants will engage in restrained eating while in the taste testing study because of social norms to eat healthy or a general tendency to diet. If participants in the Dispositional Blame condition eat healthier than the No Blame or Situational Blame Conditions, we expect that ego-depletion will be related to restrained eating (Fredrickson et al. 1998), especially for people with high BMI high body shame, and high restrained eating scores. We also expect that restrained eating will result in a

subsequent decrease in physical activity and later increased food consumption during the follow-up measures when participants no longer think they are being monitored (Puhl et al., 2012).

(5) Hypothesis 5: Previous research has found that participants perceive some health messages as more stigmatizing than others (Puhl et al., 2012). We extended this previous research and hypothesized that the Dispositional Blame policy will increase stigma, increase negative emotions and decrease positive emotions, relative to the Situational Blame policy and No Blame policy.

Results

Hypothesis 1: Does the type of blame language contribute to greater intentions for eating healthier in the future and engaging in more physical activity, especially for those with a higher BMI? A Generalized Linear Model with a Logit link was estimated to predict intentions for eating healthy in the future (an 5-point ordinal response). The predictor variables included the Group (community members as the reference group), Type of Policy (dummy coded into two variables with No Blame Control policy as the reference group), BMI as a continuous variable (centered at 28), the interaction between Type of Policy x BMI, Current Eating Habits, the FCQ-Health (centered at 3), which measures participants' beliefs that eating healthy is important. The Type of Policy x BMI interaction was not significant and was removed from the model.

The model predicting intentions to eat healthy with the predictors was compared to the thresholds-only model and was significant χ^2 (6) = 16.97, p <.01. Parameter estimates demonstrated that contrary to the hypothesis, the Dispositional Blame policy did not predict intent to eat healthy compared to the No Blame control condition;

however, Situational Blame resulted in reporting less intention to eat healthy compared to No Blame control condition. To examine whether there were significant differences between the Situational and Dispositional Blame conditions, a second regression was estimated with Dispositional Blame as the reference group. There was a marginal effect in which participants in the Dispositional Blame condition were more likely to report intentions to eat healthy than the Situational Blame condition (β = -0.53, SE = 0.30, p = .08). Sample Group and BMI did not predict intentions to eat healthy. Current eating habits did not predict intentions to eat healthy, but participants who endorsed higher levels of the importance of eating healthy measured with the FCQ-Health had higher intentions of eating healthy in the future. Table 28 displays the parameter estimates for the model in which the reference group was the No Blame control condition.

A Generalized Linear Model with a Probit link was estimated to predict intentions for engaging in physical activity in the future. The predictor variables included the Group (community members as the reference group), Type of Policy (dummy coded with No Blame Control policy as the reference group), BMI as a continuous variable (centered at 28), the interaction between Type of Policy x BMI, Current Physical Activity Habits, and the FCQ-Health (centered at 3). The Type of Policy x BMI interaction was not significant and was removed from the model.

The model predicting intentions to engage in physical activity with the predictors was compared to the thresholds-only model and was significant χ^2 (6) = 13.35, p <.05. Parameter estimates demonstrated that contrary to the hypothesis, none of the variables predicted intentions to engage in physical activity, although Current Physical Activity habit was marginally significant. The test of model effects, however, indicated that there

was a significant difference for Type of Policy. The model was re-estimated so that the Dispositional Blame Policy was the reference group. Relative to the Dispositional Blame policy, the Situational Blame policy resulted in less intention to engage in future physical activity $B = -0.84$, $SE = 0.30$, $\chi^2 = 7.62$, $p < .01$, but still no difference for the control condition. Table 28 displays the parameter estimates for the model with Dispositional Blame as the reference group.

Hypothesis 2: Does the type of blame language contribute to greater food consumption, especially for those with a higher BMI? Is restrained eating and ego-depletion related to amount of food consumed (hypothesis 4)? To estimate the effects on food consumption, a repeated measures general linear model (GLM) was estimated with Type of Policy, BMI (centered at 28), the Restrained Eating scale (centered at 12), the Ego-depletion score (centered at 338), and the ego-depletion order variable that predicted grams consumed for each of the six snack items. Contrary to hypothesis 2 and hypothesis 4, none of these variables were significant predictors of food consumed; however, one pattern emerged for the Skittle-Fruit pair and the Wavy chip-Veggie chip pair, but another pattern emerged for Snickers-Kind Bar pair. Figure 8 displays the estimated marginal means (in grams) consumed for each of the six snack items. In general, participants consumed more of the healthy than the unhealthy snacks. According to the trends for the Skittle-Fruit and the Wavy chip-Veggie chip pairs in the Situational and Dispositional Blame conditions, food consumption for *unhealthy* snacks decreased in both blame conditions, but consumption of the *healthy* snacks increased in both blame conditions. Unhealthy and healthy snack consumption, however, had similar mean values to each other in the No Blame control condition. For the Snickers-Kind Bar pair, the

largest difference between healthy and unhealthy snack consumption was in the No Blame control group, for which unhealthy food consumption decreased compared to the healthy food consumption.

To predict the probability that participants would take additional snacks upon leaving the study (coded as 1), a stepwise logistic regression was estimated in which Step 1 included the sample and manipulated variables Group (community members as the reference group), Type of Policy (dummy coded with No Blame Control policy as the reference group), BMI as a continuous variable (centered at 28), and the interaction between Type of Policy x BMI. The model with the interaction term demonstrated a non-significant Policy Type x BMI interaction; therefore the model was re-estimated without the interaction. The model predicting taking additional snacks, however, was not statistically significant χ^2 (4) = 2.50, p= .65, R^2 = .03. In Step 2 we included control variables predicted to be related to food consumption. We included the Restrained Eating scale, the measure of Ego-depletion, a Restrained Eating x Ego-depletion interaction term, and the Ego-depletion order variable. This model was still not statistically significant χ^2 (3) = 1.34, p= .72, R^2 = .05; thus I was unable to predict differences in people who took additional snacks and people who did not take additional snacks even though approximately half the sample took additional snacks.

Hypothesis 3: Does the type of blame language inhibit choice for physical activity, especially for those with a higher BMI? Is restrained eating and ego-depletion related to physical activity choice (hypothesis 4)? To predict the probability that participants would choose to take the stairs (coded as 1), a stepwise logistic regression was estimated in which Step 1 included the sample and manipulated variables Group

(community members as the reference group), Type of Policy (dummy coded with No Blame Control policy as the reference group), BMI as a continuous variable (centered at 28), the interaction between Type of Policy x BMI. The model with the interaction term demonstrated a non-significant Policy Type x BMI interaction; therefore the model was re-estimated without the interaction. The Odds Ratio of the intercept only model indicated that participants were 5.25 times more likely to choose the stairs over the elevator. A test of the full model versus the intercept only model was statistically significant, χ^2 (4) = 25.88, p<.001, R^2 = .29. The model was able to correctly classify 50% of those who took the elevator and 94% of those who took the stairs, for an overall success rate of 87%. Table 29 shows the logistic regression coefficients, Wald test, and odds ratio for each of the predictors.

Step 1 results revealed that participants in the Dispositional Blame condition were more likely to take the stairs relative to the No Blame control condition. There was not a significant difference between the Situational Blame and No Blame control condition. We estimated the model again with Dispositional Blame as the reference group so that differences between Dispositional Blame and Situational Blame could be examined. Participants were more likely to take the stairs in the Dispositional Blame condition than the Situational Blame condition $B = -2.98$, $SE = 1.36$, Wald = 4.77, Exp(B) = .05, p <.05. Furthermore, as expected, students were more likely to take the stairs than community members; however, contrary to our predictions, BMI was only marginally predictive of physical activity choice. In Step 2 we included control variables predicted to be related to physical activity choice. We included the Restrained Eating scale, the measure of Ego-depletion, a Restrained Eating x Ego-depletion interaction term, and the Ego-depletion

order variable. Contrary to hypothesis 4, the interaction between Restrained Eating and Ego-depletion was not significant so the model was re-estimated without the interaction term. Although the model was still significant χ^2 (7) = 28.03, $p < .001$, $R^2 = .30$, the variables from Step 2 were not incrementally statistically significant χ^2 (3) = 1.15, p = 0.76. Neither the individual difference Restrained Eating scale, nor the actual measure of Ego-depletion (or order for the ego-depletion task) predicted the probability of choosing the elevator or stairs. Participants in the Dispositional Blame condition were still more likely to take the stairs relative to the Situational Blame condition and the No Blame control condition, and students were still more likely to take the stairs compared to community members.

A similar process was estimated for whether participants took the gym flyer at the end of the study. A Stepwise logistic regression was estimated predicting the probability that participants would take a gym flyer in which Step 1 included the sample and manipulated variables Group (community members as the reference group), Type of Policy (dummy coded with No Blame Control policy as the reference group), BMI as a continuous variable (centered at 28), and the interaction between Type of Policy x BMI. As before, the model with the interaction term demonstrated a non-significant Policy Type x BMI interaction; therefore the model was re-estimated without the interaction. The Odds Ratio of the intercept only model indicated that participants were 0.32 times less likely to take a gym flyer than not take a gym flyer. A test of the full model versus the intercept only model was statistically significant, χ^2 (4) = 9.94, $p<.05$, $R^2 = .12$. The model was able to correctly classify 100% of those who did not take a flyer and only 5%

of those who took the flyer, for an overall success rate of 77%. Table 30 shows the logistic regression coefficients, Wald test, and odds ratio for each of the predictors.

Step 1 results revealed that participants in the Dispositional Blame condition were more likely to take a flyer relative to the No Blame control condition. Unlike the stairs or elevator choice dependent variable that demonstrated no effects, participants in the Situational Blame condition were more also likely to take a gym flyer than the No Blame control condition. When re-estimating the model, there were no differences between the Dispositional and Situational Blame conditions. In addition, students were more likely to take a gym flyer than community members; however, contrary to our predictions, BMI did not predict taking a gym flyer. In Step 2 we included control variables predicted to be related to physical activity choice. We included the Restrained Eating scale, the measure of Ego-depletion (and order variable), and a Restrained Eating x Ego-depletion interaction term. The interaction between Restrained Eating and Ego-depletion was not significant so the model was re-estimated without the interaction term. Although the model was still significant χ^2 (7) = 14.76, $p < .05$, $R^2 = .17$, the variables from Step 2 were not incrementally statistically significant χ^2 (3) = 4.82, $p = 0.19$. Neither the individual difference Restrained Eating scale, nor the actual measure of Ego-depletion predicted the probability of choosing the elevator or stairs. There was a marginal effect for the order of the Ego-depletion task such that participant who completed the task upstairs were more likely to take a flyer than people who completed the task downstairs. Participants in the Dispositional Blame condition were still more likely to take the stairs relative to the Situational Blame condition and the No Blame control condition, and students were still more likely to take the stairs.

Hypothesis 4: As an alternative hypothesis, if participants consumed fewer snacks in the dispositional blame condition, does restrained eating explain this effect? The results for this hypothesis were presented above with hypotheses 2 and 3.

Hypothesis 5: Does the type of blame language increase perceived weight-based stigma, increase negative emotions, and decrease positive emotions, especially for those with a higher BMI? To predict internalization of weight-based stigma, a stepwise regression was estimated in which Step 1 included the sample and manipulated variables Group (community members as the reference group), Type of Policy (dummy coded with No Blame Control policy as the reference group), BMI as a continuous variable (centered at 28), and the interaction between Type of Policy x BMI. Again, the interaction terms were not significant so they were removed from the model and the model was re-estimated. The model predicting Internalization of Weight-based Stigma was significant $F(4, 73) = 4.28$, $p < .01$, $R^2 = .19$. Although the Type of Policy dummy variables were not significant predictors, higher BMI and being a student predicted higher internalization of weight-based stigma. In Step 2, variables hypothesized to be related to weight-based internalization of stigma were included: Body Shame, Stress, Depression, and Anxiety. The model was statistically significant $F(8, 69) = 14.31$, $p < .001$, $R^2 = .62$ and accounted for significantly more of the variance ($\Delta F(4, 69) = 19.91$, $p < .001$, $R^2 \Delta = .34$). Table 31 displays the model parameters for both regressions.

With respect to Negative Emotions, a similar stepwise regression was estimated with the same variables that were included in the Weight-based Stigma model. The significance tests for predicting Negative emotions did not change regardless of inclusion of the interaction between Type of Policy and BMI was included or not. Neither step 1

$F(4, 73) = 0.15$, $p = .96$, $R^2 = .01$, nor step 2 resulted in significant models $F(8, 69) = 1.50$, $p = .17$, $R^2 = .15$.

With respect to Positive Emotions, a similar stepwise regression was estimated with the same variables that were included in the Weight-based Stigma model. The interaction terms were not significant so they were removed from the model and the model was re-estimated. The model predicting Positive Emotions was significant $F(4, 73) = 5.71$, $p < .001$, $R^2 = .24$. Step 1 results revealed that contrary to hypotheses, there were no differences between Dispositional Blame and No Blame control; however, participants in the Situational Blame condition reported greater positive emotions than the No Blame control condition. When the model was re-estimated with Dispositional Blame as the reference group, there were no differences. In addition, community members reported greater Positive Emotions than students, but BMI did not predict Positive Emotions. Step 2 was also statistically significant $F(8, 69) = 3.79$, $p < .001$, $R^2 = .62$, but did not account for significantly more of the variance ($\Delta F(4, 69) = 19.91$, $p = .17$, $R^2 \Delta = .07$ than the model in Step 1. The Situational Blame relative to the No Blame control variable and the Group variable remained significant in Step 2. Table 32 displays the model parameters for both regressions.

Discussion Study 3

The primary purpose of study 3 was to examine what effects, if any, blame-based policies aimed at reducing obesity have on health behaviors. We know from previous research that some health messages are perceived as more motivating, whereas others are perceived as more stigmatizing (Puhl et al., 2012) and that participants reported less intentions to engage in healthy behaviors following exposure to negative stereotypes

(Seacat & Mickelson, 2009). The current research extends this work by measuring the effects of blame language, which varied by blame attribution type, on food consumption, physical activity, and mental health outcomes.

With respect to the manipulated policy, our hypotheses were partially supported. In consideration of the findings from Seacat and Mickelson (2009), our first hypothesis was that intentions to eat healthy and engage in physical activity would decrease when participants were in the dispositional blame condition. Contrary to the hypothesis, there were no differences for intentions for eating healthy or physical activity for the dispositional blame policy compared to the no blame control policy. Although we did not have specific hypotheses for the situational blame condition, the results indicated that participants reported less likelihood to eat healthy in the situational blame condition compared to the no blame control condition, but there were no differences for physical activity. When comparing the situational blame to dispositional blame, however, the dispositional blame policy resulted in greater intentions for physical activity and eating healthy (although the effect was marginal for healthy eating) than the situational blame policy. These results would suggest the policy that blamed people who are obese for the obesity epidemic was more motivating than the policy that blamed environmental factors, but not more motivating than the control no blame policy. These findings are contradictory to Seacat and Mickelson's (2009) findings that stereotype threat—which also emphasized that individual characteristics caused obesity in a written format—inhibited motivations for healthy behavior. Although our measure included a single item each for physical activity and healthy eating, Seacat and Mickelson (2009) included 11 items that were averaged together into a single scale that included both physical activity

and maintaining a healthy diet items. Perhaps their items were better able to assess specific intentions (e.g., "How likely is it that you will exercise even when you feel you have very little time?"), which are known to be more predictive (Sheeran, 2002). For instance, research employing intention-behavior research, such as the Theory of Planned Behavior (e.g., Ajzen et al., 1991) finds that even though only 20 to 30% of behavior is explained by intentions (Sheeran & Orbell, 1998), intentions that are single action, rather than a goal (an outcome achieved through a variety of single actions) are more likely to become actual behaviors (Sheeran, 2002). As such, participants under stereotype threat in the Seacat and Mickelson (2009) may have had difficulty endorsing specific actions, whereas participants in the dispositional blame condition in the current study found it easier to endorse our items that measured general goals for healthy behavior. When examining the effects of manipulated variables on intentions for health behavior, therefore, future research should employ both measures of single actions and more general goals. Furthermore, employing measures that incorporate a variety of health behaviors may be more inclusive—especially for samples with varying weights, nutritional beliefs, and physical abilities.

Our next hypotheses aimed to measure whether the blame policies affected actual physical activity and eating healthy behavior, as opposed to intentions, because there is well-documented research that has indicated that intentions do not necessarily predict behavior (Sheeran & Orbell, 1998). Again, with the stereotype literature in mind, we hypothesized that the dispositional blame condition would contribute to an increase in food consumption during the taste testing study—especially for unhealthy foods—and taking additional snacks upon leaving the study. Our hypotheses would support results

that either found participants consumed more grams total (healthy + unhealthy snack total) or that they consumed more grams of unhealthy food (Major et al., 2014). Overall, there was no support for the eating dependent measures and results for food consumption were trending in the opposite direction. Trends for the skittle-fruit and wavy chip-veggie chip pairs found that the blame conditions elicited more consumption of healthy foods compared to unhealthy snacks, and that the control condition demonstrated similar grams consumed for unhealthy and healthier snacks. The model predicting who took additional snacks was not significant and could not be further interpreted, even though about half of the participants took additional snacks and half did not. These findings do beg the question of what is driving these effects, especially because I included several variables thought to be relevant to food consumption (BMI, restrained eating, whether the person was a student, and ego-depletion).

We also predicted that participants would decrease physical activity by taking the elevator instead of the stairs and not take a gym flyer upon leaving the study. Although neither hypothesis was supported, there were significant differences for both of the physical activity dependent measures in the opposite direction. Contrary to hypotheses, participants in the dispositional blame condition were more likely to take the stairs and take a gym flyer relative to the no blame control condition. And for the gym flyer only, those in the Situational Blame condition took a gym flyer more than the control condition. Participants were also more likely to take the stairs in the dispositional blame condition than the situational blame condition, but there were no differences between dispositional and situational blame conditions. Similar to the intentions variables,

participants who read about people who are obese being blamed for the obesity epidemic were more likely to engage in physical activity—at least in the short term.

An alternative explanation to Stereotype Threat (Steele & Aronson, 1995) was provided by Objectification Theory (Fredrickson & Roberts, 1997), which posits that body shame contributes to restrained eating and subsequent depletion of attention resources. This in turn may contribute to an increase in unhealthy behaviors once the period of restraint is over—the idea behind binge eating. Although we measured restrained eating as an individual difference variable and participants completed a measure of ego-depletion as a possible explanation for effects in the opposite direction to the stereotype threat hypotheses (i.e., participants were refraining from unhealthy behaviors because they were being observed), measures of restrained eating were not related to any of the manipulated variables or dependent measures.

It may be that instead of producing body shame (Objectification Theory) or inducing the anxious feelings that one will confirm a stereotype (Stereotype Threat Theory), the current study induced something else. Although our hypotheses and research design were guided by weight-based stigma literature because no known studies have examined the effects of blame and being blamed has theoretically been linked to increasing stigma, the effects of blame may elicit different interpersonal reactions. Blame involves identifying behaviors that are morally or socially reproachful, and once causality and responsibility are determined, a person is blamed more (and punished more) if they do not offer mitigating information such as a justification, excuse, lack of intention (Shaver, 1985). It is within possibility that, as a counter-measure to combat being blamed, participants offered visible behavior as mitigating information. We know that

people are motivated to avoid blame in criminal settings (Gray & Wegner, 2011). It may be the case the people in a non-criminal setting are also motivated to avoid being blamed to minimize "social" punishment. Future research should measure the extent to which participants may be feeling blamed and whether they are motivated to reduce blame by providing a justification, an excuse, or demonstrating lack of intention. Perhaps randomly assigning participants to receive mitigating versus aggravating information could test this assertion.

Although we did not specifically measure self-blame, participants may also have been motivated to reduce self-blame. Self-blame is the degree to which people attribute blame to their own behavior, which is thought to contribute to a sense of control because of causal attributions. Research on self-blaming, however, has been mixed, resulting in disagreement whether feeling in control positively affects or negatively affects the person experiencing self-blame (e.g., Affleck, et al., 1985; Frazier, Berman, & Steward, 2001). Differences in effects have been posited to be due to differences in characterological and behavioral self-blame (Hall, French, & Marteau, 2003). Characterological self-blame results when negative outcomes are attributed to one's own character, which is immutable. Behavioral self-blame, on the contrary, results when negative outcomes are attributed to one's own behavior, since actions and inactions are mutable (Janoff-Bulman, 1979). Having this sense of control, however, could contribute to one of two things: 1) feeling in control over one's own behavior may result in positive feelings because there is an ability to change, or 2) having that control over one's own behavior may result in negative feelings that one did not behave differently. According to Niedenthal and colleagues (1994), behavioral and characterological self-blame result in different

emotional appraisals such that guilt follows thoughts of "I should have behaved differently" (behavioral) and shame follows thoughts of "I should be different" (characterological). In applying these principles to the results, participants may also have been motivated to avoid the feelings of guilt associated with behavior self-blame. Participants who read the dispositional blame policy may have been aware that choosing the stairs and taking the gym flyer would be one way to change their behavior and avoid guilt. Future research should include measures of self-blame as a possible mediator for being blamed and behavior.

Despite not finding any significant differences for the policy manipulation on internalization of weight-based stigma or negative emotions, these findings may continue to support the notion just discussed that experiencing blame is not the same as experiencing stigma. There was a surprising effect for positive emotions; participants in the Situational Blame condition reported greater positive emotions than the No Blame control condition. In following the discussion about the effects of blame and self-blame, it is possible that reading about environmental factors being to blame for the obesity epidemic resulted in a shift of blame externally and thus contributed to more positive emotions.

Central to the study was the hypothesis that people with higher BMI would have stronger effects than people with lower BMI. Contrary to this expectation, when controlling for BMI in all of our models, BMI did not interact with any other independent variables and was not related to any of our modeled dependent variables (except for internalization of weight based stigma and body shame). Although we sought to include participants of varying weights and BMI, our average BMI for the obese group was about

37 (the cut-off for “obese” is 30) and most of the participants would not be considered “morbidly” obese. One explanation could be that we did not capture a true sample of participants who might be affected by policies that blame them. One limitation of the study is that we recruited for the study by advertising it as a taste testing study and for the first half of the study, we specifically included “Do you like free food?” on the flyer and newspaper advertisements because we thought it would attract people who like to eat. It came to our attention that people who are obese—especially those who may be self-conscious about their weight and worried about confirming stereotypes—may not respond to an advertisement for free food or even just doing a taste testing study. Future research could focus on recruiting participants who are restrained eaters or create a recruitment situation where participants feel less vulnerable about confirming weight-based stereotypes.

Table 25. Sample characteristics for Study 3

	Community Members	Students
Sample size	*n* = 41	*n* = 45
Mean age (*SD*)	33.37 (12.35), range 19-60	19.93 (1.93), range 18-27
Gender	54% female, 56% male	71% female, 29% male
Race	7.3% Asian, 2.4% Black, 9.8% Hispanic/Latino, 2.4% Native American, 76% White, 2.4% Other	0% Asian, 9% Black, 2.2% Hispanic/Latino, 2.2% Native American, 91% White, 2.2% Other
Mean BMI (*SD*)	28.63 (7.63)	27.55 (7.10)
Mean % Body Fat (*SD*)	26.54 (11.43)	26.20 (8.93)
Weight group based on BMI	Average (*n* = 16) Overweight or Obese (*n* = 25)	Average (*n* = 25) Overweight or Obese (*n* = 20)

Table 26. Pre-study control measures by sample

		Community Members	Students
	Range of possible values	*M* (*SD*)	*M* (*SD*)
Clinical measures			
DASS-21 Stress	0 – 42	10.55 (7.47)	14.28 (9.79)
DASS-21 Depression	0 – 42	4.60 (6.06)	7.86 (9.33)
DASS-21 Anxiety	0 – 42	3.35 (4.35)*	6.23 (8.01)*
Food preferences			
FCQ – Health	0 – 6	3.67 (0.39)	3.55 (0.45)
FCQ – Mood	0 – 6	3.22 (0.59)	3.26 (0.60)
FCQ – Convenience	0 – 5	3.69 (0.39)*	3.46 (0.56)
FCQ – Sensory	0 – 4	3.72 (0.40)	3.74 (0.32)
FCQ – Natural content	0 – 3	3.35 (0.69)	3.13 (0.65)
FCQ – Price	0 – 3	3.79 (0.33)	3.74 (0.42)
FCQ – Weight	0 – 3	3.40 (0.65)	3.35 (0.47)
FCQ – Familiarity	0 – 3	3.42 (0.56)*	3.16 (0.55)*
FCQ – Ethical	0 – 3	3.00 (0.65)*	2.57 (0.59)*
Concerns with body image (BSQ)	0 – 5	1.36 (1.24)*	2.12 (1.44)*
Tendency to diet (RRS)	0 – 40	12.41 (5.06)	14.05 (5.90)

Note. * $p < .05$

Table 27. Snack items taste testing ratings

	Snickers	Kind Bar	Skittles	Dried fruit	Wavy Chips	Veggie Chips
	M (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
Healthiness	0.22 (0.42)	2.16 (0.62)	0.04 (0.20)	2.39 (0.76)	0.16 (0.41)	1.77 (0.73)
t-test	*t* (83) = -22.94**		*t* (84) = -26.40**		*t* (84) = -17.89**	
Tastiness	2.44 (0.72)	2.14 (0.81)	2.22 (0.82)	1.58 (0.88)	2.07 (0.86)	1.89 (0.79)
t-test	*t* (83) = 2.40*		*t* (84) = 5.00**		*t* (84) = 1.55	
Saltiness	0.74 (0.66)	0.58 (0.54)	0.04 (0.24)	0.07 (0.26)	2.29 (0.72)	1.22 (0.61)
t-test	*t* (83) = 1.85		*t* (84) = -1.14		*t* (84) = 12.60**	
Sweetness	2.48 (0.63)	1.35 (0.72)	2.69 (0.62)	1.68 (0.79)	0.12 (0.36)	0.02 (0.15)
t-test	*t* (83) = 12.24**		*t* (84) = 10.95**		*t* (84) = 2.37*	
How filling	1.18 (0.75)	1.76 (0.69)	0.51 (0.59)	1.34 (0.68)	0.96 (0.59)	1.22 (0.68)
t-test	*t* (83) = -5.98**		*t* (84) = -8.99**		*t* (84) = -2.97*	
Cost effectiveness	1.46 (0.81)	1.43 (0.70)	1.41 (0.88)	1.19 (0.66)	1.45 (0.85)	1.53 (0.70)
t-test	*t* (83) = 0.29		*t* (84) = 1.92		*t* (84) = -0.78	
Likelihood of purchase	1.57 (0.97)	2.02 (0.96)	1.18 (1.01)	1.32 (1.05)	1.25 (0.96)	1.75 (0.99)
t-test	*t* (83) = -3.04*		*t* (84) = -0.82		*t* (84) = -4.05**	

Note. ** $p<.01$, * $p<.05$

Table 28. Generalized linear model predicting intentions to eat healthy and intentions for physical activity from policy type, BMI, importance of healthy eating and current habits

Predictor	*B*	*SE*	Wald χ^2	*p*
Intentions to Eat Healthy				
Group	−0.08	0.25	0.10	0.75
Dispositional blame	−0.40	0.30	1.78	0.18
Situational blame	−0.92	0.32	8.43	<.01
No blame control	0			
BMI	0.01	0.02	0.45	0.50
Importance of health	0.87	0.33	7.07	<.01
Current eating habits	0.09	0.17	0.25	0.62
Intentions for Physical Activity				
Group	−0.02	0.24	0.01	0.94
No blame control	−0.39	0.30	1.71	0.19
Situational blame	−0.84	0.30	7.62	<.01
Dispositional blame	0.00			
BMI	0.00	0.02	0.04	0.85
Importance of health	0.49	0.30	2.77	0.10
Current physical activity	0.21	0.12	3.18	0.07

Note. For Group variable, community member was coded as 1. For intentions to eat healthy, the No Blame Control group was the reference group. For intentions for physical activity, the Dispositional Blame group was the reference group

Table 29. Logistic regression predicting choosing the stairs from policy type, BMI, restrained eating and ego-depletion

Predictor	*B*	*SE*	Wald χ^2	*p*	Exp (B)
Step 1					
Group	3.61	1.19	9.17	<.01	36.96
No blame control			6.02	<.05	
Dispositional blame	2.79	1.29	4.68	<.05	16.24
Situational blame	−0.26	0.89	0.09	0.77	0.77
BMI	−0.10	0.06	3.14	0.08	0.90
Step 2					
Group	3.86	1.31	8.69	<.01	47.58
No blame control			6.19	<.05	
Dispositional blame	2.92	1.33	4.84	<.05	18.58
Situational blame	-0.23	0.91	0.07	0.80	0.79
BMI	-0.10	0.06	2.41	0.12	0.91
Restrained eating	0.00	0.00	0.01	0.91	1.00
Ego-depletion	-0.05	0.09	0.30	0.58	0.95
Order	0.67	0.87	0.58	0.45	1.95

Note. Choosing the stairs coded as 1. Community member coded as 1. Downstairs coded as 1

Table 30. Logistic regression predicting taking a gym flyer from policy type, BMI, restrained eating and ego-depletion

Predictor	*B*	*SE*	Wald χ^2	*p*	Exp (B)
Step 1					
Group	1.22	0.61	4.06	0.04	3.39
No blame control			4.48	0.11	
Dispositional blame	1.69	0.87	3.82	0.05	5.44
Situational blame	1.77	0.88	4.03	0.05	5.89
BMI	−0.03	0.04	0.41	0.52	0.97
Step 2					
Group	1.14	0.64	3.19	0.07	3.13
No blame control			4.72	0.09	
Dispositional blame	1.81	0.90	4.03	0.04	6.08
Situational blame	1.96	0.95	4.23	0.04	7.10
BMI	−0.04	0.05	0.59	0.44	0.96
Restrained eating	0.00	0.00	0.33	0.57	1.00
Ego-depletion	0.05	0.06	0.70	0.40	1.05
Order	−1.29	0.67	3.64	0.06	0.28

Note. Choosing the stairs coded as 1. Community member coded as 1. Downstairs coded as 1

Table 31. Regression predicting internalization of weight-based stigma from policy type, BMI, body shame, and clinical measures

Predictor	*B*	*SE*	Beta	*t*	*p*
Step 1					
Group	−0.46	0.20	−0.25	−2.32	<.05
Dispositional blame	0.19	0.24	0.10	0.79	0.43
Situational blame	0.04	0.25	0.02	0.15	0.88
BMI	0.05	0.01	0.37	3.53	<.01
Step 2					
Group	−0.04	0.15	−0.02	−0.29	0.77
Dispositional blame	0.21	0.17	0.11	1.21	0.23
Situational blame	0.07	0.18	0.03	0.38	0.70
BMI	0.03	0.01	0.24	3.07	<.01
BSQ	0.45	0.06	0.68	7.10	<.01
Stress	0.00	0.01	0.01	0.06	0.95
Depression	0.00	0.01	0.04	0.39	0.70
Anxiety	0.00	0.02	0.01	0.05	0.96

Note. Community member coded as 1.

Table 32. Regression predicting positive emotions from policy type, BMI, body shame, and clinical measures

Predictor	*B*	*SE*	Beta	*t*	*p*
Step 1					
Group	5.32	1.53	0.36	3.47	<.01
Dispositional blame	0.84	1.87	0.05	0.45	0.65
Situational blame	5.65	1.90	0.36	2.98	<.01
BMI	0.12	0.10	0.12	1.12	0.26
Step 2					
Group	4.12	1.60	0.28	2.57	<.05
Dispositional blame	0.68	1.85	0.04	0.37	0.71
Situational blame	5.10	1.90	0.32	2.69	<.01
BMI	0.17	0.11	0.17	1.57	0.12
BSQ	−0.79	0.69	−0.15	−1.15	0.26
Stress	0.05	0.14	0.05	0.32	0.75
Depression	−0.21	0.13	−0.23	−1.62	0.11
Anxiety	0.03	0.19	0.03	0.16	0.87

Note. Community member coded as 1.

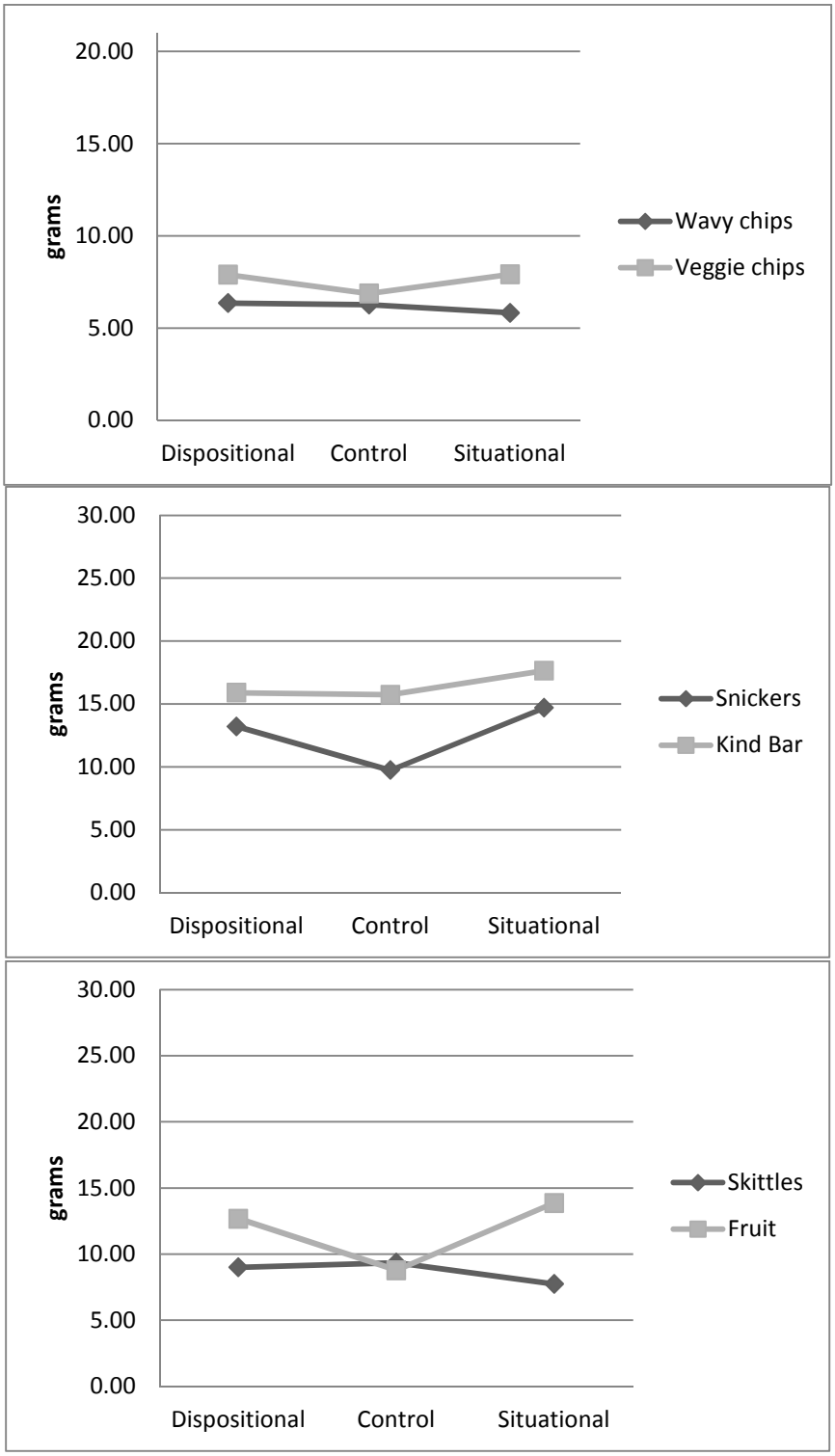


Figure 8. Estimated means for grams consumed for each of the snack item pairs.

CHAPTER 5
GENERAL CONCLUSIONS

The rise in obesity—for all age groups—has become a central concern in the United States and law-makers are challenged with whether using law as a tool is an effective means for addressing obesity. Leading scholars in the area of public health law (e.g., Brownell et al., 2010; Gostin, 2010), have proposed several areas where law may be used as a tool for preventing obesity (e.g., requiring the food industry to disclose more information, prohibiting certain foods or ingredients or taxing unhealthy foods). Despite these urges for more law and policy, support for government interventions such as these is divided because even though research has found that the public believes individuals are to blame for the rise in obesity, research has also found greater support for environment-based (non-personal responsibility) policies. This who-we-blame-but-what-we-support paradox may in part be because American culture rest on ideals of self-determination—health-related behaviors are considered highly personal and Americans are not likely to support policies that regulate behavior. This paradox may also be related, in part, to the role of blame in obesity-targeted law and policy. The current research addressed these issues in three studies conducted to understand blame and its related constructs, blame as a predictor for supporting law and policy, and the effects of blame-based policies on health behavior.

Before addressing the role of blame, the first aim was to develop a scale to measure obesity blame attributions toward both people who are obese and toward environmental factors such as the food industry and the government. Blame theorists have noted the complexity of blame, thus the scale was developed with this in mind. As

such, confirmatory factor analysis of the Obesity Blame Attribution Scale (OBAS) demonstrated that controllability, responsibility and dispositional blame are separate constructs that are part of a higher-order blame factor in congruence with blame theorists. Although the OBAS was not related to many of the hypothesized scales that measured negative attitudes toward people who are obese, it was predictive of both specific blame attributions and support for the anti-obesity policy in Study 2. Despite specific and general blame attributions predicting support for the policies, more participants supported the situational-blame policy (environmental factors) than the dispositional-blame policy (individual factors). The current research, therefore, supports previous findings of the paradox between who is blamed and what should be done about it. Although Goffman's Framing Theory (1974) states that how social problems are framed will direct the response to the problem, which may not apply within an obesity context. It may be the case that even though people who are obese are blamed for their own obesity, Americans are not willing to endorse law and policy that blame people who are obese or that dictates how individuals should behave.

In addition to understanding public support for using law as a tool for addressing obesity, knowing whether law is an effective tool is good practice for effective law-making. Our findings revealed that, contrary to stigma research, the dispositional blame policy had some short-term effects on our proxy measures of physical activity, but did not increase stigma or negative affect. Although the results of the third study do not explain what underlying mechanisms are responsible for these effects, one explanation discussed was participants' desire to visibly mitigate the dispositional blame as a means of demonstrating "I am not part of the problem." If the underlying mechanism is a desire

to mitigate blame, then perhaps policies could be reframed from personal responsibility (often carries a negative connotation) to self-efficacy (often carries a more positive connotation) as a mean for mitigating any self-blame experienced (see generally Pearl & Lebowitz, 2014). Self-efficacy theory asserts that behavior change is best achieved through expected self-mastery (Sherer et al., 1982) because having the belief that one can regulate their own behavior plays a large role in changing unhealthy behaviors (Bandura, 1990). To achieve this, Bandura explains, people need information, guidance on how to regulate behavior, and a firm belief in personal efficacy. As such, adopting health practices "requires a shift in emphasis from trying to scare people into healthy behavior to empowering them with the tools for exercising personal control over their health habits" (p.11). As a viable direction for law and policy, therefore, ideals of personal responsibility would not have to be shifted, just reframed more positively as self-efficacy.

Promoting self-efficacy, however, may be a challenge because of widely held negative beliefs about people who are obese, shared both by people who are obese and by people who are not obese. As demonstrated in Study 2 and prior research, people who are obese are perceived negatively (i.e., lazy and unmotivated) and as blameworthy for their weight. Attitudes would, therefore, need to be shifted at both at the individual level and the societal level. Although the current studies did not examine whether policies shape attitudes toward people who are obese, future research may examine whether health messages and policies about obesity can shift negative attitudes to positive self-efficacy attitudes. For instance, in Lincoln, Nebraska, the Partnership for Healthy Lincoln has attempted to improve health behaviors with a variety of messages. In some, the emphasis is on the negative consequences of unhealthy behaviors ("Drop the Pop, Soda Makes you

Fat"), whereas others focus on the positive consequences of health behaviors ("Drink Better, Feel Better. Pure and Simple"). Copies of the billboards are presented in Appendix V. Perhaps attitudes toward people who are obese could be shifted toward self-efficacy with the more positive health behavior messages.

From a policy perspective, public health scholars emphasize the importance of relying on policies that incorporate both environmental and personal responsibility factors (Brownell et al., 2010). Future research should examine support and effectiveness of policies that include targeting both individual and environmental factors for obesity. Perhaps policies that focus on both will garner more public support because of the noted paradox between who we blame, versus what policies are supported. The policies may also be more likely to achieve their intended consequences because people who are obese may feel a sense of self-efficacy with policies that hold them responsible, but reduce feelings of self-blame when environmental factors are also considered.

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Appendix A

Causes of Obesity Scale (Klaczynski et al., 2004)

Please indicate your opinions about the following statements below

	strongly disagree			strongly agree
Some people are obese is because their parents used to give them food with lots of sugar and fat in it. (1)	❍	❍	❍	❍
People get obese because they don't exercise very much (2)	❍	❍	❍	❍
Most obese people are obese because their parents are obese (3)	❍	❍	❍	❍
It seems like most obese people really don't like to exercise (4)	❍	❍	❍	❍
Obese people usually have medical conditions that cause them to get overweight (5)	❍	❍	❍	❍
The parents of most obese people let them watch too much TV when they were children (6)	❍	❍	❍	❍
People wouldn't get overweight if they stopped snacking between meals (7)	❍	❍	❍	❍
People get obese because in school, at work, and at home, they can get their hands lots of fatty food (8)	❍	❍	❍	❍
People who are obese get that way because they like eating more than thin people (9)	❍	❍	❍	❍
The baby fat obese people were born with is almost impossible to lose (10)	❍	❍	❍	❍
Obese people keep eating even when they are full (11)	❍	❍	❍	❍
Obese people get obese because they like watching TV too much (12)	❍	❍	❍	❍
Almost all obese people try really hard to lose weight, but just can't (13)	❍	❍	❍	❍
Lots of obese people learned bad eating habits from their parents (14)	❍	❍	❍	❍
One big reason for getting obese is being lazy (15)	❍	❍	❍	❍
Some obese people don't try to lose weight because they seem proud of being overweight (16)	❍	❍	❍	❍

If obese people had more willpower, they'd be able to stop eating too much (17)	❍	❍	❍	❍
Most people who are obese inherited genes that cause obesity from their parents (18)	❍	❍	❍	❍
Obese people often try to escape from their problems by eating (19)	❍	❍	❍	❍
Obese people can't change the fact that they inherited "obese" genes (20)	❍	❍	❍	❍
If obese people just knew how unhealthy it is to be obese, they'd exercise and diet more (21)	❍	❍	❍	❍
Some people who are obese grew up in places where there are lots of adults who eat too much (22)	❍	❍	❍	❍
Obese people really can't control how much they eat (23)	❍	❍	❍	❍
By joining weight loss groups, obese people can lose weight (24)	❍	❍	❍	❍
Obese people can blame their parents for giving them too much unhealthy food (25)	❍	❍	❍	❍
By making their diets healthier, obese people can control their weight (26)	❍	❍	❍	❍
Almost all obese people could lose weight if they truly wanted to (27)	❍	❍	❍	❍
Obese people are "stuck" being obese, usually because of hormones they can't control (28)	❍	❍	❍	❍
By exercising and eating healthy foods, obese people could get a lot skinnier (29)	❍	❍	❍	❍
People who are obese could be thinner if they really wanted. (30)	❍	❍	❍	❍
Obese people usually don't have the energy to lose weight (31)	❍	❍	❍	❍

Appendix B

Anti-fat Attitudes Questionnaire (AFA; Crandall, 1994)

The following statements ask for your opinions about factors related to obesity. Please read each statement carefully and respond to the statements using the scales provided that range from "very strongly disagree" to "very strongly agree"

	very strongly disagree								very strongly agree
I really don't like fat people much.	❍	❍	❍	❍	❍	❍	❍	❍	❍
I don't have many friends that are fat.	❍	❍	❍	❍	❍	❍	❍	❍	❍
I tend to think that people who are overweight are a little untrustworthy.	❍	❍	❍	❍	❍	❍	❍	❍	❍
Although some fat people are surely smart, in general, I think they tend not to be quite as bright as normal weight people.	❍	❍	❍	❍	❍	❍	❍	❍	❍
I have a hard time taking fat people too seriously.	❍	❍	❍	❍	❍	❍	❍	❍	❍
Fat people make me somewhat uncomfortable.	❍	❍	❍	❍	❍	❍	❍	❍	❍
If I were an employer looking to hire, I might avoid hiring a fat person.	❍	❍	❍	❍	❍	❍	❍	❍	❍
I feel disgusted with myself when I gain weight.	❍	❍	❍	❍	❍	❍	❍	❍	❍
One of the worst things that could happen to me would be if I gained 25 pounds.	❍	❍	❍	❍	❍	❍	❍	❍	❍
I worry about becoming fat.	❍	❍	❍	❍	❍	❍	❍	❍	❍
People who weigh too much could lose at least some part of their weight through a little exercise.	❍	❍	❍	❍	❍	❍	❍	❍	❍
Some people are fat because they have no willpower.	❍	❍	❍	❍	❍	❍	❍	❍	❍
Fat people tend to be fat pretty much through their own fault.	❍	❍	❍	❍	❍	❍	❍	❍	❍
I am reading each question carefully	❍	❍	❍	❍	❍	❍	❍	❍	❍

Appendix C

Obese Stereotypes Scale (Klaczynski et al., 2004)

In my opinion, obese people are/have:

	strongly disagree			strongly agree
A strong sense of morality	❍	❍	❍	❍
Not very intelligent	❍	❍	❍	❍
Easily distracted	❍	❍	❍	❍
Dirty and messy	❍	❍	❍	❍
Friendly	❍	❍	❍	❍
Boastful, Brag a lot	❍	❍	❍	❍
Too dependent on others	❍	❍	❍	❍
Popular	❍	❍	❍	❍
Brave	❍	❍	❍	❍
Irresponsible	❍	❍	❍	❍
Not very much self-control	❍	❍	❍	❍
Untrustworthy	❍	❍	❍	❍
Whiny	❍	❍	❍	❍
Tattletales	❍	❍	❍	❍
Low self-esteem	❍	❍	❍	❍
Lazy	❍	❍	❍	❍
A positive outlook on life	❍	❍	❍	❍
Gossipy	❍	❍	❍	❍
Honest	❍	❍	❍	❍
Easily confused	❍	❍	❍	❍
Gloomy	❍	❍	❍	❍
Unfriendly	❍	❍	❍	❍
Loud	❍	❍	❍	❍
Don’t like themselves very	❍	❍	❍	❍

much				
Greedy	❍	❍	❍	❍
A certain "inner strength"	❍	❍	❍	❍
Socially awkward	❍	❍	❍	❍
Think that "everyone's out to get them"	❍	❍	❍	❍
Funny	❍	❍	❍	❍
Boring to talk to	❍	❍	❍	❍
Wasteful	❍	❍	❍	❍
Nosey	❍	❍	❍	❍
Talented	❍	❍	❍	❍
Happy with TV and video games	❍	❍	❍	❍
Helpful	❍	❍	❍	❍
Self-centered	❍	❍	❍	❍
Ashamed	❍	❍	❍	❍
Lonely	❍	❍	❍	❍
Don't get annoyed very easily	❍	❍	❍	❍
Mean	❍	❍	❍	❍

Appendix D

Social Distance Scale (Link et al., 1999)

Please indicate how willing you would be in the following scenarios using the scale "definitely not willing" to "definitely willing"

	Definitely not willing			Definitely wiling
How willing would you be to have someone who is obese marry into your family?	❍	❍	❍	❍
How willing would you be to make friends with someone who is obese?	❍	❍	❍	❍
How willing would you be to move in next door to a person who is obese?	❍	❍	❍	❍
How willing would you be to spend an evening socializing with someone who is obese?	❍	❍	❍	❍
How willing would you be to start working closely with someone who is obese?	❍	❍	❍	❍

Appendix E

Beliefs about Justice for Self and Others (Lucas et al., 2011)

Please read each statement carefully and respond to the statements using the scale provided that ranges from "Strongly disagree" to "Strongly agree."

	strongly disagree						strongly agree
I feel that other people generally earn the rewards and punishments they get in this world.	❍	❍	❍	❍	❍	❍	❍
Other people usually receive the outcomes that they deserve.	❍	❍	❍	❍	❍	❍	❍
Other people generally deserve the things that they are accorded.	❍	❍	❍	❍	❍	❍	❍
I feel that other people usually receive the outcomes that they are due.	❍	❍	❍	❍	❍	❍	❍
Other people usually use fair procedures in dealing with others.	❍	❍	❍	❍	❍	❍	❍
I feel that people generally use methods that are fair in their evaluations of others	❍	❍	❍	❍	❍	❍	❍
Regardless of the outcomes they receive, other people are generally subjected to fair procedures.	❍	❍	❍	❍	❍	❍	❍
Other People are generally subjected to processes that are fair.	❍	❍	❍	❍	❍	❍	❍
I feel that I generally earn the rewards and punishments I get in this world.	❍	❍	❍	❍	❍	❍	❍
I usually receive the outcomes that I deserve.	❍	❍	❍	❍	❍	❍	❍
I generally deserve the things I am accorded.	❍	❍	❍	❍	❍	❍	❍
I feel that I usually receive the outcomes that I am due.	❍	❍	❍	❍	❍	❍	❍
People usually use fair procedures in dealing with me.	❍	❍	❍	❍	❍	❍	❍
I feel that people generally use methods that are fair in their evaluations of me.	❍	❍	❍	❍	❍	❍	❍
Regardless of the specific outcomes I receive, I am generally subjected to fair procedures.	❍	❍	❍	❍	❍	❍	❍
I am generally subjected to processes that are fair.	❍	❍	❍	❍	❍	❍	❍

Appendix F

Belief in a Just World Scale (Lipkus, 1991)

Please read each statement carefully and respond to the statements using the scale provided that ranges from "strongly disagree" to "strongly agree."

	Strongly disagree					Strongly agree
I feel that the world treats me fairly	❍	❍	❍	❍	❍	❍
I feel that I get what I deserve	❍	❍	❍	❍	❍	❍
I feel that people treat me fairly in life	❍	❍	❍	❍	❍	❍
I feel that I earn the rewards and punishments I get	❍	❍	❍	❍	❍	❍
I feel that people treat me with the respect that I deserve	❍	❍	❍	❍	❍	❍
I feel that I get what I am entitled to have	❍	❍	❍	❍	❍	❍
I feel that my efforts are noticed and rewarded	❍	❍	❍	❍	❍	❍
I feel that when I meet with misfortune, I have brought it upon myself.	❍	❍	❍	❍	❍	❍

Appendix G

Food Rating Questionnaire

These questions will be provided for each food item

Please indicate your thoughts about each food you are presented with

Food item: _____

	Not at all						**Very**
How tasty is this food item?	1	2	3	4	5	6	7
How healthy is this food item?	1	2	3	4	5	6	7
How salty is this food item?	1	2	3	4	5	6	7
How sweet is this food item?	1	2	3	4	5	6	7
How filling is this food item?	1	2	3	4	5	6	7
How cost effective do you think this food item would be?	1	2	3	4	5	6	7
How likely would you be to buy this item from a vending machine?	1	2	3	4	5	6	7

If you would not eat any of this snack, please indicate why:_____
_____

Appendix H

Stereotype Content

These questions all derive from Fiske et al. (2002) short questionnaire

1. As viewed by society, how competent are members of this group?
2. As viewed by society, how confident are members of this group?
3. As viewed by society, how capable are members of this group?
4. As viewed by society, how efficient are members of this group?
5. As viewed by society, how intelligent are members of this group?
6. As viewed by society, how skillful are members of this group?
7. As viewed by society, how warm are members of this group?
8. As viewed by society, how good natured are members of this group?
9. As viewed by society, how sincere are members of this group?
10. As viewed by society, how friendly are members of this group?
11. As viewed by society, how well-intentioned are members of this group?
12. As viewed by society, how trustworthy are members of this group?

Appendix I

Other-based emotion appraisals

When thinking about the community member who was interviewed, to what degree do you feel the following emotions?

	very slightly or not at all	a little	moderately	quite a bit	extremely
pity	❍	❍	❍	❍	❍
disgust	❍	❍	❍	❍	❍
anger	❍	❍	❍	❍	❍
admiration	❍	❍	❍	❍	❍
envy	❍	❍	❍	❍	❍
contempt	❍	❍	❍	❍	❍
distrust	❍	❍	❍	❍	❍
sympathy	❍	❍	❍	❍	❍
empathy	❍	❍	❍	❍	❍
disappointment	❍	❍	❍	❍	❍

Appendix J

Support for Public Policy

Dispositional blame manipulation

File No. 109873 Ordinance No. 290-10

[Health Initiative for Vending Machines]

Ordinance amending Title 8 of the Health Code by adding Sections 8.20.121 to amend the contents of vending machines.

Be it proposed by the Health Initiative Task:
Title 8 of the Health Code should be amended to include section 8.20.121 to read as follows:

SEC. 8.20.121 FINDINGS

1. In the last thirty-five years, obesity has grown into a public health concern. Many Americans are obese according to a 2011 report issued by the Center for Disease Control.
2. According to health reports conducted by this task force, individuals are to blame for the health crisis and for being obese. Some of the leading factors that cause obesity include people who make poor choices at vending machines, people who eat foods that lack nutritional value, people who do not exercise, and people who eating large portion sizes.
3. A recent survey of vending machine operators found that the consumption of snack foods in vending machines is one of the primary contributing factors to obesity in this city. The findings of the task force revealed that almost $500,000 are spent annually in vending machines.
4. To improve the public's health, the city will need to target obese people who are responsible for making bad choices at vending machines.

TITLE AND PURPOSE

This ordinance shall be known as the "Vending Machine Ordinance." The intent of this ordinance is to improve the health of city residents by amending the snack options in vending machines. These standards will help people who are obese make better choices by only allowing snack foods that are approved by the city.

Proposed by:
The 2012 Health Initiative Task Force

Situational blame manipulation

File No. 109873 Ordinance No. 290-10

[Health Initiative for Vending Machines]

Ordinance amending Title 8 of the Health Code by adding Sections 8.20.121 to amend the contents of vending machines.

Be it proposed by the Health Initiative Task:
Title 8 of the Health Code should be amended to include section 8.20.121 to read as follows:

SEC. 8.20.121 FINDINGS

1. In the last thirty-five years, obesity has grown into a public health concern. Many Americans are obese according to a 2011 report issued by the Center for Disease Control.
2. According to health reports conducted by this task force, environmental factors are to blame for the health crisis and for the public's obesity. Some of the leading factors that cause obesity include the food industry providing unhealthy choices, the food industry pricing healthy foods too high, and lifestyle demands that promote eating food that is not prepared at home.
3. A recent survey of vending machine operators found the consumption of snack foods in vending machines is one of the primary contributing factors to obesity in this city. The findings of the task force revealed that almost $500,000 are spent annually in vending machines.
4. To improve the public's health, the city will need to target vending machines that are responsible for not providing healthier options.

TITLE AND PURPOSE

This ordinance shall be known as the "Vending Machine Ordinance." The intent of this ordinance is to improve the health of city residents by amending the snack options in vending machines. These standards will require vending machines to provide better options by only allowing snack foods that are approved by the city.

Proposed by:
The 2012 Health Initiative Task Force

Appendix K

Qualification for study three screening and script

Hi and thank you for your interest in our study about food policies in the city. Before we can schedule you for an appointment, we have some questions to see if you qualify for the study.

1. Are you a city resident?
    a. If yes, for how long?
2. Are you registered to vote?
3. Did you vote in the last election?
4. What is your age?
5. What is your gender?
6. What is your marital status?
7. Do you have any children?
    a. If yes, how many?
8. What is your height?
9. What is your weight?
10. Do you smoke?
    a. If yes, how much do you smoke?
11. Are you allergic to any foods?
12. Do you have any special dietary needs?

Research assistant will calculate the person's BMI using height and weight to classify participants as either obese (BMI greater than 30), overweight (between 25 and 30) or average weight (between 18.5 and 24.9).

If they do not qualify: I am sorry, but based on your responses you do not qualify for the study. Thank you for your interest.

If they qualify: Based on your responses, you qualify for the study. The psychology department has been hired by a task force that would like to get the opinions of community residents about some food policies that have been proposed for improving the public's health. To do so, they would like us to conduct a series of taste test studies at the university. Do you think you would be interested in coming to the university to provide us with your opinions about different snack items that may be offered in vending machines?

If not: Okay, well thank you for your interest. Have a good day.

If yes: Great. Before we schedule your appointment we would like for you to fill out an online questionnaire that will provide the task force with some information about the people who will be doing the taste testing and to save time on the day of the taste testing. Once we receive your completed questionnaire, we will call you back to schedule an appointment within a couple of weeks. *[If funding is received we will provide a $5 Amazon gift card for completing the pre-study measures]*

Research assistant should get their email address and email them a link to the Qualtrics pre-study measures.

Appendix L
Blame Manipulation/Instructions

Instructions for Vending Machine Taste Test:

In an effort to promote healthier lifestyles for all city residents, a new task force was formed to address various health initiatives. The task force has decided to make promoting healthy lifestyles as one of its initiatives for this year because it is an important public health concern. One of the initiatives they are proposing is to change the snack options that are available in vending machines to provide tasty, but health conscious snack items. To analyze whether the new policy is feasible, the task force has asked the Department of Psychology at the University of Nebraska-Lincoln to conduct a series of studies to gather opinions and suggestions from city residents. You are here today because the task force is interested in your opinions and suggestions. Today you will be trying several snack foods that they are thinking of putting into the vending machines. We will bring in samples of several snack items and you will be asked rate each snack item according to several factors such as taste, health, cost, etc. Do you have any questions?

Before we begin the taste testing, we would like for you to read the rationale of the policy so you get a better idea of the goals of the task force.

[TYPE OF BLAME MANIPULATION; SEE BELOW]

[AFTER TASTE TEST]. Thank you for your opinions and responses. We are waiting for another participant who is coming in and need to use the taste testing room. To receive your compensation and complete the exit interview, please head upstairs. [RA walks into hallway to participant]. Here is the elevator and stairs, please meet the other research assistant upstairs on the 2nd floor – one floor above where you came in.

No blame manipulation

File No. 109873 Ordinance No. 290-10

[Health Initiative for Vending Machines]

Ordinance amending Title 8 of the Health Code by adding Sections 8.20.121 to amend the contents of vending machines.

Be it proposed by the Health Initiative Task:
Title 8 of the Health Code should be amended to include section 8.20.121 to read as follows:

SEC. 8.20.121 FINDINGS

1. In the last thirty-five years, obesity has grown into a public health concern. Many Americans are obese according to a 2011 report issued by the Center for Disease Control.
2. A recent survey of vending machine operators found the consumption of snack foods in vending machines is one of the primary contributing factors to obesity in this city. The findings of the task force revealed that almost $500,000 are spent annually in vending machines.
3. To improve the public's health, the city will need to amend the contents of vending machines.

TITLE AND PURPOSE

This ordinance shall be known as the "Vending Machine Ordinance." The intent of this ordinance is to improve the health of city residents by amending the snack options in vending machines. These standards will require vending machines to provide better and more cost effective options by only allowing snack foods that are approved by the city.

Proposed by:
The 2012 Health Initiative Task Force

Appendix M

Public Trust and Confidence in Institutions (Tompkins et al, in prep)

For the following questions we would like for you to think about public health agencies. When we say public health agencies we mean governmental agencies that regulate and make laws about the public's health, such as the Food and Drug Administration, the United States Department of Agriculture, the Surgeon General, the Center for Disease Control and Prevention, and the Department of Health and Human Services.

	strongly disagree						strongly agree
Most decision makers of public health agencies care about residents in the area they regulate.	❍	❍	❍	❍	❍	❍	❍
Most decision makers of public health agencies are competent to do their jobs.	❍	❍	❍	❍	❍	❍	❍
My confidence in public health agencies is high.	❍	❍	❍	❍	❍	❍	❍
Public health agencies do not protect my interests.	❍	❍	❍	❍	❍	❍	❍
I am generally confident in people.	❍	❍	❍	❍	❍	❍	❍
I am a loyal person	❍	❍	❍	❍	❍	❍	❍
I trust what people say.	❍	❍	❍	❍	❍	❍	❍
I think public health agencies act in the interests of some groups over others.	❍	❍	❍	❍	❍	❍	❍
Most officials in public health agencies lack integrity	❍	❍	❍	❍	❍	❍	❍
Public health agencies are a legitimate authority on deciding health policies	❍	❍	❍	❍	❍	❍	❍
Being loyal to public health agencies is important to me.	❍	❍	❍	❍	❍	❍	❍
I feel I should accept decisions made by public health agencies.	❍	❍	❍	❍	❍	❍	❍
The procedures by which public health agency decision makers make decisions are fair.	❍	❍	❍	❍	❍	❍	❍
Most members of public health agencies treat people with respect.	❍	❍	❍	❍	❍	❍	❍
I believe public health agencies share my values about how natural resources should be regulated.	❍	❍	❍	❍	❍	❍	❍
I trust public health agencies.	❍	❍	❍	❍	❍	❍	❍
I feel like public health agencies listen to the opinions of the people it regulates.	❍	❍	❍	❍	❍	❍	❍

For the most part, the decisions made by public health agencies are made out of care and concern for area residents.	❍	❍	❍	❍	❍	❍	❍
Most public health agency decision makers have the skills necessary to do their jobs.	❍	❍	❍	❍	❍	❍	❍
I believe public health agencies will perform its functions as it should.	❍	❍	❍	❍	❍	❍	❍
Public health agencies are out of touch with what's going on in its communities.	❍	❍	❍	❍	❍	❍	❍
I am rarely surprised in my dealings with others.	❍	❍	❍	❍	❍	❍	❍
I am faithful to the commitments I make	❍	❍	❍	❍	❍	❍	❍
I think that most people would try to be fair.	❍	❍	❍	❍	❍	❍	❍
The decisions made by public health agencies are biased.	❍	❍	❍	❍	❍	❍	❍
Public health agencies are made up of mostly honest individuals	❍	❍	❍	❍	❍	❍	❍
Public health agencies use their power appropriately.	❍	❍	❍	❍	❍	❍	❍
Public health agencies can always count on me.	❍	❍	❍	❍	❍	❍	❍
Good citizens will obey natural resource regulations set for an area by public health agencies.	❍	❍	❍	❍	❍	❍	❍
In my experience, public health agencies generally have been fair in their dealings with the community.	❍	❍	❍	❍	❍	❍	❍
Even when dealing with people who disagree with it, public health agencies still treat people with dignity.	❍	❍	❍	❍	❍	❍	❍
I believe that public health agencies support my values about natural resources allocation.	❍	❍	❍	❍	❍	❍	❍
My trust in the public health agencies is high	❍	❍	❍	❍	❍	❍	❍
Citizens can influence public health agency decisions.	❍	❍	❍	❍	❍	❍	❍

Appendix N

Depression Anxiety Stress Scale (Antony et al., 1998)

Please read each statement and indicate how much the statement applied to you over the past month.

	Did not apply to me at all	Applied to me to some degree, or some of the time	Applied to me to a considerable degree, or a good part of time	Applied to me very much, or most of the time
I was intolerant of anything that kept me from getting on with what I was doing.	❍	❍	❍	❍
I felt I was rather touchy.	❍	❍	❍	❍
I found it difficult to relax.	❍	❍	❍	❍
I found myself getting agitated.	❍	❍	❍	❍
I felt that I was using a lot of nervous energy.	❍	❍	❍	❍
I found it hard to wind down.	❍	❍	❍	❍
I tended to over-react to situations.	❍	❍	❍	❍
I felt that life was meaningless.	❍	❍	❍	❍
I felt that it had nothing to look forward to.	❍	❍	❍	❍
I couldn't seem to experience any positive feeling at all.	❍	❍	❍	❍
I was unable to become enthusiastic about anything.	❍	❍	❍	❍
I felt that I wasn't worth much as a person.	❍	❍	❍	❍
I felt down-hearted and blue.	❍	❍	❍	❍
I found it difficult to work up the initiative to do things.	❍	❍	❍	❍
I was aware of the action of my heart in the absence of physical exertion.	❍	❍	❍	❍
I experienced breathing difficultly.	❍	❍	❍	❍
I experienced trembling (e.g. in the hands).	❍	❍	❍	❍
I felt I was close to panic.	❍	❍	❍	❍
I felt scared without any good reason.	❍	❍	❍	❍

I was worried about situation in which I might panic and make a fool of myself.	❍	❍	❍	❍
I was aware of dryness of my mouth.	❍	❍	❍	❍

Appendix O

Rosenberg Self-Esteem Scale (Rosenberg, 1965)

Below is a list of statements dealing with your general feelings about yourself. Please indicate how much you agree or disagree with the following statements.

	Somewhat Agree	Agree	Disagree	Somewhat Disagree
On the whole, I am satisfied with myself	❍	❍	❍	❍
At times, I think I am no good at all	❍	❍	❍	❍
I feel that I have a number of good qualities	❍	❍	❍	❍
I am able to do things as well as most other people	❍	❍	❍	❍
I feel I do not have much to be proud of	❍	❍	❍	❍
I certainly feel useless at times	❍	❍	❍	❍
I feel that I'm a person of worth, at least on an equal plane with others	❍	❍	❍	❍
I wish I could have more respect for myself	❍	❍	❍	❍
All in all, I am inclined to feel that I am a failure	❍	❍	❍	❍
I take a positive attitude toward myself	❍	❍	❍	❍

Appendix P

Food Choice Questionnaire (Steptoe, et al., 1995).

It is important to me that the food I eat on a typical day:

	Not at all important	A little important	Moderately important	Very important
Is easy to prepare	❍	❍	❍	❍
Contains no additives	❍	❍	❍	❍
Is low in calories	❍	❍	❍	❍
Tastes good	❍	❍	❍	❍
Contains natural ingredients	❍	❍	❍	❍
Is not expensive	❍	❍	❍	❍
Is low in fat	❍	❍	❍	❍
Is familiar	❍	❍	❍	❍
Is high in fiber and roughage	❍	❍	❍	❍
Is nutritious	❍	❍	❍	❍
Is easily available in shops and supermarkets	❍	❍	❍	❍
Is good value for money	❍	❍	❍	❍
Cheers me up	❍	❍	❍	❍
Smells nice	❍	❍	❍	❍
Can be cooked very simply	❍	❍	❍	❍
Helps me cope with stress	❍	❍	❍	❍
Helps me control my weight	❍	❍	❍	❍
Has a pleasant texture	❍	❍	❍	❍
Is packaged in an environmentally friendly way	❍	❍	❍	❍
Comes from countries I approve of politically	❍	❍	❍	❍
Is like the food I ate when I was a child	❍	❍	❍	❍
Contains a lot of vitamins and minerals	❍	❍	❍	❍
Contains no artificial ingredients	❍	❍	❍	❍
Keeps me awake/alert	❍	❍	❍	❍
Looks nice	❍	❍	❍	❍

Helps me relax	❍	❍	❍	❍
Is high in protein	❍	❍	❍	❍
Takes no time to prepare	❍	❍	❍	❍
Keeps me healthy	❍	❍	❍	❍
Is good for my skin/teeth/hair/nails etc.	❍	❍	❍	❍
Makes me feel good	❍	❍	❍	❍
Has the country of origin clearly marked	❍	❍	❍	❍
Is what I usually eat	❍	❍	❍	❍
Helps me to cope with life	❍	❍	❍	❍
Can be bought in shops close to where I live or work	❍	❍	❍	❍
Is cheap	❍	❍	❍	❍

Appendix Q

Body Shape Questionnaire (Dowson & Henderson, 2001

Below is a list of statements dealing with your general feelings about yourself. Please indicate how often you have experienced each of these during the past month.

	Never	Rarely	Sometimes	Often	Very Often	Always
Have you been so worried about your shape that you have been feeling that you ought to diet?	❍	❍	❍	❍	❍	❍
Has being with thin people made you feel self-conscious about your shape?	❍	❍	❍	❍	❍	❍
Have you ever noticed the shape of other people and felt that your own shape compared unfavorably?	❍	❍	❍	❍	❍	❍
Has being undressed, such as when taking a bath, made you feel fat?	❍	❍	❍	❍	❍	❍
Has eating sweets, cakes or other high calorie food make you feel fat?	❍	❍	❍	❍	❍	❍
Have you felt excessively large and rounded?	❍	❍	❍	❍	❍	❍
Have you felt ashamed of your body?	❍	❍	❍	❍	❍	❍
Has worry about your shape made you diet?	❍	❍	❍	❍	❍	❍
Have you thought that you are that shape you are because you lack self-control?	❍	❍	❍	❍	❍	❍
Have you worried about other people seeing rolls of fat around your waist and stomach?	❍	❍	❍	❍	❍	❍
Have you felt that it is not fair that other people are thinner than you?	❍	❍	❍	❍	❍	❍
Has seeing your reflection (e.g. in mirror or shop window) made you feel bad about your shape?	❍	❍	❍	❍	❍	❍
Have you been particularly self-conscious about your shape when in the company of other people?	❍	❍	❍	❍	❍	❍
Has worry about your shape made you feel you ought to exercise?	❍	❍	❍	❍	❍	❍

Appendix R

Restrained Eating Scale (Polivy, et al., 1988)

How often are you dieting?
- ❍ Never
- ❍ Rarely
- ❍ Sometimes
- ❍ Usually
- ❍ Always

What is the maximum amount of weight (in pounds) you have ever lost within one month?
- ❍ 0-4
- ❍ 5-9
- ❍ 10-14
- ❍ 15-19
- ❍ 20+

What is your maximum weight gain within a week?
- ❍ 0-1
- ❍ 1.1-2
- ❍ 2.1-3
- ❍ 3.1-5
- ❍ 5.1+

In a typical week, how much does your weight fluctuate?
- ❍ 0-1
- ❍ 1.1-2
- ❍ 2.1-3
- ❍ 3.1-5
- ❍ 5.1+

Would a weight fluctuation of five pounds affect the way you live your life?
- ❍ Not at all
- ❍ Slightly
- ❍ Moderately
- ❍ Extremely

Do you eat sensibly in front of others and splurge alone?
- ❍ Never
- ❍ Rarely
- ❍ Often
- ❍ Always

Do you give too much time and thought of food?
- ❍ Never
- ❍ Rarely
- ❍ Often
- ❍ Always

Do you have feeling of guilt after overeating?
- ❍ Never
- ❍ Rarely
- ❍ Often
- ❍ Always

How conscious are you of what you're eating?
- ❍ Not at all
- ❍ Slightly
- ❍ Moderately
- ❍ Extremely

How many pounds over your desired weight were you at your maximum weight?
- ❍ 0-1
- ❍ 1-5
- ❍ 6-10
- ❍ 11-20
- ❍ 21+

Appendix S

Manipulation Check Questionnaire

We would like to ask you a few questions to make sure you understood the proposed vending machine policy you just read and to get your general impressions about the proposed policy.

How much money is spent on vending machines annually?

a) $100,000
b) $300,000
c) $500,000
d) $700,000

What was one of the causes for obesity mentioned in the policy? (*situational blame condition is first and dispositional blame condition is second)*

a) High calorie foods
b) Food industry pricing foods to high
c) Processed food that is high in preservatives
d) Cause was not mentioned

a) High calorie foods
b) People who do not exercise
c) Processed food that is high in preservatives
d) Cause was not mentioned

What type of factors does the policy blame for obesity?

a) Environmental factors
b) Individual factors
c) Health factors
d) Blame was not mentioned

How much do you think the policy blames [insert participant's answer to previous question]?

0	1	2	3	5
Not at all blameworthy				Very blameworthy

What are your general impressions of the vending machine policy?

Appendix T

Positive and Negative Affect Scale

Instructions: This scale consists of a number of words that describe different feelings and emotions. Read each item and then circle the appropriate answer next to that word. Indicate to what extent you currently feel.

	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
Interested	1	2	3	4	5
Distressed	1	2	3	4	5
Excited	1	2	3	4	5
Upset	1	2	3	4	5
Strong	1	2	3	4	5
Guilty	1	2	3	4	5
Scared	1	2	3	4	5
Hostile	1	2	3	4	5
Enthusiastic	1	2	3	4	5
Proud	1	2	3	4	5
Irritable	1	2	3	4	5
Alert	1	2	3	4	5
Ashamed	1	2	3	4	5
Inspired	1	2	3	4	5
Nervous	1	2	3	4	5
Determined	1	2	3	4	5
Attentive	1	2	3	4	5
Jittery	1	2	3	4	5
Active	1	2	3	4	5
Afraid	1	2	3	4	5
Blameworthy	1	2	3	4	5

Appendix U

Weight Bias Internalization Scale

Please rate your agreement with the following statements. *[modified so it can apply to both obese and average weight]*

	strongly disagree				strongly agree
I feel that I am just as competent as anyone	❍	❍	❍	❍	❍
I am less attractive than most other people because of my weight	❍	❍	❍	❍	❍
I feel anxious about my weight because of what people might think of me	❍	❍	❍	❍	❍
I wish I could drastically change my weight	❍	❍	❍	❍	❍
Whenever I think a lot about my weight, I feel depressed	❍	❍	❍	❍	❍
Because of my weight, I don't feel like my true self	❍	❍	❍	❍	❍
I hate myself for my weight	❍	❍	❍	❍	❍
My weight is a major way that I judge my value as a person	❍	❍	❍	❍	❍
I don't feel that I deserve to have a really fulfilling social life, as long as I'm this weight	❍	❍	❍	❍	❍
I am OK being the weight that I am	❍	❍	❍	❍	❍
Because of my weight, I don't understand how anyone attractive would want to date me	❍	❍	❍	❍	❍

Appendix V