Prejudice: The Role of the Media in the Development of Social Bias

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Abstract
Numerous studies document the existence of bias: bias against gender, race, sexual orientation, age, mental illness, and body shape or weight. This article presents a model of bias development, which helps explain the influence of mediated, individual, social, and ideological influences on the development of bias. This article applies the proposed model using four experimental studies that examine weight bias in children and adults. The results from the four studies lend empirical support for the model. Data from the studies suggest the explication of a theoretical model is necessary to understand the factors related to the development of bias against a variety of groups, character traits, or attributes in others. It is difficult to argue that any one factor whether it be media, individual, social, or ideology “trumps” other factors as the development of bias seems to be very individualistic. Therefore, a model that represents the myriad of factors identified above is proposed.

Keywords
media, bias, stigma, prejudice

Introduction
Attitudes influence the way we interact with the world, including our day-to-day experiences with other people, groups, and issues. We hold explicit attitudes or subjective views of which we are cognizant. We also hold implicit attitudes and associations that we might not even recognize because they are unconscious or automatic. But how do these attitudes—these prejudices or biases—develop? Certainly, the media inform our attitudes toward other people. Whether fact or fiction, media content involves plots

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centered on social actors. We draw inferences about people—even real-life people—based on the attitudes and behaviors of these social actors. Indeed, social scientists have examined media content and how it influences our social perception using priming,\(^1\) cultivation,\(^2\) framing,\(^3\) social cognitive theory,\(^4\) and other popular theories of mass communication. The research suggests that media often provide audiences stereotypical portraits of people based on how old they are,\(^5\) their race/ethnicity,\(^6\) their mental health,\(^7\) their gender,\(^8\) the amount they weigh,\(^9\) and a host of other traits. Furthermore, exposure to media content may influence audiences’ attitudes and/or beliefs about race,\(^10\) body shape/size,\(^11\) age,\(^12\) sexuality,\(^13\) mental health,\(^14\) and other characteristics. Simply put, media content often contains stereotypes about social groups, and a growing body of research is examining how the media may help nurture (or mitigate) stereotypes, prejudice, and discrimination.

Nevertheless, media alone cannot explain how people form prejudice, which is a positive or negative evaluation of a person based on the social group to which they belong (or don’t). Instead, people bring individual, social, and ideological backgrounds into the viewing or listening environment. As the literature in social psychology shows, these factors can have profound effects on the formation, experience, and expression of prejudice. Therefore, we advocate a more holistic approach for the study of media and prejudice. When social scientists consistently account for mediated, individual, social, and ideological factors, our understanding of prejudice deepens. So, too, does our understanding of how mediated environments shape our perceptions of the people in the world around us. This study presents a theoretical model of bias development, which helps explain these four classifications of influence on the development and reinforcement of bias. Later in the monograph, the study applies the proposed model using four experimental studies that examine weight bias in children and adults. The results support the model, showing that mediated, individual, social, and ideological factors inform the development of implicit and explicit prejudice.

Before explicating and testing the model, the monograph first reviews literature on mediated, individual, social, and ideological factors involved in the development of bias from a viewpoint that melds mass communications and social psychology. Second, the study reviews relevant theories and conceptual models, including their limitations. Third, results from four experimental studies examining weight bias are summarized, which help shape the development of the proposed model. Fourth, the study presents the proposed model of bias development. Finally, the study examines ways in which the model may inform future research. Thus, the significance of the present work is that it merges theories and findings from several disciplines in a way that provides meaningful and valuable understanding as it relates to the development of bias. Finally, the inclusion of media exposure as a correlate or precursor of bias contributes to and advances knowledge in a meaningful way.

While certain prejudices may be less overt today than in decades past, they continue to influence modern beliefs, emotions, and behavior. Nevertheless, certain social characteristics remain openly stigmatized in the United States, including the focus of the studies outlined here: obesity. The prevalence of obesity drastically increased since the 1990s, topping 20% in every state by 2011.\(^{15}\) Obesity carries significant mental health consequences, partly because American society stigmatizes heavy body
shapes and sizes. Indeed, a growing body of literature indicates that obese or overweight people are discriminated against or stigmatized in a number of areas, including social settings, school, and the workplace. What remains unknown is how weight-based prejudice forms. Like many other prejudices, negative weight-based attitudes manifest during childhood. Children and adolescents assign negative personality and character traits to overweight peers, perceiving obese youths as lazy, less confident, less healthy, and less attractive. While negative stereotypes and weight-based attitudes are well documented, we understand less about their precursors and the role of media content in the formation of social bias. The present article addresses the gap, beginning with an explication of prejudice.

Prejudice

Prejudice is a form of attitude, which Gordon Allport labeled as “probably the most distinctive and indispensable concept in contemporary American social psychology” (p. 798). More than seventy-five years later, attitude remains an indispensable concept in psychology, mass communications, and other fields of social scientific inquiry. Perhaps because of its ubiquitous nature, the attitude concept has not been defined in one overarching way. Attitude has been defined as a general and enduring positive or negative evaluation of an attitude object, which includes people, issues, events, and other targets. It also has been defined using memory-based approaches, including Fazio’s conceptualization of attitude as an association between an evaluation and object. Recent research has questioned whether attitudes are necessarily enduring, or perhaps constructed on the spot using information available during the particular context. Therefore, the research presented here uses the more holistic and general conceptualization provided by Eagly and Chaiken, who defined attitude as “a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor” (p. 1). In the case of prejudice and bias, the “particular entity” is a person, and the favor or disfavor is based on group-based characteristics such as weight, race, gender, religion, mental health. While conceptual definitions differ, most scholars agree that attitudes involve some form of evaluation. In the “umbrella” conceptualization provided by Eagly and Chaiken, evaluation includes “all classes of evaluative responding, whether overt or covert, cognitive, affective, or behavioral” (p. 1). Attitudes last at least a short period of time, and the use of the term here makes allowances for the debate about the temporal nature of attitudes.

Attitudes include three classes of antecedents: cognitive, affective, and behavioral. People may use previous behaviors as the basis of an attitude, as people prefer to maintain consistency. In addition, affect may shape attitudes, an assumption underlying research in classical conditioning. When an individual repeatedly suffers an electric shock following exposure to a stimulus object, he or she may quickly associate the object and negative affect even when the punishment no longer

occurs. Conversely, positive affect may be attached to attitude objects when the association is constructed through reward rather than punishment. The cognitive component includes an individual’s beliefs. Petty and Cacioppo defined beliefs as “the information that a person has about other people, objects, and issues” (p. 7). Beliefs may be factual or based on personal opinion, and they may be accurate or inaccurate. For example, stereotypes are a type of belief that is based on social group membership. A common stereotype concerning mental illness is that it makes a person dangerous and unpredictable. Informed by an unfounded belief, a person may negatively evaluate a person who has mental illness. The evaluation would represent an attitude. In fact, it would represent the specific type of attitude investigated here, prejudice.

While the concept of prejudice certainly informs research involving race relations, scholars have also studied prejudice based on age, gender, sexuality, mental health, weight, and other social categories. Certain areas of research, including weight-based prejudice, sometimes use the terms “bias” and “stigmatization” interchangeably with prejudice. The research presented here differentiates among the terms. As prejudice often invokes negative connotations, the word bias may better represent the underlying meaning because most people likely would agree that bias may be positive or negative. Bias and prejudice may inform discrimination, which occurs when an individual is treated differently based on group membership. It is also a component of stigmatization, an overall process in which a person is labeled (or socially categorized), stereotyped, and discriminated against within a power environment. Bias and prejudice may lead to discrimination, but sometimes that belief is not something an individual is even aware of as attitudes may be implicit or explicit in nature.

Implicit and Explicit Attitudes

Much scholarly attention has examined the formation of attitudes—evaluations of the self, individuals, groups, and other objects—and in the course of examining this area of social psychology, the focus of research has shifted from understanding explicit attitudes—attitudes that people can consciously report and attitudes that can be consciously controlled—to examining implicit attitudes—attitudes for which people do not have conscious access and “for which activation cannot be controlled” (p. 239). Greenwald and Banaji suggest the key difference between implicit and explicit attitudes is they represent what an individual is consciously aware of, or not, or whether an individual responds automatically or in a controlled fashion. Bargh, Chaiken, Govender, and Pratto and Fazio, Sanbonmatsu, Powell, and Kardes argue that attitudes are activated outside of conscious attention, and this happens because the activation is occurring more rapidly than can be managed by conscious activity. Negative beliefs and attitudes have been identified at the explicit and implicit level based on weight, race, mental illness, and other characteristics. No matter the stigmatized condition under study, research suggests mediated, individual, social, and ideological factors shape our attitudes.
Factors Relevant in Understanding the Development of Bias

**Media Influences**

Media are often inescapable in today’s environment, and the messages media outlets disseminate surely shape the way we perceive the world and other people. It has been suggested that the mass media are the most potent and pervasive communicators of sociocultural standards in America. Accordingly, it is important to examine media as a driving component in the development of prejudice. The average American adult spends 5.20 hours watching television each day and 3 hours per day using computers and the Internet. Children are also “glued” to the screen, whether it is TV (4.29 hours per day) or portable technology such as cellular phones (2 hours per day either talking or texting).

The ubiquitous nature of the media means we are bombarded with messages about what characteristics and groups should be sanctioned or shunned, what we should think about, how we should behave toward others, and what we might expect from people based on the groups to which they belong. The media primarily shape prejudice through two routes: disseminating inaccurate information about social groups (including stereotypes), and informing audience members how society behaves toward and thinks about social categories. Perhaps the demand placed on media producers, who are responsible for condensing large amounts of information into short segments and articles, should be blamed for the presence of stereotypical content. However, stereotypes are products of normal cognitive processes and may therefore appear in media content through sheer accident. Regardless, inaccurate information about social groups frequently appears in television programs, newspapers, magazines, novels, and other media outlets. For example, the media frequently portray people with mental illness as violent, dangerous, unstable, unpredictable, and socially undesirable. Stereotypes based on race/ethnicity, gender, sexuality, age, and other social categories are also prevalent in American television, newspapers, magazines, movies, and other forms of media content. In regard to weight bias, content analyses suggest that media content often endorses the “thin ideal,” providing audience members inaccurate, often unattainable, and potentially harmful models for the preferred body shape and size. An overall message of “Thin is in, Stout is out” is prevalent in everything from adolescent fiction to women’s magazines. Add to the overrepresentation of the thin ideal in a mediated context the representation of overweight in a stereotypical fashion, and viewers are left with perceptions about overweight individuals that might be negative. Overweight characters are subjected to negative remarks, both self-imposed and other-generated, more often than thin characters in situation comedies. Overweight characters are more likely to be shown eating, and less likely to be in a serious romantic relationship than thin characters. The television world also underestimates the prevalence of the overweight population—most characters are of thin or average build, contrasting real-world statistics. Only 14% of female characters and 24% of male
characters in the top ten prime-time fictional programs of 1999 to 2000 were portrayed as overweight or obese—less than half their percentages in the general population. Finally, television may also reinforce the ridicule of overweight or obese characters by playing audience applause when an overweight character becomes the subject of negative commentary.

A growing body of research, including the four experiments outlined here, is examining how stereotypical media content may nurture stereotypes, prejudice, and discrimination. So far the findings are clear: stereotypical media content informs people’s attitudes toward others on the basis of race, gender, age, and other characteristics. Media effects occur via several mechanisms.

Stereotypical media content may activate stereotypes, making them more readily available for subsequent information processing and perception tasks (priming). Informed by the network model of memory, media priming presents one of most theoretically and empirically robust mass communication approaches to explaining the mechanisms by which media nurture stereotypes and prejudice. The network model assumes that concepts are linked in memory by associative pathways. The pathways form a network, such that priming one concept (“doctor”) will activate closely related concepts (“nurse,” “hospital”) and make them more readily available for application in subsequent decision- and impression-making tasks. For example, audience members primed with the “mammie” or “jezebel” stereotype through media content later reported congruent attitudes and perceptions when they were asked to rate a black female job applicant. The strength of the priming effect depends on the recency of the priming event and the frequency with which concepts are associated and activated. The network model assumes that the priming effect dissipates with time, often within minutes or even seconds of the priming event. Through priming, media content may influence our perceptions of people based on race, gender, mental health, and other characteristics. The network model may in fact help explain the formation of attitudes through the repeated pairing of concepts by personal experience, friends, family, ideologies, and the media, especially when one takes the constructionist position that attitudes are formed on the spot in reaction to contextual circumstances. The temporal nature of media priming limits its power as an explanation for the formation of prejudice. While media priming effects may dissipate within minutes or even seconds, prejudiced attitudes appear longer lasting. Indeed, television content may nurture misconceptions about the prevalence and characteristics of social groups after long-term exposure (cultivation). Cultivation represents another relevant and popular theory. Simply put, cultivation theory predicts people who watch significant amounts of television will report worldviews more in-line with television portrayals than people who spend little time with the TV. Television became “the great storyteller” of our time, replacing pastors, parents, teachers, and traditional cultural communicators. Early cultivation theorists consider the homogeneity of television content potentially problematic, because the mass messages were essentially being conveyed to mass audiences by few communicators. In other words, a few corporations controlled the airwaves, disseminating similar messages to dissimilar cultures around the world. Gerbner predicted a “mainstreaming” effect would occur when cultures were
inundated with these homogeneous messages. Cultures ultimately would assimilate and adopt worldviews reflecting the dominant, mainstream, corporate message. While cultivation remains a heavily cited theory in the top communication journals, scholars focused less on the “corporate control” component of the theory and more on how heavy and light television viewers differ in their attitudes toward issues, events, and people. Certainly, television provides audiences stereotypical portrayals based on gender, mental illness, race, weight, sexuality, and other characteristics. Cultivation theory predicts heavy television viewers would report more stereotypical and prejudiced views than light television viewers. For example, Morgan found that male and female adolescent students who watched more television had higher scores on sexism measures than those who watched less television. Addressing the primary criticism concerning cultivation theory, more recent research examined availability heuristics as the cognitive mechanism by which cultivation effects occur. The research suggests heavy television exposure enhances the heuristic in viewers’ memory, making particular cognitive associations more salient and therefore more applicable for estimations, attitude reports, and other tasks. Despite recent advances, cultivation theory is an inadequate explanation for the factors contributing to prejudice and social bias. The theory primarily focuses on the role of the media in attitude formation, discounting individual characteristics as an important contributor to bias. Cultivation effects should occur regardless of an individual’s race, gender, and socioeconomic background. Instead, cultivation theory predicts differences in worldviews according to the amount of television an individual watches. Therefore, the theory is inadequate for explaining the phenomena studied here. Cultivation as a single theory of bias development does not account for individual differences in those consuming media; however, when considered with other theoretical frameworks that might explain how individual factors might covary with media consumption, the theory may prove more useful.

When people sit down to the TV, newspaper, magazine, or other media, they may differentially process the information they encounter based on existing cognitive approaches (cognitive-experiential self-theory). Cognitive-experiential self-theory is a broadly integrated theory of personality that is grounded in the distinction between two independent information processing systems: an experiential system that processes information simply and automatically, and a rational system that operates based on an individual’s understanding of logic and reasoning. In more simplistic terms, Epstein describes the experiential system as one that is intuitive, concrete, and affective, and the rational system as one that is logical, abstract, and conscious. Theorists of Cognitive Experiential Self Theory (CEST) suggest that the experiential processing system in humans is similar to the system by which animals adapt to their environments, by learning from experiences rather than making decisions via logical or rational inference. Epstein argues that even though the experiential system is part of a cognitive system, its existence is closely related to the experience of affect (p. 5) because if an individual is learning from experience, those experiences will likely trigger a positive or negative affect or reinforcement. In the context of this study, if an individual is exposed to the negative treatment of others who are overweight via a
mediated context or personal venue, that individual may be influenced on an affective level, causing the individual to feel one way or another about the overweight individual. In some cases, an individual might be more sympathetic or empathetic to similar others, but in other cases, the individual may be more susceptible to believe that there are numerous disadvantages associated with being overweight. By its basic definition and by the distinct differences between the two systems—one operating more on the conscious level and the other operating more on the unconscious level—it is argued that this theory serves as a foundation by which implicit and explicit attitudes are formed.

Media content may highlight certain bits of information, such as stereotypes, while ignoring others, making the information more salient (framing). Finally, audiences may learn from the behaviors and consequences of media personalities, and later model the behavior in the real world (social cognitive theory of mass communication). Children’s videos frequently stress the importance of physical appearance, including thin body shape. Conversely, overweight characters in top-rated television programs endure ridicule and demonstrate stereotype traits such as gluttony and social ineptitude.

As the theories demonstrate, media content may be particularly influential in attitude formation and change especially when an individual knows nothing about the relevant attitude object or holds particularly malleable dispositions toward the target. For example, a child who knows nothing about mental illness may learn through Saturday morning cartoons to associate words such as “crazy” and “nuts” with social exclusion, violence, and negative valence, especially when family, friends, school, and other sources of influence provide no contradicting information. However, people rarely—if ever—have blank mental slates for social categories when they enter the media environment. Therefore, the likelihood is greater that an individual audience member enters the mediated environment carrying preexisting prejudices, which influence the way in which the person processes the content and, in turn, experiences attitude formation, reinforcement, or change. Overall, three additional categories appear to interact with mass media to influence prejudice: ideological factors, including political affiliation and religiosity; social influences, including familial and interpersonal environments; and individual characteristics, including personal experience with social groups and knowledge about social groups.

**Individual Influences**

The very processes involved in social categorization represent an important and abundant line of scientific inquiry in psychology, presenting media researchers important information about how individual characteristics may inform our reactions to media content. Humans automatically classify other people based on race, gender, age, and other characteristics. Categorization triggers associated concepts in memory, such that relevant stereotypes—or beliefs—come to mind when one person encounters another. As stereotypes are activated, they are more readily accessible for application in decision making, attitude expression, and behavior. It remains debated whether an
individual can control the influence of activated stereotypes on subsequent perception and behavior, and research also has produced differing results on how stereotype activation influences subsequent information processing and memory. While some research suggests that stereotype-congruent information may be better encoded (as the cognitive associations are already existent), other researchers found stereotype-incongruent information is better encoded, presumably because the information surprised participants and elicited greater attention. While people differentiate among in-group members, we tend to perceive out-group members in more homogeneous terms. In addition, the simple division between in-group and out-group, which occurs automatically and outside one’s conscious awareness, has consequences. People tend to automatically perceive out-group members in more negative terms than in-group members. While not prejudice, stereotypes certainly play a major role in our perceptions of others based on group membership. Indeed, research has shown that anti-fat bias (AFB) is stronger in people who believe the primary cause of obesity is a lack of exercise and poor nutrition, rather than genetics. Stereotypes may serve several functions for the social perceiver, aiding cognition and in-group cohesion, and providing boosts in self-esteem through the disparagement of another “different” person. Stereotypes essentially serve as cognitive shortcuts or heuristics. Therefore, an individual who prefers effortful thinking may be less inclined to rely on stereotypes when making judgments about other people. In other words, thoughtful people may be less dependent on group-based beliefs and individuate between a target and the social group to which the other individual belongs. Conversely, people who are cognitive misers or experiencing heavy cognitive load may be more reliant on stereotypes, and therefore more likely to demonstrate prejudice. In an interesting example, Bodenhausen found that people were more likely to stereotype during nonoptimal times of day. In other words, morning people demonstrated greater reliance on stereotypes at night, while “night owls” were more prone to stereotype in the morning. The reasoning is that the cognitive ability is highest during an individual’s optimal time of day.

In addition, personal factors may influence the way one individual perceives others, including gender, age, ethnicity, and, when it comes to AFB, their own weight. Much of the literature examining weight bias represents studies with children who may have some degree of bias at an earlier age but that bias will grow stronger or continue as the child grows older. Research examining the role of gender in weight bias has resulted in conflicting findings at best. While some research suggests no relation between gender and weight bias, others reported significant differences between boys and girls when it came to weight-based attitudes. While girls rated overweight targets more negatively than a thin target, boys only assessed overweight targets more negatively. Furthermore, weight-based teasing and victimization of overweight individuals were reported more by girls than boys in a study by Eisenberg, Neumark-Sztainer, and Story.

Age is another important variable in understanding the factors related to AFB, or potentially, other types of bias. Research suggests that weight bias, if existent in a child, would only worsen as the child gets older. What is less certain is the age at which weight bias begins. Despite the idiosyncratic nature of weight bias, earlier
studies do suggest that many of these demographic variables such as age offer a glimpse of how bias continues throughout a child’s growth and development. Cramer and Steinwert found that preschool children as young as three years and four years old were able to identify a target’s excess body weight as the reason for negative attitudes, and Lawson found that boys in second, fourth, and sixth grades demonstrated increasingly stronger negative attitudes toward overweight targets as they got older. Similar studies have found age to be a relevant predictor of other types of bias such as bias against physically disabled individuals or bias against individuals of another ethnicity.

Finally, ethnicity is another important variable in understanding the individual factors related to AFB. A few studies have examined whether children of different ethnicities and different cultural backgrounds are more or less likely to have anti-fat attitudes and weight bias. In a study of college students’ perceptions of weight bias, Latner and Stunkard reported that African American females had more positive attitudes toward obese peers than did Caucasian males and females. However, a recent study examining weight bias in Caucasian and Hispanic middle school students found that regardless of the participants’ ethnicity or gender, weight bias was evident, and that there were no statistically significant differences across the ethnic groups.

**Social Influences**

While Gordon Allport blamed conformity for half of all prejudice, modern theorists say the figure may be an underestimate. As Crandall and Stangor noted, “Conformity in matters of prejudice is not occasional, and is probably not to blame for merely half of all prejudices, but instead seems to form the very core of the majority of people’s prejudices” (p. 305). Conformity represents a specific form of social influence, one in which an individual changes his or her opinion to match others to maintain social appearances, avoid punishment, or to simply be accurate. Normative information, or beliefs about what others find socially acceptable, can exert significant influence over prejudice, including its formation and expression. For example, Crandall, Eshleman, and O’Brien found a relationship between self-reported prejudice toward social groups and participants’ perceptions of whether society would accept negative attitudes toward the group. Social influence may also be readily seen in mediated environments: just turn on the television, choose a situation comedy, and you will encounter social influence in action through the producers’ use of canned applause and laughter. As canned laughter influences audience members’ perceptions of media content, one might expect the viewing environment (friends, family, studio applause) would also sway how an individual processes media content. Put simply, stereotypical media content may demonstrate greater influence over audience members when they perceive social support for the messages, including messages of prejudice based on race, gender, age, mental health, and weight.

Normative information represents only one social factor in prejudice. Indeed, our biases are heavily influenced by friends, family, and the households and communities in which we reside. As noted, peers may communicate what actions, ideas, and
feelings are acceptable or condemnable. Peers communicate information, including stereotypes, which may contribute to our beliefs about other races, genders, religions, and social attributes. Furthermore, they represent our “in-group,” providing benchmarks by which we judge out-group members. Indeed, people endorse negative stereotypes about out-group members because it results in a collective self-esteem boost for the in-group. Humans are indeed social animals, and this connection with other people means we are readily susceptible to influence even in matters of prejudice.

In adults and even adolescents, the social environment in regard to weight bias—including the number of friends an individual has who are overweight and the prevalence of overweight/obesity in the household environment—may relate to the development or reinforcement of perceptions or beliefs about people who are overweight. Parenting styles or parent behavior may also be a predictor of children’s views on weight. For example, Field and colleagues found that mothers who frequently attempt to lose weight might negatively influence their children.88 Whether an individual comes from an individualist or collectivist cultural background may also influence his or her biases toward and against other people. When Beatty measured degrees of individualism, collectivism, and attitudes toward the elderly in European American and Asian American college students, he found a negative correlation between collectivism and negative attitudes toward older adults.89

Ideological Influences

In addition to individual and social backgrounds, people bring existing ideologies and orientations into the viewing, listening, or reading environment that may influence the extent to which media content nurtures prejudice. People exhibit different levels of religiosity and follow diverse religious doctrines. They endorse different issue-based stances and align with separate political parties. A person’s religiosity, political background, or ideology may help determine whether he or she consumes specific media content,90 and how he or she views other people and normative behavior concerning social groups. Furthermore, an individual’s social dominance orientation has been shown to be a strong predictor of both political and social attitudes.91 Granted, individual and social influences feed into an individual’s ideology. Parents communicate religious beliefs to their children, who in turn endorse the beliefs themselves.92 Children often develop political affiliations based on parental influence.93 Nevertheless, we differentiate between ideology and the three other factors because of its specific role in prejudice. For example, political affiliation has been shown to influence attitudes related to race94 and mental illness.95

Weight-based attitudes research also supports the premise. O’Brien, Hunter, and Banks found a link between ideology and anti-fat attitudes among college students studying physical education (PE).96 Students three years into the PE program, and more indoctrinated in the PE environment, exhibited higher levels of bias against weight than psychology students and PE students only a year into the program. Furthermore, while difficult to test empirically, cultures that embrace beauty and thinness or equate success with beauty and thinness may have an implicit or explicit bias
against overweight. As a society or culture upholds specific cultural icons as it relates to appearance, messages about what is acceptable or not begin to filter down throughout communities. In this sense, an ideological bias against weight could be evident and could lead to bias against overweight.

**Introduction to the Current Work**

As noted, several theories help explain the development of bias. They represent diverse fields of research, including mass communication, social psychology, sociology, and other paradigms. Social learning, priming, and cultivation theories have informed much of the quantitative research examining the media’s influence on bias. Earlier, we noted the key assumptions, predictions, and explanations offered by each theory. While the theories certainly inform our understanding of media and prejudice, they cannot provide a holistic account of the precursors of prejudice. Therefore, we present here a model in which mediated, individual, social, and ideological variables interact in the development of prejudice. The approach is largely individualistic. Other theories may touch on more than one dimension of bias development but still fall shy of completely explaining the phenomenon. For example, framing may help explain the way in which the media produce stigmatizing content as well as the underlying psychological mechanisms involved in processing the content. In essence, the conceptual model may help explain the role of both the media and the individual in the development of bias. Similarly, cultivation theory may help explain the way in which our consumption of the media, particularly heavy television viewing, influences our perceptions of the world. More recent studies examined the underlying psychological processes of cultivation theory, proposing that heavy television viewing may influence the availability heuristic. Therefore, cultivation theory might explain both the mediated and individual factors. While several theoretical and conceptual models were developed in psychology and sociology, mass communications scholars also use the theories to help explain phenomena. For example, the basic premise of social comparison theory is that we make judgments about ourselves based on the model set by others. While the theory primarily explains the social factor in bias development, especially weight stigmatization, communications scholars extended the theory into the mediated setting. Similarly, social learning theory proposes that we learn by watching others—both in vivo and mediated settings—and behave based on the rewards, punishment, or lack of punishment generated through the witnessed actions. Social cognitive theory, an outgrowth of social learning theory, comes closest to explaining the influence of the individual, social, ideological, and media factors in the development of bias.

The literature reviewed and the theoretical frameworks summarized above provide a framework by which an empirical investigation of bias could be conducted. This study reports the findings from a series of experiments conducted by the authors. Findings from these studies lay the foundation for the proposed model, as each tests one or several of the factors discussed as possible levels of influence in the development of bias. The studies below were tested to identify correlates or precursors of
AFB; however, as will be explained below, the levels of influence explicated here could be used to explain the development of other types of bias.

Summary of Methodologies Used

Four separate studies were conducted over the course of four years to better understand the factors influencing the development of bias against overweight and obese individuals. Study procedures were similar across the four studies, and the independent and dependent measures only varied in word usage and sentence length. These decisions were based on the age and literacy rate of the sample participants. The objective of each of the four studies was to identify correlates or precursors to weight bias. Thus, in each of the four studies, a between-subjects experiment was conducted. With this design, we were able to prime participants with an image of an overweight or thin subject and then use cognitive and attitudinal measures to assess participants’ weight bias. The first experiment was conducted with children, and this study was simplest in terms of measures and factors related to bias against overweight individuals. After analysis of the findings from the first study, a second experiment was designed, also with children, with more comprehensive measures that represented several predicted levels of influence of bias. At the same time as Study 2 was being conducted, a purposive sample was used to find individuals who identified as currently having weight issues or previously having weight issues, and data from this project are represented in Study 3. Last, a final study was done with another adult sample; however, participants in this study were recruited from undergraduate and graduate classes at two universities in the South. The design of each study was built upon the findings from the subsequent study such that a more comprehensive understanding of bias and the development of bias could be gained. Finally, the objective of all studies was to identify the factors—individual, social, media, or ideological—that might be the strongest predictors of bias in each of the four separate samples.

Procedures

All four studies discussed below were experiments, and in one of the four cases, a within- and between-subjects experimental design was used. This was to allow for longitudinal data collection and to also see how attitudes about weight changed in children over time. In all four studies, participants completed an online instrument and addressed items related to self-perception, peer and family influence, household dieting behavior, eating and exercise behavior, eating and exercise attitudes, and media exposure. Participants in all four studies also completed a modified version of the Implicit Association Test (IAT), designed to measure attitudes related to weight. The original study (Study 1) was designed to examine the correlates of weight bias in children, and each subsequent study was modified, revised, or expanded based on the results from the earlier study.
Stimulus

As the goal of each study was to identify correlates or precursors to weight bias, we wanted to have multiple measures of the key outcome variable—AFB. Thus, we used two separate measures of AFB, one that was more global in nature that measured general attitudes toward overweight, and the second that measured participant responses to an image they were exposed to via the stimulus. In two of the five groups for each of the four studies, participants were exposed to an image of an overweight man/boy or woman/girl. The purpose was to see whether exposure to an overweight individual might trigger greater amounts of bias against overweight. To facilitate responses to photographs of overweight and thin children/adults (child participants viewed images of children; adult participants viewed images of adults), participants were randomly selected for one of the following groups: exposure to an image of an overweight female, exposure to an image of the same female who was thinner, exposure to an image of an overweight male, exposure to an image of the same male who was thinner, and no image exposure. Identification of the subjects used as stimuli in two of the four experiments was based on a pilot test of sixteen images of thin and overweight males and females using another sample of other children and adults. Sixteen children participated in the pilot test of images to be used in the studies with children, and sixteen adults participated in the pilot test of images to be used in the studies with adults. The images selected for use in the project were “before” pictures of males and females who had participated in weight-loss camps or weight-loss treatment programs. For the “overweight” treatment groups (one male, one female), full body images were selected. Both photographs showed the subjects smiling so that no negative affect would be associated with facial expression. The subjects were photographed in bathing suits for the before and after images so that confounding factors could be eliminated. For the “thin” treatment groups, “after” images of the same male and female were used, and the images were enhanced in Photoshop so that the “thin” treatment group was exposed to an image of a clearly thin person. The fifth treatment group did not view an image.

The dependent measures for all four studies were similar: two measures of explicit bias. For the first measure, participants’ attitudes about the subject viewed in the stimulus photograph were measured. Participants randomly assigned to one of four treatment groups were asked seven questions related to the subject viewed in the photograph. Statements used in each experiment were items such as “This girl/boy/woman/man looks like one of my friends,” “I think this girl/boy/woman/man is attractive” (for the boy/male treatment groups, the term attractive was used), “I think this girl/boy/woman/man is athletic,” and “I think this girl/boy/woman/man is popular.” Using responses to the statements, an additive scale was created that measured explicit bias against the subjects viewed in the photographs. Reliability of this scale across the four studies ranged from a .68 to a .90, with the higher reliability coming in the two studies conducted with adults.

The second measure of explicit bias was a modification of Crandall’s Anti-Fat Attitudes scale, using the subscale of dislike. This measure tapped into more general attitudinal bias against individuals who were overweight, as the items were not related specifically to the subject used in the stimulus. It is acknowledged that viewing an
overweight subject in the stimulus may have primed participants to think negatively about overweight individuals. However, the two scales measuring explicit AFB were separated by several filler questions and by the cognitive processing questions in each of the four studies. The original scale items used the word “fat.” Instead, the word “overweight” was used to make sure that we did not perpetuate additional bias against obesity and weight. We rephrased sentences that were originally designed to be asked in a negative way such as “It is disgusting when a fat person wears a bathing suit” or “I would not be friends with a fat person.” Instead, we used positive wording: “Only thin people look good in a bathing suit” and “I will only be friends with kids who are thin.” For this measure, an additive scale was again created using responses to five items.

Cognitive processing styles were measured in all four studies, with the only variation across the studies being the simplicity of the sentences used. Two separate scales were used to measure what type of cognitive processing style participants were more comfortable with—rational or experiential. The first scale was derived from responses to the Rational-Experiential Inventory (REI) that measured cognitive predilections toward rational processing. Items included statements such as “I enjoy a challenge that makes me think hard,” “I try to avoid situations that require thinking in depth about something,” and “I prefer complex problems to simple problems.” The second scale also came from the REI–A version (REI-A) that gauges cognitive predilections toward intuitive processing. Items used for this scale included statements such as “Using my gut feelings usually works for me in figuring out problems in my life,” “I believe in trusting my instincts,” and “I tend to use my feelings to guide my actions.”

Along with the two measures of explicit bias, the studies used a modification of the IAT. The measure examines associations between target groups and beliefs and has been used to measure attitudes related to gender, ethnicity, and weight. The measure is more commonly used in adult samples and timed. We removed the timed component from our studies with children because we did not want the youths to feel pressure or stress associated with the “test.” Participants were presented with adjectives that were to be assigned to one of two target groups: “thin” and “overweight.” The Greenwald and Banaji test used the words “thin” and “fat.” Again, we used the word “overweight” rather than “fat” because we did not want to perpetuate negative connotations. In all four studies, participants were shown twenty different positive and negative adjectives, representing a wide range of personality and physical attributes: athleticism (athletic/not athletic), intelligence (smart/stupid), motivation (motivated/lazy), popularity (popular/not popular), attractiveness (attractive/unattractive), and goodness (good/bad). Participants were instructed to place each adjective into the “thin” or “overweight” category. Participants were not able to place an adjective into both categories. The version of the IAT used in all four studies was used as a control variable and independent variable (IV) in several hypothesis tests.

The independent measures for all studies were also similar, although with each subsequent study, new measures were added to the instrument. Below, we will identify the common variables across the studies and then describe the measures that were added in subsequent studies. For each of the four studies, the following independent or control variables were used: one measure of implicit bias, demographics, media
exposure, the home environment, attitudes toward eating and exercise, and fear of negative appearance evaluation (or a related measure of body dissatisfaction). Below, we will discuss the specifics of each study with regard to the sampling and the independent and control variables used.

**Study 1—Participants†**

To examine the relationship between possible predictors of weight bias, a $2 \times 5$ factorial design (Gender $\times$ Instrument version, between subjects) was used with children in Grades 3 to 6 in several counties in a state in the South. Participants were 601 boys and girls ranging in age between seven and thirteen. About 21% of the sample was in third grade, 19% was in fourth grade, 30% was in fifth grade, and 24% was in sixth grade. Of the 601 participants, 45% were boys and 55% were girls with ethnic representation that was closely matched to that of the counties where data were collected: 80% of the sample was Caucasian, 16% was African American, and the remaining 4% reported to be Hispanic, Asian or “Other.”

**Study 1—IVs**

While many variables were used in the first study of the correlates of weight bias, the key factors under examination were related to individual variables and the media exposure. Television viewing was measured using three self-report items. Children were asked to list the television shows they watched “yesterday before school,” “yesterday after school but before dinner,” and “yesterday after dinner but before bed.” Children were instructed to type the names of television shows they had watched during those time frames in the previous day. Participants were asked to list the shows rather than report their time spent viewing because children often struggle with the recall of time spent viewing. To convert their lists of shows viewed into a time spent viewing variable, each show listed was assumed to be one-half hour in length, and an overall index for total time spent viewing per day and per week was calculated. This is a more conservative measure of television viewing as several of the shows listed were one-hour programs, but we felt it was important to err on the conservative side to account for nonviewing time during the hour time frame.

As a measure of self-perception, participants were asked several questions related to their fears about their own appearance. Items used in this experiment were modeled after Lundgren, Anderson, and Thompson’s Fear of Negative Appearance Evaluation (FNAE) scale.107 Several statements were rewritten to accommodate participants’ reading level. Furthermore, reliability tests for the full scale were not sufficient, so items were eliminated from the scale for better reliability. Examples of items included statements such as “I care about what my friends think of the way I look,” “I worry that

other people will not like the way I look,” and “When I meet new people, I wonder what they will think about the way I look.”

Study 2—Participants

Following the completion of Study 1 with 603 elementary-aged students, several changes and modifications were made to the instrument and study procedures for Study 2. Of importance, the media exposure measures were expanded significantly such that we would have a better sense of exposure to programming viewed in a nontraditional format. In addition, this study was designed as a within- and between-subjects experiment as data were collected four times over the course of two years. The goal was to see whether attitudes toward overweight and obesity changed following an intervention program implemented at the school. Finally, questions related to household dieting behavior and peer influence were added along with more extensive measures of attitudes toward eating and exercise. To examine the relationship between possible predictors of implicit and explicit attitudes toward weight and obesity, a 2 × 5 factorial design (Gender × Instrument version, within and between subjects) was used with children in Grades 1 to 8 in a county in the South. Participants were 224 boys and girls ranging in age between six and fourteen. Nearly 13% of the sample was in first grade, 15% was in second grade, 13% was in third grade, 8% was in fourth grade, 8% was in fifth grade, 16% was in sixth grade, 13% was in seventh grade, and 14% was in eighth grade. Of the 224 participants, 40% were boys and 60% were girls with ethnic representation that was closely matched to that of the county where data were collected: 40% of the sample was Caucasian, 50% was African American, and the remaining 10% reported to be Hispanic, Asian, or “Other.”

Study 2—IVs

While the same IVs were used in Studies 1 and 2, we added measures related to potential social influences on the development of weight bias. These factors related to discussions about weight and dieting with family members and friends plus household dieting behavior. Furthermore, we used measures of cognitive processing style so we could determine whether rational or experiential processing was related to negative attitudes toward overweight. Several measures served as IVs, including treatment group, media exposure, the home dieting environment, peer influence, cognitive processing styles, and demographic variables. Television viewing was measured using the same three self-report items as used in Study 1. In addition to time spent viewing television on a traditional screen, participants were asked about their television viewing on an iPod, a computer, or other handheld device using the statement, “Please list the television shows you watched yesterday on an iPod or computer.” Participants were instructed to list the shows by name, as they did for the earlier TV viewing items. A numerical code representing time spent viewing on a handheld device or computer was then assigned to each child’s self-reported viewing time. Participants were also asked about their time spent on the computer using the Internet, time spent listening to music on an iPod or other handheld device, and time spent playing video games on devices such as the Wii, Xbox, or handheld gaming devices.
In Study 2, the researchers created a thin-ideal viewing scale, which was calculated using participants’ list of television programs viewed most frequently. To calculate the body type of characters appearing in children’s programming, fifteen coders (not related to the present project) were recruited to assign a body shape and appearance code to characters from forty-two television programs. Each coder was shown three images of individual characters from popular children’s programs. The images showed the full body of the characters and represented screen grabs from the television program. Coders were instructed to assign a 1–7 code for body shape ranging from conspicuously thin to conspicuously fat and to assign a 1–7 code for each character’s overall appearance from very attractive to very unattractive. Using participants’ self-reported frequency of viewing each show, a multiplicative index was created such that an assessment of participants’ overall exposure to thin-ideal programming could be calculated.

While one goal of the Study 2 was to better understand the relationship between media exposure and weight bias, we recognized that other factors—individual and social—might also be related to the development or reinforcement of bias. Thus, we added questions to tap into these types of factors and influences. A series of questions was developed to measure the dieting behavior observed at home for each participant. Participants were asked to indicate whether specific family members had ever been on a diet (mother, father, or a sibling). The responses were nominal with the choice of “yes,” “no,” or “I don’t know.” “No” answers were assigned a numerical score of 1, and “yes” answers were assigned a numerical score of 2. Responses of “I don’t know” were recoded as system missing. Of those responding, 41% indicated that neither parent had been on a diet, 22% indicated that one parent had been on a diet, and 37% reported that both parents had been on a diet at some point.

Peer influence was measured using eight items designed to identify whether participants discussed issues such as weight, appearance, body shape, or dieting with friends. Participants were asked a series of questions related to general conversations about one of the four topics with a peer or peer group and then asked a series of questions related to the importance of peer acceptance with regard to their own weight, appearance, body shape, and dieting.

Finally, seventeen items tested participants’ cognitive processing style—rational or experiential—and these were the same items used in Study 1. Eight statements captured each child’s preference for experiential processing, while nine statements measured each child’s degree of rational processing. The first scale was derived from responses to the REI that measured cognitive predilections toward rational processing. Items used for this scale were slightly rewritten to make it easier for the children to comprehend. Items included statements such as “I enjoy problems that require me to think hard” and “I prefer difficult problems instead of easy problems.” The second scale was also derived from the REI-A and gauged cognitive predilections toward intuitive processing. Items included statements such as “I use my gut instinct when I have to figure out a problem” and “I use my feelings when I have to make a decision.”
Study 3—Participants

Studies 3 and 4 were similar in objective but designed to better understand weight bias in adults. A total of 176 participants ranging in age from nineteen to thirty-four participated in Study 3. In Study 3, approximately 67% of the sample was female and 33% of the sample was male. Snowball and convenience samples were used to recruit individuals involved in weight-loss or dieting programs or fitness-related programs such as group exercise or personal training. The objective was to identify a sample actively involved in a diet, health, or exercise program to produce changes to their own body shape and size. The goal was to identify participants who were either presently overweight or obese or who had once been so. The rationale was that if we replicated earlier studies with a sample that might have been the target of weight bias or at least have some experience with bias against overweight, we would gain greater understanding of the correlates of bias development. While we had not previously used measures of in-group/out-group bias, we wanted to better understand how those who might have been the target of bias would react or respond to other overweight individuals; thus, the objective of this project was to recruit participants who might have been the recipient of negative attitudes or negative behavior because of their weight. Participants were recruited in two ways: local businesses who offered weight-loss services, weight-loss products, or exercise, and fitness services were asked to place a link to the online study on their business website. Individuals viewing the company website would see the link for the study and could opt to participate or not. Local businesses offered a 10% discount on products and services for participation in the study, so participants were given an incentive to participate in the study. The last item on the survey asked participants to send the link to other friends or family members who might be willing to participate. “Referred” friends were also given the 10% incentive from local businesses. Participants were also recruited from local fitness centers and gyms. In this case, flyers were placed throughout the exercise and health facilities, and individuals could pull a tab that provided information on how to participate in the study. These individuals were also given a 10% discount at the local weight-loss and health services businesses. The local businesses and fitness centers used for recruiting purposes were places targeting college students; thus, the age range of this sample was not diverse. Of the 176 participants, 7% identified as being African American and the remaining 93% identified as being Caucasian.

Study 3—IVs

The IVs used in the study with adults were very similar to the ones used in Studies 1 and 2; however, the measures used for media exposure were expanded, and measures related to societal pressures associated with being thin were also added. Participants reported the average number of days per week they spent viewing entertainment television, and then were asked to indicate the average amount of time they spent viewing entertainment television per day. To get a better sense of the content participants were viewing, each was asked to list up to ten television programs watched with any
Participants reported the frequency of viewing each television show listed on the instrument using the response options of never, rarely, sometimes, often, or regularly. Participants followed similar procedures for their reading of magazines, their viewing of television shows on handheld devices or the Internet, and their use of video games such as Xbox or Wii. From participants’ list of programs viewed on television, a handheld device, or on the Internet, a television-viewing index was created. All entertainment television shows listed were used to compute a single variable representing time spent viewing television. If a sports program or news program was listed, this exposure was not included in the entertainment television-viewing index. A multiplicative index was created using the number of shows participants reported viewing times their frequency of viewing that specific show. This enabled us to have a more precise measure of exposure to entertainment media.

Along with the media exposure measures, participants reported demographic variables, cognitive processing styles, household dieting behavior, and peer influence as it related to weight and body shape, as discussed above. We added a series of questions related to sociocultural pressure to be thin to this study with adults. A total of twenty items were used for this scale, and items included statements such as “In our society, overweight people are regarded as attractive,” “People find individuals who are in shape more attractive than individuals who are not in shape,” and “In today’s society, it is important to always look attractive.” These items came from a Cusumano and Thompson study. Response options ranged from “strongly disagree” to “strongly agree,” and this item was used to gauge what we refer to as ideological influences on weight bias. The other modification to the present study was a series of items used to measure participant self-discrepancy—a more precise measure of body dissatisfaction than the FNAE measure used with children and participant height and weight. Self-discrepancy was measured using items from the unpublished scale developed by Cash. Participants were asked to respond to two series of questions: perceptions of an individual’s ideal height, weight, skin complexion, muscle tone and definition, body proportions, and overall physical appearance and the importance of each of those attributes. For example, participants responded to the following statement, “My ideal weight is . . .” using the following response options: exactly as I am, almost as I am, fairly unlike me, and very unlike me. The second part of the question was to ask participants about the importance of that attribute: “How important is your ideal weight?” Response options included not important, somewhat important, moderately important, and very important. These items allowed us to gauge participants’ general discrepancy between actual and ideal self regarding several body shape and appearance attributes.

Participants’ body mass index (BMI) was calculated using self-report data on height and weight. While we acknowledge that self-report data in this area may be questionable in terms of internal validity, the hope was to be able to classify participants as underweight, average weight, or overweight. Participants were also asked to classify themselves into those same categories currently and in the last twelve months.
Study 4—Participants

Study 4 also used adult participants, but the goal in recruiting was not to identify a sample engaged in weight-loss activities specifically. We acknowledge that in any sample of undergraduate students, a larger percentage of them will have engaged in such behavior but might not have sought out help at weight-loss facilities or exercise centers. For the last study, a design similar to Studies 1 and 2 was used. To examine the relationship between possible predictors of implicit attitudes toward weight and obesity and the relationship of those implicit attitudes on more explicit attitudes of bias, a $2 \times 5$ factorial design ($\text{Gender} \times \text{Instrument version}$) was used with adults in two states in the South. A total of 276 participants ranging in age from eighteen to twenty-four participated in the study. Approximately 67% of the sample was female and 33% of the sample was male. A convenience sample was employed to recruit the 276 participants. Study 4 participants were recruited through participant pools at two universities whereas Study 3 participants were mostly college students, but some attended community colleges or other colleges in the city where the study was conducted.

Study 4—IVs

All participants answered a series of questions related to media use, food intake, and involvement in physical activity and exercise. Participants then completed the IAT, designed to tap into implicit attitudes toward weight bias. Next, participants were asked a single question designed to be used as a filter variable, which placed participants into one of four experimental groups or the control group. Once sorted into one of five groups, participants in the experimental groups viewed one of four images (see “Stimulus” section) and then answered questions designed to measure explicit attitudes toward weight bias. Participants sorted into the control group did not view an image but answered similar questions related to weight bias. After completing the first round of explicit measures of weight bias, all participants returned to the same section of the online instrument and completed other items related to self-discrepancy, exercise frequency, weight stigmatization, fear of negative appearance evaluations, and cognitive processing styles. For Study 4, the media exposure measures used in Study 3 were replicated; however, we took participants’ self-reported exposure to media and created a body shape index for each of the television programs viewed so that a thin-ideal viewing index could be created. In this case, for each of the television programs listed, the primary female characters were identified, and screen shots of each character were used in a separate study to assess whether participants were exposed to entertainment programming with mostly thin characters, mostly overweight characters, or with characters having a range of body shapes and sizes. Twenty undergraduate students were recruited to aid in the coding of each primary female character’s body shape, and for each character, a mean body shape code was obtained. Using procedures employed by Bissell\textsuperscript{110} and Harrison,\textsuperscript{111} each coder used a five-point scale to
assign a body shape code to all primary female characters. Coders used a 1–5 scale with a 1 = conspicuously thin, 3 = about average, and 5 = conspicuously fat. This allowed us to also have a measure of participant exposure to thin-ideal media so that we could better understand the role of media exposure in the development or reinforcement of bias against overweight.

**Results**

Data from the studies suggest the explication of a theoretical model is necessary to better understand the multitude of factors related to the development of bias. As outlined in the literature reviewed and in the discussion of relevant theories used in the testing of bias against specific groups, we have identified several factors that all seem to serve as correlates or precursors in the development of bias. It is difficult to argue that any one factor whether it be individual, social, media, or ideology “trumps” other factors as the development of bias seems to be very individualistic. Therefore, we propose a model that represents the factors identified above. We will discuss the specific findings of each of the four studies and then summarize what we feel are the most relevant factors in the larger model examining the development of bias.

**Study 1—Results**

Study 1 was the first of four empirical investigations examining precursors to weight bias. In this study, 601 children in Grades 3 to 6 served as the sample, and variables of importance were individual factors such as demographic factors, fear of negative appearance evaluations (self-perception), cognitive processing styles, and media exposure. One basic objective of Study 1 was to assess whether participants exposed to overweight subjects in the stimulus would have higher levels of AFB when compared with participants who viewed a thin boy or girl in the stimulus. Each of the four studies used two measures of explicit bias—one was designed to assess attitudes about the subject viewed in the stimulus photograph and the second was a more global, or general, measure of weight bias. For this study, statistical tests indicated that participants who viewed the image of the overweight girl were more likely to assess her unfavorably than participants who viewed the image of the thin girl. More specifically, exposure to the overweight girl in the stimulus photograph primed or triggered negative attitudes toward her. Participants exposed to the image of the overweight girl were less likely to indicate she was pretty, smart, friendly, and were less likely to say they would be friends with her.

The second measure of weight bias was a more general assessment of negative attitudes toward overweight and, again, participants randomly assigned to the “overweight” treatment groups in the experiment were more likely to exhibit negative attitudes toward overweight. For this study, the statistical test comparing the differences between groups indicated that, as predicted, exposure to an overweight subject in a photograph resulted in more weight bias using the specific and general measures of it.
When some of the individual-level variables were considered with the two dependent variables, interesting patterns emerged. For example, higher scores on the FNAE scale were related to more favorable evaluations of the subjects in the stimulus photographs, suggesting that those with greater anxiety about their own appearance were more likely to be less critical of others when the more general measure of weight bias was considered. However, when experimental group was considered along with the FNAE scores, a different picture emerged. Participants who had higher appearance anxiety and who viewed the image of the overweight girl gave her the lowest evaluation scores, followed by participants viewing the image of the overweight boy. This finding suggests a possible interaction between self-perception (fear of negative appearance evaluations) and exposure to the stimulus photograph that might trigger weight bias. When viewing an image that directly represents the appearance participants were fearful of obtaining, bias became more evident. The individual factors in Study 1 were important and relevant predictors that helped us form a baseline level of knowledge regarding the development or reinforcement of bias.

One objective with Study 1 was to better understand the role of television and younger children’s attitudes about weight. Another prediction of this study was that greater exposure to entertainment television would be related to higher levels of AFB based on the assumptions of cultivation theory and how continued exposure to messages about weight may result in a change in attitudes or a reinforcement of attitudes about people who are overweight. Results suggest there was an interaction effect between the experimental condition, time spent viewing, and each dependent variable. However, greater television viewing was related to the two dependent variables in an interesting way. More simply, television viewing was related to decreased levels of AFB (general measure) but more positive appraisals of the subjects in the photographs (more specific measure). Results from this study suggest than when television viewing was considered alone, it proved to be a significant predictor of less AFB on a global level. Thus, it could be interpreted that given the large range of body types found in popular children’s programming and given the popularity of some larger-than-average-sized or average-sized characters,¹¹² that greater exposure to television might only serve to reinforce more positive attitudes and acceptance of all body types.

As stated above, television viewing alone was a predictor of more negative assessments of subjects in the stimulus photograph, but when television viewing and experimental version were considered with the second dependent variable (stimulus response scale, assessments of subjects in the photos), a different pattern emerged: participants who watched the most television and viewed the image of the overweight subjects had the most favorable assessments of subjects in the photographs, and assessments for the overweight boy and girl were significantly higher than for the thin boy and girl. These tests indicate that the experimental version did have an interaction effect when combined with TV viewing. The findings from these two statistical tests suggest the following: when amount of television viewing was considered statistically, the relationship to AFB was not in the predicted direction. Participants who watched the most television were more positive in their assessment of the overweight subjects but
when the experimental version was factored into the equation statistically, AFB decreased across viewing groups. So, it appears the experimental version was the stronger predictor of AFB.

Another individual factor considered in Study 1 was participant’s cognitive processing style. As very little literature exists establishing a relationship between experiential or rationale processing and degree of bias, statistics were run to see what type of relationship might emerge. Regression analysis indicated that the experiential processing system was significantly related to the general and more specific measures of AFB. For example, participants who were higher on the experiential processing system tended to have lower levels of AFB and also tended to have more favorable assessments of the subjects in the photographs across experimental groups. However, the rational processing system was not significantly related to either measure of AFB (see Figure 1). As very little empirical data exist linking cognitive processing styles with implicit or explicit attitudes, we felt data from the present study were a good foundation for future studies. Along these lines, the test of the IAT in Study 1 led to some of the most important findings from the study.

The IAT has not been used as frequently with adolescents and children; thus, it was used in an exploratory manner to determine how the 601 children in this sample might sort the positive and negative adjectives. Descriptive statistics were run on

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**Figure 1.** Regression model of the most significant factors in weight bias in 601 children in Grades 3 to 6 (Study 1 results).
each adjective to determine how participants in this sample assigned the positive and negative adjectives to the words “thin” and overweight.” Quite consistently, a majority of the sample assigned the positive adjectives to the word “thin” whereas a majority of the sample assigned the negative adjectives to the word “overweight.” A series of paired t-tests were conducted to determine how responses on the twenty dichotomous variables (ten paired groups) would be related. The paired samples correlations indicated significant negative correlations for each of the ten pairings, and significant two-tailed differences were found between all ten groups. While descriptive analysis limits the ability to ascertain whether all positive adjectives were assigned to “thin” and all negative adjectives were assigned to “overweight,” the distribution of scores for each of the twenty items suggests that this may be the case. This clustering around the mean validates the assumption that a majority of respondents would assign positive attributes to the “thin” and negative attributes to “overweight.” However, this same clustering around the mean lowers the predictive value of IAT in the two more explicit measures of AFB. Although we report that the relationship between the IAT as a predictor of more explicit attitudes is still largely unknown, the concentration around the mean for IAT suggests a link to anti-fat attitudes merits further exploration.

**Study 2—Results**

The objective of Study 2 was to continue the examination of correlates or predictors of weight bias; however, some IVs were added, and the media exposure measures were modified. This study used a completely different sample of children in Grades 1 to 8 at a gifted and talented school in the South, and as mentioned above, the study included pretest/posttest data collection along with data collected from a modified version of the IAT. As the sample in Study 1 was from rural areas around the state and because participants were largely not identified as gifted and talented, we conducted a pre-test of the entire instrument to ensure scale validity. When the instrument was pre-tested in the summer of 2009 with a fourth- and fifth-grade sample, factor analysis was conducted on twenty-eight different adjectives to determine which pairings would be most appropriate in the modified version of the IAT. Factor analysis confirmed the use of the eleven pairings in Study 2, and these were the same adjectives plus one used in Study 1. Descriptive statistics were run on each adjective to determine how participants in this sample assigned the positive and negative adjectives to the words “thin” and “overweight.” Again, a majority of this sample assigned the positive adjectives to the word “thin” whereas a majority of the sample assigned the negative adjectives to the word “overweight.” A series of paired t-tests were conducted to determine how responses on the twenty-two dichotomous variables (eleven paired groups) would be related. The paired samples correlations indicated significant negative correlations for each of the ten pairings, and significant two-tailed differences were found between all eleven groups.

A key objective of Study 2 was to test the effectiveness of a media literacy campaign designed to directly address weight bias in children. The study was designed such that AFB was measured prior to the media literacy program and immediately
after the intervention program to determine whether attitudes about overweight and obesity had changed. This was one of the reasons for the within-subjects design. The first hypothesis for this study predicted that AFB would be higher at the pre-test than at the post-test. Paired sampled $t$-tests were used to compare mean scores on both measures of explicit bias, and the tests revealed a significant, positive change for both measures. Results from this statistical test suggest that the issues addressed during the media literacy program may have resulted in more favorable attitudes about overweight and obese individuals but that AFB was high across the sample at the pre-test. The within-subjects test of AFB demonstrated significant differences between the two data collection points. However, we also wanted to better understand how exposure to an image of an overweight boy or girl or thin boy or girl might be related to AFB; thus, this project also contained a between-subjects test of weight stigmatization.

Statistical tests were run to examine anti-fat attitudes across experimental groups in the between-subjects portion of the study. When the first dependent measure (specific measure of weight bias) was compared with the experimental version (overweight boy/girl or thin boy/girl or no image), one-way analysis of variance (ANOVA) tests indicated that those viewing no image at all (control group) had the lowest level of AFB. When experimental versions were considered using pretest data, participants viewing the image of the overweight girl followed by participants viewing the image of the overweight boy had the highest AFB scores. One-way ANOVA tests indicated statistically significant differences across the five groups, and the children viewing the images of the overweight girl exhibited greater AFB. When the posttest measure of weight bias was examined by experimental group, participants in the control group had almost the same score at both points. Participants’ scores across the four experimental groups all became more favorable toward the subject viewed, but the most significant change was found for participants viewing the image of the overweight girl and boy.

Study 2 also examined possible correlates of AFB in an attempt to better understand how the media literacy campaign could be revised to specifically address the factors that were found to be stronger predictors of weight bias. One important variable in understanding correlates of AFB was understanding children’s use of and time spent with the media. Time spent viewing television varied across this sample with the youngest and oldest participants viewing the least amount of television per day.

When TV viewing was considered along with the two dependent measures, television viewing was a significant predictor of greater AFB using the more general measure of bias. For example, on the more general measure of AFB, those viewing the most television had the highest AFB scores. Of the sample, twenty-three participants reported not viewing any television at all. Those participants had the lowest AFB scores compared with participants who reported watching up to an hour of television, and compared with those who watched the most television, at least two or more hours per day. No significant differences in AFB were found when the more specific measure of bias was examined.

Another goal of the study was to examine television exposure in a slightly different way as the age range in this sample was more diverse and we knew programming
choices would also be more diverse. Thus, we regrouped viewing into two categories—animated and live-action programming. For this study, each participant’s self-reported viewing was recoded into a live-action or animated category as we knew the specific programs viewed and their self-report frequency of viewing. For example, a participant could report viewing programs after dinner, and those programs were then recoded as a live-action or animated program, and this resulted in two separate scores for each type of programming. Participants’ time spent viewing animated and live-action programming was what might be expected with a sample that included six- and seven-year-old children. The younger participants reported spending more time watching animated shows such as *Spongebob Squarepants*, *Johnny Test*, or *Scooby Doo*, and the other participants reported spending much more time watching live-action programming such as *iCarly*, *Hannah Montana*, or *Drake and Josh*. When TV viewing was considered by gender, the girls in the sample reported watching significantly more television than the boys in the sample. Statistically significant differences were also found for television viewing by ethnicity. For example, white participants reported watching about seventy-five minutes of television per day compared with black participants who reported watching more than two and a half hours of television per day. When type of programming was considered with the two dependent measures, one-way ANOVA tests indicated that participants viewing the most live-action programming had significantly lower scores on the more global measure of AFB compared with those watching no live-action programming. Time spent viewing live-action programming was not related to the more specific measure of weight bias. Exposure to animated programming was significantly related to both measures of AFB (see Figure 2).

Given the range of findings here, it is difficult to say with much certainty how television viewing was directly related to participants’ level of AFB. However, television viewing when considered alone suggested it was related to the measures of explicit bias, but possibly not in the way predicted. The findings were more straightforward when experimental version was considered: participants who viewed images of overweight individuals were more likely to think of those individuals in a negative way.

To better understand some of the predictors of AFB in participants, several social and individual factors were considered with the pre- and posttest measures of AFB. In addition to examining individual factors such as demographic variables and media exposure, we also measured what we considered to be social factors such as the home dieting environment. Household dieting behavior was measured by asking participants whether a family member was on a diet. It is acknowledged participants might not know this information and thus were given the option of responding, “I don’t know.” The nominal responses (yes/no) were then used to create a scale that measured the entire household’s dieting behavior. One-way ANOVA tests indicate that participants who had two parents on a diet had higher AFB than participants who had neither parent on a diet. This measure was a more global gauge of participant attitudes toward overweight individuals in general, whereas the second measure was an attitudinal measure designed to gauge attitudes about the individual viewed in the photograph. When this second measure of explicit bias was considered, findings were in the
opposite direction. Participants with two dieters in the family had the most favorable assessments of subjects in the photograph followed by participants with one dieter in the household and followed by participants with no dieters in the household. It is important to note that participants in all four studies might be hesitant or reluctant to report a bias against overweight individuals, especially if the participant lives with or comes in contact with overweight individuals. Furthermore, some participants were asked if an overweight boy or girl/man or woman was attractive, smart, popular, and so on, and some might find it troublesome to report negative attitudes toward overweight individuals. With that in mind, scores on both dependent variables were high across each of the four samples, suggesting that despite the sensitive nature of the questions, participants were still exhibiting negative attitudes and opinions about overweight individuals.

Another question this study sought to answer was when explicit bias might become evident in a child. More specifically, at what age would a child identify or indicate a bias toward overweight individuals? One-way ANOVA tests indicate that younger participants had the highest levels of AFB on the global measure of weight bias. When the second measure of bias was considered, similar patterns were observed. For this

Figure 2. Regression model of the most significant factors in weight bias in 224 children in Grades 1 to 8 (Study 2 results).
statistical test, younger participants had less favorable attitudes toward the subject in the photograph, while those in higher grades had more favorable attitudes toward the subject in the stimulus photograph. It is quite possible that older participants who read questions about the subject in the photograph processed the question a little more rather than quickly going through at a rapid pace.

Participant race was a significant predictor of AFB as well. In the global measure of AFB, white participants had the highest levels of AFB when compared with black participants or participants categorized as “Other.” This finding was repeated when the specific measure of weight bias was considered. One-way ANOVA tests using the more specific measure of bias as the dependent variable indicated that black participants had the most favorable assessments of the subjects in the photograph, even though black subjects were not used in the stimulus photographs. Given that black participants exhibited lower levels of AFB and the subjects in the stimulus photographs were white, multivariate analysis of variance (MANOVA) tests were conducted to assess whether there was an interaction effect between experimental version and race on the two dependent measures. The results from the MANOVA test parallel what was found above: white participants exhibited significantly higher levels of AFB, especially when the subject in the photograph was overweight. When race and experimental version were considered with the second measure of the dependent variable, the findings were the same with white participants reporting the greatest AFB compared with black participants and participants in the “Other” group, which comprises Hispanic participants (n = 3), Asian participants (n = 6), and participants marking “Other” as their ethnic group (n = 7).

Study 3—Results

While the relationship between media and body image distortion has been examined empirically for decades, very little evidence exists documenting the relationship between an individual’s self-perception as it relates to body image and the individual’s perceptions of others’ body shape and size. Thus, this study examined media as a predictor of self-discrepancy and self-perception in adults who were dieting or participating in a fitness program and then examined those constructs with perceptions of others’ body shape and size. It is argued here that beliefs about the self may shape beliefs about others, especially as it relates to body image. However, this study went beyond measuring perceptions about body image and examined social factors such as the household dieting environment and exposure to media as potential covariates of the relationship. Specifically, this project examined the multidimensional factors related to an individual’s body image on both ends of the spectrum and further examined how these variables relate to prejudice or AFB against others.

The first hypothesis in Study 3 was related to participant’s level of self-discrepancy or self-perception as it pertained to body image and exposure to thin-ideal media content. Time spent viewing television was varied across the sample with the youngest viewing the least amount of television per day. Exposure to thin-ideal programming was linear with age however. More simply, the older the participant, the more likely it was that he or she was exposed to greater amounts of thin-ideal
programming. One-way ANOVA tests were used, and for this test, exposure to thin-ideal programming was recoded into four categories: no exposure to thin-ideal television, less than an hour of exposure, between one and two hours of exposure, and more than two hours of exposure. Using the recoded thin-ideal viewing index, ANOVA tests indicated that participants exposed to the most thin-ideal programming had the greatest discrepancy between their actual and ideal selves, as measured by the Stunkard scale, and this was the case for men and women in the sample.

Using a modified version of the Stunkard body image ideals figure drawing scale, a body shape scale using figure drawings of a male and female was created. The online instrument contained a filter variable, whereby participants would answer the question about participant gender and then be directed to view the drawing presented. Male and female participants were asked to circle the body shape they felt was most similar to their current body shape, and then using a second figure drawing, participants were asked to circle what they considered to be their ideal body shape. Participants could circle any body shape or a number between the body shapes in their assessment of their actual and ideal body shape. The mean score for male participants’ actual body size was 3.95 (SD = 0.88) and the mean score for female participants’ actual body size was 4.17 (SD = 1.13). To create a self-discrepancy score for each participant, the ideal body shape score was subtracted from the actual body shape score. A negative score indicated the participant desired to be bigger than his or her actual size. If a participant desired to be smaller than his or her actual size, the resulting score was positive.

To examine actual/ideal self-relationship statistically, the programming categorization was used with each participant’s SD score. For example, female participants who reported watching the most programming coded as “thin ideal” had a self-discrepancy score of 0.93 (SD = 0.51), indicating that their ideal body shape was approximately one body shape smaller than their actual body shape. For male participants, the findings were similar, although the self-discrepancy score was not as great for men as it was for women.

The second prediction of Study 3 examined participants’ perceptions of others in relation to exposure to thin-ideal media exposure. The thinking was that if exposure to thin-ideal programming was high, perceptions of individuals who were overweight might be more negative. To test this hypothesis, two separate dependent variables were included—one measuring specific responses to images of the subject viewed in the stimulus photograph, and a second, more global measure of AFB (this stimulus was similar to Studies 1 and 2 except that adult subjects were viewed in place of child subjects). Statistical tests that those viewing the most television and those viewing the most thin-ideal television had the most negative attitudes toward overweight individuals and this was when the more specific and general measures of weight bias were considered.

For this study, participants were asked to list any programs they viewed on television, on an iPod, an iPad, and so on, and then participants were instructed to report their frequency of viewing each individual program. When examining the television programs listed across the sample, younger participants were more likely to list
programming such as *Pretty Little Liars, The Bachelor, The Secret Life of the American Teenager,* and *Beverly Hills, 90210.* Older participants listed programming such as *NCIS, NCIS Los Angeles, CSI,* and *The Mentalist.*

The relationship between television viewing, experimental group, and weight bias was examined using a MANOVA test, which included the experimental version and television exposure as IVs. As television exposure was a predictor of greater AFB, it was determined identifying the combination of factors via an interaction effect would prove useful. When television viewing was considered with experimental version using the global measure of AFB, those viewing the most amount of television and who were exposed to the image of the overweight women had the highest AFB scores. For the global measure of AFB, television viewing appeared to play less of a role in predicting AFB than did exposure to the image in the stimulus photograph. While the MANOVA test indicated a significant main effect and a significant interaction effect, evidence of weight bias was not as high across experimental groups when the more global measure of weight bias was considered.

Two research questions in Study 3 examined possible predictors of self-discrepancy and AFB in others in the context of individual and social factors. The first research question examined the relationship of a participant’s household dieting behavior with perceptions of self and perceptions of others. When dieting behavior was compared with self-perceptions related to body image, a significant relationship emerged. Specifically, when an individual indicated two dieters were in the household, self-discrepancy for women was higher than it was when no dieters were in the household, and SD scores were the highest for participants who indicated having two dieters in the home. The finding suggests that when the participant observed dieting behavior in the home, that individual was more likely to indicate a dissatisfaction with his or her own body shape and was more likely to engage in dieting behavior himself or herself. Regression analysis was run to test the relationship among the key variables in question—thin-ideal television exposure, demographic variables, and household dieting behavior, and as the analysis indicated, each proved to be a significant predictor of increased self-discrepancy in girls, and when the variables were considered together, thin-ideal television viewing was the strongest predictor of the three (see Figure 3).

While observed dieting behavior in the household did appear to be related to self-perceptions in a negative way, the variable was related to perceptions of overweight individuals in a positive way. Specifically, participants who indicated one or more dieters were in their households were more likely to express favorable attitudes toward overweight individuals, and this was found on both measures of AFB. For example, participants with two dieters in the household had more favorable in their assessment of overweight individuals in general when compared with individuals with no dieter in the household. This pattern was observed when the second measure of AFB was considered—the more specific measure of weight bias. Individuals with dieters in the household were more favorable in their estimates of overweight subjects in the stimulus photograph compared with those who had no dieters in the households.
The second research question examined individual factors such as each individual’s own dieting behavior and self-discrepancy as possible predictors of AFB. In this case, the two variables were related to weight bias in different ways, despite the two variables seemingly being related to one another. It might seem logical that if an individual had greater discrepancy between his or her actual self and his or her ideal self that dieting behavior might be one step taken to reduce that discrepancy. These two variables were not correlated statistically, however; furthermore, this relationship was different for the men and women in the sample. As mentioned above, observation of household dieting was a predictor of decreased bias against overweight individuals, and this was found in men and women. Individuals who reported being on a diet or previously being on a diet were more critical of overweight in the general and more specific measures than those who had reported never being on a diet. In this case, a one-way ANOVA test was run to examine each participant’s dieting behavior (not currently dieting/never have been on a diet, not currently dieting/previous have been on a diet, or presently dieting/previous have been on a diet). When both dependent measures were considered, those currently or previously on a diet had significantly higher levels of bias against overweight; however, when this variable was considered using a factorial ANOVA, results indicated that the interaction of dieting behavior and self-discrepancy resulted in less bias toward overweight. More specifically, for this adult sample, greater self-discrepancy was a significant and strong predictor of lower levels of bias using the general and more specific measures of weight bias. When

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**Figure 3.** Regression model of the most significant factors in weight bias in 176 adults either currently dieting or previously dieting (Study 3 results).
self-discrepancy was considered with dieting behavior, bias against overweight was still less for those with higher scores on the self-discrepancy scale. Results from additional tests indicate that the complex relationship between perceptions of self and perceptions of others was moderated by gender. For example, males who had a higher level of self-discrepancy were more likely to exhibit greater AFB, and girls who were higher on the self-discrepancy scale were less likely to exhibit AFB. These findings will be addressed further in the “Discussion” section as they warrant more investigation into self-perception and the ways in which self-perception shapes perceptions of others.

**Study 4—Results**

Study 4 was a between-subjects experiment using the same two measures of weight bias. Given what was learned in the preceding studies, Study 4 was modified to include additional measures of media exposure, exercise behavior, and cognitive processing styles. In all four studies, a version of the IAT was administered, and findings were consistent with negative adjectives being paired with the words overweight or fat, and positive adjectives being paired with the word thin. For Study 4, descriptive statistics were run on each adjective to determine how participants in this sample assigned the positive and negative adjectives to the words “thin” and “fat.” Quite consistently, a majority of the sample assigned the positive adjectives to the word “thin” whereas a majority of the sample assigned the negative adjectives to the word “fat.” A series of paired t-tests were conducted to determine how responses on the twenty dichotomous variables (ten paired groups) would be related. Paired-samples correlations indicated significant negative correlations for each of the ten pairings, and significant two-tailed differences were found between all ten groups.

In this study, the first hypothesis examined the differences between experimental groups on participants’ explicit attitudes toward the adult in the stimulus photograph (overweight man/woman or thin man/woman). A one-way ANOVA test was run using the instrument version as the grouping variable and using the two explicit measures of bias. Participants who viewed the image of the overweight woman had significantly less favorable attitudes toward the subject than did those viewing the image of the thin woman. This was found across racial and ethnic groups. In previous studies, bias against overweight females was greater than bias against males; however, in Study 4, these findings were reversed as evaluations of the overweight and thin man were even greater in discrepancy, meaning there was a much greater gap in assessments toward the same overweight and thin man.

Analysis was also conducted on a second measure of explicit bias, the more global measure of weight bias. One-way ANOVA tests indicated significant differences between the experimental groups. As expected, participants in the control group exhibited greater AFB than those exposed to the image of the thin man or woman. Post hoc Tukey’s tests indicated significant differences between the experimental groups viewing images of thin and overweight individuals and the control group and participants in the thin experimental groups. Thus, we found that simple exposure to overweight individuals primed individuals to think more negatively about overweight.
The second prediction of this study was related to television exposure and weight bias, with the specific prediction that exposure to thin-ideal programming would be related to greater weight bias, as was found in earlier studies. Results from a MANOVA test examining the relationship of television exposure and experimental version on the two measures of explicit bias suggest there was an interaction effect between the two predictors and each dependent variable. In both cases, greater television viewing was related to higher levels of AFB, and when the experimental version was considered, participants exposed to the image of the overweight man and woman had even higher AFB than those who were exposed to the image of thin man or woman.

When television viewing was grouped into low, medium, and high categories, those viewing the most television had higher anti-fat attitude scores compared with those in the low viewing group. Results were similar when comparing television viewing with experimental version with the more specific measure of bias. Participants who reported viewing no television had the lowest scores on this specific measure of bias compared with those who reported viewing the most television (see Figure 4).

In addition to examining the role of television exposure and exposure to thin-ideal media in general, we also wanted to better understand the role of cognitive processing styles and the development or existence of bias against overweight, as had been done in earlier studies. Thus, the first research question examined the predictive power of the two cognitive measures and AFB. When the two cognitive processing styles were
considered together in a regression test, rational processing was a strong, negative predictor of the global measure of anti-fat attitudes whereas experiential processing was a significant, positive predictor of anti-fat attitudes. This means that those higher in rational processing exhibited less AFB than those who were higher in experiential processing. The experiential and rational processing scales could certainly serve as one predictor of AFB, but it is important to know that personality traits and characteristics such as thoughtfulness were not measured, and thus, the above finding could also be a product of an individual’s likelihood to not buy into baseless stereotypes and might judge a person by more than mere appearance.

The second research question of Study 4 examined the relationship between the IAT and other variables that might serve as predictors of weight bias. Initial tests of the variables related to the IAT indicated that both measures of AFB were related, as was the experiential processing scale and entertainment television viewing. The IAT was first examined with the two measures of AFB. It was presumed that if an individual tended to link negative adjectives to the word “fat” and positive adjectives to the word “thin,” that individual could be classified as exhibiting implicit weight bias. The IAT scale was then recoded so that individuals who were more likely to assign several types of adjectives to the word fat were assigned one code whereas participants who were more likely to link adjectives to the word thin received another code. Participants with a score in the middle of the scale were assigned a separate code. Participants who were more likely to indicate a fat person could be smart, funny, or valuable had a lower score on the global measure of AFB. Participants who were more likely to say only thin people could be smart, pretty, athletic, and valuable had a higher score on the AFB scale. This finding was similar when the more specific measure of weight bias was considered. Participants who were likely to associate positive adjectives with the word fat were also much more charitable in their assessments of subjects in the photographs, whereas the opposite was true for participants linking positive adjectives to the word thin. Regression tests and one-way ANOVA tests confirm statistically significant findings in all cases.

The IAT was also significantly related to the experiential processing scale. In this case, participants who scored in the middle of the IAT—those who paired an equal number of negative adjectives to the word fat and positive adjectives to the word thin—had the highest scores on the AFB scale compared with their counterparts on the other two sides of the scale. Rational processing was not statistically related to the IAT.

All-inclusive multiple regression was used to combine four predictor variables—television viewing, IAT, and the two cognitive scales. Taken together, the four variables were statistically significant predictors of AFB. Further analysis revealed that from those four variables, the second cognitive scale measuring experiential processing and IAT were statistically significant predictors of AFB in the presence of the remaining two variables. The all-inclusive model explained 18% of the variance in AFB.

When considering the results of the IAT, it is important to note that while descriptive analysis limits the ability to ascertain whether all positive adjectives were assigned to “thin,” and all negative adjectives were assigned to “overweight,” the distribution
of scores for each of the twenty items suggests that this may be the case. This clustering around the mean validates the assumption that a majority of respondents would assign positive attributes to the “thin” and negative attributes to “overweight.” Although we report that the relationship between the IAT as a predictor of more explicit attitudes is still largely unknown, the concentration around the mean for IAT suggests that a link to anti-fat attitudes merits further exploration.

Finally, Study 4 examined what was considered to be an ideological influence on bias development—sociocultural attitudes toward body shape. In this case, participants were asked several questions related to the perceived pressure in society to conform to norms related to thinness. A higher score on this scale would mean the participant felt great societal pressure to be thin and also linked thinness with success in a variety of environments. In this test of perceived ideological influence and weight bias, statistical analyses revealed that the higher an individual scored on the sociocultural attitudes scale, the more likely the individual was to exhibit bias against overweight. This finding was consistent when both dependent measures were examined.

**Summary of Results from Four Studies**

Findings from all four studies suggest that the correlates of anti-fat attitudes may lie in a myriad of factors ranging from individual factors, social factors, ideology or cultural norms, and media exposure. While the findings across the four studies were not completely consistent with regard to the stronger predictors of bias, a few of the factors under investigation were significant across the four studies. Of importance is the media exposure factor. Whether considered via time spent with the media or considered by exposure to specific content (thin-ideal content, animated vs. live-action programming), time spent viewing entertainment television was a significant predictor of negative attitudes toward overweight. This was found in four separate studies with four separate and unique samples. The social environment that included household dieting behavior and self-perception as it relates to body image was also a strong predictor of increased or decreased levels of bias in three of the four studies (not examined in Study 1). Thus, the following model is advanced to help better explain the development and formation of bias against others, and we propose that the following model could be used to better understand the development of bias in a variety of areas beyond weight: bias against gender, ethnicity, age, sexual orientation, and mental illness.

**Discussion**

Prejudice development appears to be highly individualistic, limiting the number of generalizations that may be made about the topic. However, the model presented here advances several, which should help inform future communications-based research into prejudice formation. First, stereotypes are prevalent in American media content. Second, stereotypical media content informs prejudice by (1) making concepts and associations more readily accessible in memory, (2) cultivating inaccurate perceptions
of social groups in the real world, and (3) providing examples by which audience members may learn what behaviors and opinions are socially acceptable. Third, the role of the media in the formation of prejudice is mediated and/or moderated by individual, environmental, and ideological characteristics of the audience. Stereotypical media content is most powerful when people lack individual, environmental, or ideological information concerning the target of prejudice. Most often, people already hold attitudes toward the target that appears in media content. In these instances, the media hold less power in the formation of people’s attitudes based on social group membership. The key question concerns the power of the media in relation to additional sources of influence, including individual, environmental, and ideological factors. The research outlined here addresses each, and reinforces the idea that media content should not be investigated in isolation. Rather, scholars who are interested in the role of the media in prejudice should conduct holistic investigations that account for the intervening role of individual, ideological, and environmental variables. A holistic approach is especially important for people interested in reducing prejudice. By understanding the factors involved in its formation, interventions may more effectively target prejudice by addressing its individual components. Based on the research presented here, individual influences involve demographic characteristics, such as race and age, and cognitive processing characteristics. Environmental factors include home environments, especially the role of family and friends. These additional influences may mitigate or reinforce the power of the media in prejudice, as demonstrated in the “Results” section. The results presented here reinforce the fact that the media nurture negative attitudes toward people who are overweight, and influence people’s perceptions of their own body weight. The four experiments extend previous research by underscoring the significant influence of environmental, ideological, and individual factors in AFB. Certainly, time spent viewing entertainment television significantly predicted negative attitudes toward overweight. On an individual level, cognitive processing style, age, and race emerged as significant factors in the development of weight-based prejudice. Participants higher in rational processing exhibited less AFB than those who were higher in experiential processing. Furthermore, people who held greater anxiety about their own appearance were less likely to be critical of weight on more general measures. While the data do not explain the reason age-based differences emerged, the explanation may lay in the fact that children develop cognitively and socially as they age. Race-based differences likely reflect cultural influences. Children learn through personal experience and the influence of friends, family, and media. Indeed, the results presented here suggest that factors such as a child’s home environment may influence weight-based prejudice, as children who had two parents on a diet had higher AFB than participants who had neither parent on a diet. Children learn prejudicial attitudes toward the self and others through the example of adults. Bottom line is that a number of factors influence our attitudes toward other people. Indeed, thin-ideal television exposure, demographic variables, and household dieting behavior each proved to be a significant predictor of increased self-discrepancy in girls, and when the variables were considered together, thin-ideal television viewing was the strongest predictor of the three.
Data from the above studies suggest the explication of a theoretical model is necessary to better understand the myriad of factors related to the development of bias or negative attitudes against a variety of groups, character traits, or attributes found in others. As outlined in the literature reviewed and the discussion of relevant theories used in the testing of bias against specific groups, we have identified several factors that all seem to serve as correlates or precursors in the development of bias. It is difficult to argue that any one factor whether it be individual, social, media, or ideology “trumps” other factors as the development of bias seems to be very individualistic. Therefore, we propose a model that represents the myriad of factors identified above. Numerous studies document the existence of bias: bias against gender, bias against race, bias against sexual orientation, bias against age, bias against mental illness, and bias against body shape or weight. It is important to note, though, that an individual who has bias against overweight individuals may not demonstrate the same level of bias against individuals of another race or ethnicity or against individuals with a mental illness. These factors make the development of a model all the more complex, as bias or negative attitudes toward others may certainly be predicated or driven by very specific factors. As outlined below, we will propose a model that incorporates all of the necessary levels of influence in the development of bias and then propose avenues for empirical investigation. Thus, we advanced the proposed model, “A Theory of Influence of Bias Development” (TIBD; see Figure 5).

**Individual Influences**

In some cases, individual factors would likely be the most powerful in the development of bias against others. For example, in the two studies conducted with adults in...
the measurement of AFB, participants’ own weight and body shape seemed to be a strong predictor of their attitudes toward others. Overweight individuals were more likely to be compassionate, or at least less critical, of overweight others whereas the individuals identifying themselves as underweight or thin were the most likely to be critical of overweight and obesity. The notion of in-group/out-group bias was also evidenced in the studies previously: when it comes to individual attitudes about others, preference often leans in the direction of similar others rather than others who appear different, and that has been documented in studies of gender, ethnicity, sexual orientation, and age. Shoemaker and Reese addressed influences on news content specific to five levels of influence, and individual factors were one of those identified levels.\textsuperscript{113} Even though the present study is not examining factors that shape the development of news content, we would argue that similar factors could be relevant in the development of attitudes and beliefs about others. As Shoemaker and Reese suggest, sometimes it is difficult to separate who you are as an individual (with respect to demographic factors, etc.) with what you believe because it is those intrinsic characteristics that will shape and mold your thoughts, feelings, beliefs, and attitudes.

As it relates to specific outcomes of bias beyond demographic characteristics, age and gender have been found to be related to negative attitudes about others as it relates to weight and mental illness. In the AFB studies conducted with children, younger children were more likely to assign negative personality traits to overweight individuals compared with older children in the same sample, and boys were more likely to be charitable in their assessment of overweight individuals than were girls. As evidenced in all four studies, cognitive processing styles were also strong predictors of bias against overweight individuals. These types of cognitive processing styles suggest a good deal about the way an individual deals with all kinds of information, whether it be real-world information or information received from a media channel. Certainly, cognitive processing styles might function interactively with an individual’s self-perception. It is in this way that findings from this study also contribute to the body of work in the area of CEST. Epstein suggests that when an individual responds to an emotionally significant event, the experiential system automatically searches for related events that might influence the course of further processing and of behavioral tendencies.\textsuperscript{114} Thereby, if an individual witnesses or is exposed to the stigmatization of overweight or obese individuals either in a mediated context or social context, the affective response to that event might then activate schema that resonates with that experience, possibly reinforcing the positive or negative attitudes associated with the person or object in question. As its name suggests, the experiential system is a system that learns from experience. Thus, weight bias or weight stigmatization experienced by an individual or witnessed by an individual may serve to reinforce attitudes and beliefs about similar others. This would be especially true if the individual were overweight himself or herself and had been the target of negative affect because of weight. This could also be one of the reasons the findings from the modified IAT were consistent across the four studies.

Results from studies using the IAT suggest a good bit about the way information may be processed and transmitted on an implicit level. The descriptive results on the IAT from all four studies cited above reveal some of the most telling findings. While
certain IVs proved better predictors of more explicit measures of bias, children and adults in all four samples across gender, ethnicity, and age displayed a propensity to associate more positive personality and physical attributes with thin people, and more negative personality and physical attributes to overweight people. If implicit measures of bias are identified in children as young as seven and eight, it suggests that the attitudes and beliefs will become further entrenched as the child ages, creating a belief system about others that could result in stigmatization, marginalization, and discrimination. The implicit measures of bias have been documented in all of the areas proposed by the model—gender, race, sexual orientation, and age. It is possible that a combination of these individual factors interacts with one another to create a belief system that reflects negative attitudes and beliefs about others.

We therefore propose individual factors as one of many that may serve as a correlate or precursor to bias. Certainly, when examining an individual’s bias toward a specific group, characteristic, or attribute, the individual factors are most likely to remain stable; thus, those factors may prove to be more influential when bias or the development of bias is examined longitudinally.

Social Influences

The social factors encompassed by the proposed model include influences from what is called the “home environment,” influences from peers and other social groups, and an individual’s level of experience with the “real world.” If an individual were to be raised in a home where the mother has a more traditional role in terms of household duties, work outside of the home, discipline, and so on, that individual’s belief system about gender may be shaped by that experience. This type of finding has been evidenced in studies where young children are asked to articulate opinions or attitudes about women wearing mechanics clothing or wearing athletic gear that is traditionally considered appropriate only for men. The home environment could also prove influential in the development or presence of bias if attitudes by others in the household are negative. For example, a child who grows up in a home with a parent or sibling who expresses racist attitudes might also tend to share a similar belief system until more real-world experience affords the individual another perspective. Peers can serve as a source of influence in a similar way. While the home environment and peer influence may prove to be more influential for children with less real-world experience, these factors do shape an individual’s view of the world. For example, without first-person experience to suggest that people with mental illness are not violent or individuals who are overweight are not bad, an individual may rely on his or her social network to develop beliefs about other people. Specific to issues such as weight bias, an individual who is exposed to discussions about fat being bad or a child who grows up in a household where a parent or sibling is constantly dieting may get the message that overweight or obesity is not desirable and may develop a bias against that characteristic. We would purport that it is in the combination of individual and social factors that interact with one another to help shape, guide, or develop an individual’s belief system about others.
Ideological Influences

Just as individual and social factors may shape an individual’s beliefs or attitudes, we would also argue that ideology or cultural norms can serve as another important factor in the development and/or sustainability of bias. Shoemaker and Reese define ideology as “a symbolic mechanism that serves as a cohesive and integrating force in society” (p. 221). Numerous examples can be used to demonstrate how ideology can potentially shape the way an individual sees the world and subsequently those in it, although this level of influence is arguably the most difficult to quantify. For example, there might be a circumstance in which cultural ideology—say institutionalized racism in the 1950s American South—could trump individual factors when it comes to bias. It could be argued that this sense of cultural ideology with regard to race shaped many of our attitudes about African Americans simply because it reflected the dominant way of thinking or, in some cases, the other way of thinking. As was noted throughout history, this acceptance of a bias against a specific ethnic/racial group was embraced by the majority because it was what was known and very few counterarguments were presented. Those who were the target of the bias or the negative attitudes might not have shared this dominant belief about racism, but the attitude was one that pervaded culture and society on a broader level and thus represented a way of thinking. A similar example can be seen with the issue of mental illness. Except for those who have a mental illness or who have personal experience with someone else with a mental illness, the dominant, cultural belief may be one that is negative. We would propose that ideology may shape an individual’s attitudes or beliefs about others, but that factors such as the social or individual factors could serve as a means of trumping the dominant cultural belief or cultural norm. Bias, as conceptually defined earlier, reflects a combination of implicit and explicit attitudes. One might continue to hold negative implicit associations without knowing it, but that individual would be hesitant, or more willing, to express bias based on input from the dominant cultural ideology. While ideological bias is again difficult to quantify and operationalize, we would argue that it is a relevant factor of influence in the development of bias.

Media Influences

Media are certainly part of our social world, but we feel it is important to identify media influences separately because the influence of the media is largely predicated on the factors mentioned above. Mediated representations of gender, race, age, sexual orientation, weight, mental illness, or any other characteristic may dramatically influence the way we think about individuals within that group, and even how we think about ourselves. Numerous studies cited above have documented the importance of media portrayals in the development of a belief system about gender, race, class, and age. The influence of the media may be particularly strong when an individual has little or no contact with a stigmatized group. With no individual experience, social feedback, or ideological guidance, an individual may rely more heavily on the media for information about another person, group, or issue. Furthermore, if an individual
spends a substantial amount of time with media content that offers limited perspectives, he or she could be inclined to adopt the belief system presented via the media. While this line of thinking is the basis upon which cultivation theory was developed, we would argue that some of the main premises of this theory still hold true today.

In the four studies discussed above, different theories were used to examine one of the many factors we propose facilitate or aid in the development of bias or prejudice. When we examined individual factors such as cognitive process styles and the IAT, cognitive-experiential self-theory guided our predictions. When we examined other individual factors such as the home dieting behavior, social learning and social cognitive theory guided our predictions. When we examined factors such as media influence, cultivation theory guided those predictions. While each theory was appropriate in the test for one level of influence, none accounted for the multitude of possible factors in combination. We therefore argue that the proposed model fill previous gaps by looking at these variables as combined factors of influence. It is possible that mediated representations of thin or overweight in combination with household dieting behavior and self-perception function together to predict greater (or lesser) prejudice in others. As was noted from some of the studies, when the between-subjects test was examined statistically, we found with great consistency that exposure to overweight subjects was related to greater bias. This suggests the image might have primed respondents to think negatively about weight when looking at an overweight individual.

Conclusion
As mentioned above, our proposed model does not predict a direct order of influence: we are not suggesting that one level of influence is more powerful or influential than others as we would argue that the development of bias is very individualized. Situations might arise in which social influences outweigh individual influences. For example, with AFB, people who are overweight show no in-group preference, and people with mental illness might internalize “real-world experience” or negative media content so much so that it trumps their individual factors. In other cases, individuals who are rational processors, who exhibit the traits of independent thinkers on personality scales, and who may have a vast array of real-world experience may not be at all influenced by a cultural ideology or mediated content that presents groups, individuals, or characteristics in a negative light. Again, the process is too complex to predict a direction, but we believe the identification of these levels allows for the operationalization of these influences in future empirical studies. Many of the earlier studies measured one level of influence—demographic factors or media exposure—but failed to control for the others suggested by the proposed model. We feel that our theoretical model takes into account all four types of influence of bias development and would therefore allow for a more comprehensive examination of weight bias or bias against other types of attributes. While the proposed model does take into account a variety of factors that could be related to the development of bias or prejudice, we recognize that measuring and statistically controlling for all of the possible variables is impractical in our social scientific environment. However, the proposed model considers variables that can be measured to help explain bias development and the development of prejudice in
children and adults. As bias against so many characteristics and personality traits is existent and prevalent, it is important to try to understand the precursors of those negative attitudes. This theoretical model is an attempt to do just that via an examination of individual, social, media, and ideological factors. Future studies using this model will be more comprehensive to date and will aid researchers in understanding one of the many societal problems facing today.

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Notes


55. Parrott and Carpentier, “Media Stereotypes and the Stigmatization of Mental Illness.”


61. Fouts and Burggraf, “Television Situation Comedies: Female Weight, Male Negative Comments, and Audience Reactions,” 925–32.


78. Eisenberg, Neumark-Sztainer, and Story, “Associations of Weight-Based Teasing,” 733–8; Kraig and Keel, “Weight-Based Stigmatization.”

79. Eisenberg, Neumark-Sztainer, and Story, “Associations of Weight-Based Teasing,” 733.


84. Allport, *The Nature of Prejudice*.


115. Shoemaker and Reese, Mediating the Message.

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