The obesity epidemic in the United States is at the forefront of public health issues and concerns. Not only is obesity associated with many health risk factors and chronic diseases (U.S. Department of Health and Human Services [USDHHS], 1996) but it is also related to many psychosocial, emotional, and behavioral concerns. One significant contributing factor to the psychosocial, emotional, and behavioral issues experienced by overweight students is the negative bias that society holds against them. Overweight individuals are often stigmatized as being bad, ugly, stupid, lazy/unmotivated, incompetent, or unattractive due to their body weight (Puhl & Brownell, 2001).

Obesity bias refers to the tendency to judge overweight or obese individuals in a negative way based on assumed attributes or behaviors (Rukavina & Li, 2008). Obesity bias reflects an individual’s anti-fat attitudes and stereotyped beliefs toward overweight students. These anti-fat attitudes and stereotyped beliefs can negatively impact teaching practices and overweight students’ learning in PE (Greenleaf & Weiller, 2005; Li & Rukavina, 2012b; Peterson, Puhl, & Luedicke, 2012a; Puhl & Latner, 2007; Shore et al., 2008). Specifically, when compared to their normal weight peers, overweight students have lower academic achievement, have more tardiness and absences, receive more detentions, suffer more social isolation and marginalization with fewer friendship ties, encounter an increased risk of being bullied and harmed by their peers, have higher rates of depression, display lower self-esteem, and engage in less physical activity (e.g., Geier et al., 2007; Janssen, Craig, Boyce, & Pickett, 2004; Puhl & Latner, 2007; Shore et al., 2008).

The purpose of this chapter is to examine recent literature related to obesity bias in PE. In the first section, I describe different types of obesity bias and settings where it occurs, and explore how obesity bias varies according to race and gender. Next, obesity bias in PE classes is examined and the impact of obesity bias on overweight students’ emotional well-being and behaviors is considered. This is followed by an overview of the strategies that overweight students use to cope against obesity bias or weight-related teasing and interventions that reduce obesity bias. I conclude with implications for evidence-based practice, future research directions, a summary of key findings from this line of research, and reflective questions.
Obesity bias: implications for teaching

Many terms have been used to describe overweight individuals’ experiences related to stereotypical views, including weight stigma, weight stigmatization, obesity stigmatization, obesity stigma, anti-fat attitudes, obesity bias, peer victimization, and weight bias. To be consistent, obesity bias is used throughout this chapter as a term that encompasses all of these constructs.

Foundations of obesity bias

There are two different types of obesity biases: implicit and explicit bias (Puhl & Brownell, 2001). Implicit bias refers to negative attitudes or behaviors that an individual expresses toward overweight people beyond their consciousness. It operates automatically when an environmental cue is present, for example, when a person laughs at a fat joke. Individuals often are unaware of their implicit bias. On the other hand, explicit bias refers to negative attitudes or behaviors that an individual consciously expresses toward overweight people. Explicit bias can take many different forms but is generally classified as being either covert/relational or overt/physical. Covert/relational explicit bias involves attitudes or behaviors intended to damage peer relationships, friendships, and social acceptance. Examples include social marginalization and isolation, teasing, mocking, joking, gossiping, rumor spreading, and name-calling (Neumark-Sztainer, Story, & Faibisch, 1998; Puhl & Latner, 2007; see also Cameron, Norman, & Petherick, Chapter 23). Overt/physical explicit bias involves physical attacks or threats such as pushing, punching, hitting, and kicking (Crick & Bigbee, 1998).

Obesity bias occurs in many different settings (Puhl & Latner, 2007). Employers in work places (Roehling, 1999), exercise scientists and practitioners (Chambliss, Finely, & Blair, 2004), and physicians and medical school students in health and medical settings (Schwartz, Chambliss, Brownell, Blair, & Billington, 2003; Weise, Wilson, Jones, & Neises, 1992) have all been reported to exhibit bias toward overweight or obese individuals. Classroom teachers, in-service and pre-service PE teachers, and peers also express bias towards overweight or obese individuals in educational settings (Bauer, Yang, & Austin, 2004; Li & Rukavina, 2012b; Neumark-Sztainer, Story, & Harris, 1999; Puhl & Brownell, 2006). Even family members such as parents can hold bias toward their children who are overweight or obese (Crandall, 1995).

Gender differences are evident with regard to explicit bias. In their review, Tang-Peronard and Heitmann (2008) found that overweight girls experience more stigmatization than overweight boys and are more socially marginalized with regard to friendships and romantic relationships. Overweight or obese boys are more likely to be the victims of overt/physical explicit bias (Griffiths, Wolke, Page, & Horwood, 2006; Pearce, Boergers, & Prinstein, 2002), while overweight or obese girls experience more relational forms of bias (Janssen et al., 2004; Neumark-Sztain et al., 1998; Pearce et al., 2002).

Obesity bias begins at an early age (Margulies, Floyd, & Hojnoski, 2008; Su & Santo, 2011). Margulies et al. (2008) suggest that preschool children hold negative attitudes and judgments toward their obese peers. As children age, their negative attitudes and judgments toward overweight or obese peers get stronger (Klaczynski, Daniel, & Keller, 2009), and they tend to remain stable during transition from early adolescence to young adulthood (Haines, Hannan, van den Berg, Eisenberg, & Neumark-Sztainer, 2013). Given that the majority of previous studies are cross-sectional, there is a need for longitudinal studies that investigate developmental changes in obesity bias among children and adolescents. Information gathered from this line of research can provide insights on the development and refinement of effective intervention components to reduce obesity bias.
Obesity bias in PE

Given the public display of body sizes, ability, and skill levels in physical activity/sports settings, overweight students are particularly vulnerable for suffering obesity bias. Bias toward overweight students has been well documented in physical activity (Faith, Leone, Ayers, Heo, & Pietrobelli, 2002; Pierce & Wardle, 1997; Storch et al., 2007) and PE (Bauer et al., 2004; Fox & Edmunds, 2000; Li & Rukavina, 2012b; Trout & Graber, 2009) settings. The findings from this line of research have shown that many overweight students experience negative bias and weight-related teasing by their peers. Li and Rukavina (2012b) report that some overweight or obese students are not teased in PE due to a variety of reasons. There appear to be combinations of factors that permit some overweight children to avoid teasing and harassment. These factors may include school policy and environments, individual personality and traits (e.g., high levels of self-efficacy), athletic ability, social skills, cultural backgrounds, and academic ability. These findings provide insights to guide the development of strategies for PE teachers to use to minimize teasing and design interventions to protect overweight students from teasing (see also Cale, Chapter 27).

Research suggests that overweight students are stigmatized not only by their peers, but also by their PE teachers (Bauer et al., 2004; Greenleaf & Weiller, 2005; Li & Rukavina, 2012b; Peterson et al., 2012a). In-service PE teachers reported more negative attitudes toward overweight students than non-overweight students, assigned more positive adjectives to non-overweight students than overweight students, and had higher ability expectations for non-overweight students than overweight students. When physical educators hold obesity bias against overweight students it can hinder their effectiveness. There also is evidence showing that pre-service PE teachers possess obesity bias (Chambliss et al., 2004; O’Brien, Hunter, & Banks, 2007; Peters & Jones, 2010). Given that in-service and pre-service PE teachers exhibit obesity bias, the next step for researchers is to focus on how obesity bias affects teaching behaviors. There is a need to develop and test interventions to reduce obesity bias and to identify preventive and reactive strategies for teachers to minimize or eliminate obesity-related teasing in PE. Reduction of obesity bias can facilitate the creation of inclusive, positive learning climates where overweight or obese students can be motivated to be engaged in learning and physical activities in PE.

With the growing concern about obesity and sedentary behaviors among children and adolescents, numerous national reports and initiatives call for school PE to play a more prominent role in developing and maintaining a healthy, physically active lifestyle among children and adolescents (USDHHS, 1996, 2008). PE teachers are in a unique position to reinforce school-based programs on bias, and work with a variety of shareholders to combat the epidemic of obesity and physical inactivity by maximizing physical activity opportunities during school. Teachers can be agents of change, as their attitudes and behaviors shape students’ attitudes and behaviors. They must be aware of and act upon the negative impact of obesity bias on overweight students’ psychosocial and emotional development and health behaviors (Gray, Kahhan, & Janicke, 2009). Doing so can help teachers form appropriate attitudes and behaviors toward overweight students, thus providing fair, safe, and motivating environments to maximize engagement and learning for all students in PE.

Cardinal, Whitney, Narimatsu, Hubert, and Souza (2014) and Jalongo (1999) have emphasized that obesity is a social justice issue. Findings from previous studies suggest some physical educators demonstrate a lack of awareness of student teasing in PE and rarely implement strategies to deal with weight-related teasing. Peterson, Puhl, and Luedicke (2012b) explored the role victimization plays in obesity bias in PE. They reported that PE teachers are more likely to intervene when overweight females are victims of weight-based harassment as compared...
to males. Male teachers, however, are less likely to take action to address this problem than are female teachers. It is critical for researchers and educators to examine current teacher preparation programs to address this diversity issue for pre-service teachers. An instructional module on obesity bias and strategies for dealing with obesity bias in PE should be integrated into both pedagogical and methods classes. Professional development workshops for in-service PE teachers would also benefit from the inclusion of an obesity module focused on content and teaching skills needed to create an inclusive environment for overweight students.

Little research has examined methods teachers can use to include overweight students in PE. Li and Rukavina (2012a) proposed a conceptual model to address inclusive issues with regard to overweight students. The Social Ecological Constraints Model outlines constraints at five different ecological levels (individual, PE instructional settings, school/family, community, and society) that can affect overweight or obese students’ engagement and learning in PE, as reflected in Figure 38.1. These constraints can be associated with body weight, height, cognition, attitudes, peers, weight stigma, and educational policies. Findings from Rukavina, Doolittle, Li, Manson, and Beale (in press) support the use of the Social Ecological Constraints Model as a viable framework for research on inclusion of overweight students in PE. Research framed using this model can guide efforts to identify inclusive practices in PE settings and test their effectiveness in promoting overweight students’ motivation and inclusion in PE.

Obesity bias negatively affects overweight students’ emotional well-being and social functioning (e.g., Eisenberg, Neumark-Sztainer, Haines, & Wall, 2006; Gray, Janicke, Ingerski, & Silverstein, 2008; Storch et al., 2007). Negative effects are evident across all races and ethnic groups (Eisenberg, Neumark-Sztainer, & Perry, 2003). The effects of obesity bias on overweight students can be far-reaching. Overweight students who suffer obesity bias feel more lonely, have lower levels of self-esteem, are less satisfied with their body image, show higher levels of depression, and experience higher rates of suicidal ideation and attempts than their normal weight peers (Eisenberg et al., 2006; Gray et al., 2008; Storch et al., 2007).

Obesity bias not only affects emotional well-being and social functioning among overweight students but also negatively impacts their health behaviors (Gray et al., 2009). Compared to other

![Figure 38.1 Social ecological constraint model for inclusion of overweight students into PE](image-url)
students, overweight students suffering obesity bias are more likely to report increased weight concerns, hold negative attitudes toward sports, and report more barriers to be engaged in physical activity. They also are more likely to avoid physical activity, experience behaviors indicative of eating disorders, and engage in excessive amounts of screen time (Faith et al., 2002; Gray et al., 2008; Haines, Neumark-Sztainer, Eisenberg, & Hannon, 2006; Mellin, Neumark-Sztainer, Story, Ireland, & Resnick, 2002; Puhl & Luedicke, 2012). Overweight students who experience weight-related teasing may feel bad about themselves, self-conscious of their body weight, sad, excluded, and even depressed (Li & Rukavina, 2012b). They at times exhibit learned helplessness (Trout & Graber, 2009) and may avoid participation in activities (Bauer et al., 2004). Overweight students who are teased during sports or physical activities often express a preference for isolated, sedentary activities (Hayden-Wade et al., 2005), report less enjoyment in sports, and engage in less physical activity as compared to their normal weight peers (Faith et al., 2002; Storch et al., 2007).

The negative effects of obesity bias can be more detrimental if overweight students internalize obesity bias (Hilbert, Braehler, Haeuser, & Zenger, 2014). There is evidence that overweight individuals express obesity bias against their in-group (Schwartz, Vartanian, Nosek, & Brownell, 2006). Overweight individuals who internalize bias have more frequent binge eating, refuse to diet, and report lower core self-evaluation in response to obesity bias (Hilbert et al., 2014; Puhl & Latner, 2007). The internalization of obesity bias is a serious concern that can have a negative influence on overweight students’ psychosocial and emotional well-being and their health behaviors, but more researchers need to explore this notion. A closer examination of the internalization of obesity bias by overweight and obese students is especially important in PE and physical activity since overweight students may internalize the idea that their body size limits how well they can perform in sports and games (Pierce & Wardle, 1997). The current literature on internalization of obesity bias has several limitations including focusing on adults, relying solely on correlational and descriptive designs, and using self-report surveys or open-ended questions to assess internalization of obesity bias. There is a need to focus more on children and adolescents and to employ other measures such as interviews, pictures, photography, and drawings to gain a deeper understanding of why and how the internalization occurs.

There is a vicious cycle of obesity, bias, and behaviors (Hayden-Wade et al., 2005). Overweight students who are stigmatized are more likely to experience negative affect and less likely to be physically active and exhibit healthy eating behaviors than their normal weight peers. Consequently, many overweight students are at risk to gain additional weight. Obesity bias during PE or physical activities can serve as a barrier for overweight students to engage in physical activity, and to adopt a physically active lifestyle (Bauer et al., 2004; Faith et al., 2002). In response to these biases, overweight students can choose to withdraw from their peers socially, engage in more sedentary activities, such as watching TV and playing video games, and overeating. Subsequently, they often are more socially isolated and can gain more weight, making them even more likely to avoid physical activity (Hayden-Wade et al., 2005). As a result, overweight children and adolescents may resist lifestyle interventions that target physical activity and healthy eating (Bosch, Stradmeijer, & Seidell, 2004).

Coping strategies against obesity bias or weight-related teasing

Not all overweight or obese students suffer adverse effects of obesity bias (Eisenberg et al., 2006). Moderating and mediating factors such as family ties and social activities can serve as a social buffer and alleviate the adverse effects of obesity biases (Faith et al., 2002; Mellin et al., 2002). Some overweight or obese students use various strategies to cope with stress and negative
emotions produced by biased behaviors from their peers (Neumark-Sztainer et al., 1998). These include ignoring, self-talk, teasing back or physically fighting, and losing weight by dieting and exercise (Li, Rukavina, & Wright, 2012; Neumark-Sztainer et al., 1998; Puhl & Brownell, 2006).

Puhl and Brownell (2003) reviewed the literature to conceptualize coping strategies based on data from adult populations. Building on their review, Li and Rukavina (2009) conducted a conceptual review of coping mechanisms and factors affecting coping behaviors that overweight students can use in response to obesity bias in PE. A qualitative study using interviews on coping mechanisms in PE showed that overweight adolescents employed multiple strategies to cope with weight-related teasing (Li et al., 2012). Strategies were characterized as representative of seven mechanisms: self-protection, compensation, confrontation, seeking social support, avoidance/psychological disengagement, losing weight, and stress reduction. Adolescents’ selection of these strategies was dependent on the situation. Most adolescents used trial and error to determine coping strategy effectiveness.

When adolescents employ coping mechanisms effectively, they may be shielded from the negative effects of obesity bias and may reduce future teasing incidents. One study has examined the effects of a therapeutic intervention program on reducing episodes of teasing and emotional distress among obese children (Panzer & Dhuper, 2014). Five 10–12-year-old children (3 boys, 2 girls) and their parents participated in a 6-session intervention program. Those children were purposely sampled because they frequently experienced obesity bias. At the end of the intervention, both children and parents demonstrated proficiency in explaining coping strategies and appropriate responses during simulated teasing situations. Two years after the intervention, findings showed a reduction in obese children’s emotional distress and fewer episodes of teasing (Panzer & Dhuper, 2014). These results should be viewed with caution, however, due to small sample size, a potential growth effect, and the lack of a control group. Nevertheless, this study took the first step to develop, implement, and evaluate a program to equip obese children with coping strategies.

Research on coping mechanisms in PE is still in its infancy (Li & Rukavina, 2009). The information related to how overweight students cope with obesity bias in PE is limited and many questions remain unanswered. The findings generated by extending this line of research have potential to help overweight students better cope with obesity bias in PE.

**Interventions for reducing obesity bias**

Researchers have used intervention methods derived from several theoretical frameworks to develop intervention programs and test the effectiveness of these programs on bias reduction, including attribution theory, perspective taking, social conditions, consciousness-raising, experiential learning, and deconstructing negative stereotypes (Rukavina & Li, 2008). A discussion of these frameworks is beyond the scope of this chapter and readers are referred to Rukavina and Li (2008) for an overview. Only a few intervention studies have been conducted to reduce obesity bias and their effectiveness has been limited (e.g., Anesbury & Tiggemann, 2000; Bell & Morgan, 2000; Crandall, 1994; Puhl, Schwartz, & Brownell, 2005; Rukavina, Li, Shen, & Sun, 2010). Interventions were influential in changing students’ beliefs about the controllability of obesity; however, they failed to reduce obesity bias toward overweight or obese peers (Anesbury & Tiggemann, 2000; Bell & Morgan, 2000). In other research, interventions proved effective in reducing explicit bias among adults by providing information on body shape and size controllability (Crandall, 1994; Puhl et al., 2005; Rukavina et al., 2010), evoking empathy (Rukavina et al., 2010; Teachman, Gapinski, Brownell, & Rawlins, 2003), through a service-learning project (Rukavina, Li, & Rowell, 2008), and in children through...
promoting size acceptance (Irving, 2000) and implementing a school-wide intervention program (Haines et al., 2006).

The majority of intervention studies designed to reduce implicit bias have been unsuccessful (e.g., Gapinski & Schwartz, 2006; Rukavina et al., 2010). Daniels (2008) suggests the limited success of interventions may be because studies have only targeted individuals rather than their social networks. Obesity bias exists in different forms and settings, and occurs in every corner of society. It also is reinforced by different sources at multiple levels (i.e., family, school, community, and society) (Neumark-Sztainer et al., 1999). Therefore, a social ecological framework is well positioned to guide future interventions on bias reduction (Daniels, 2008).

Puhl and Latner (2007) point out that limited research has been conducted to explore ways to reduce obesity bias among teachers. Hague and White (2005) developed and implemented a web-based educational module focusing on size acceptance to change student teachers’ and school teachers’ obesity bias. Despite methodological weaknesses including failure to establish treatment fidelity and short intervention duration, the findings showed a reduction of negative attitudes toward overweight individuals in the intervention groups when compared to the control group. Given that some classroom and PE teachers hold obesity bias, it is critical to identify effective strategies to reduce teachers’ obesity bias and conduct interventions to test their efficacy with the goal of providing a fair, motivating, and inclusive learning climate for overweight students to be engaged in learning in classrooms and PE. These intervention studies can focus on increasing teachers’ awareness of their own obesity bias and its negative effects on overweight students’ psychosocial functions, emotions, and health behaviors, understanding of the causes of obesity, and equipping them with effective strategies to handle obesity bias (Neumark-Sztainer & Eisenberg, 2005).

**Implications for evidence-based practice**

PE teachers have great potential to create positive, inclusive learning environments where overweight students can be actively engaged in learning and physical activities. Evidence-based practices can empower teachers to achieve that goal. First, it is critical to encourage pre-service and in-service PE teachers to examine and challenge their own bias. In this way they can increase their awareness of the negative effects obesity bias can have on overweight students’ psychosocial function, emotional well-being, and health behaviors. Second, advocates can work with administrators and all teachers to develop a no-teasing policy for a school-wide systematic implementation. Third, individuals within the school community can strive together to create a positive, inclusive learning climate to increase overweight students’ self-efficacy and activity engagement. Fourth, interventions can be used to educate students to accept all body types and sizes and promote the belief that everyone has their own gifted areas. Fifth, teachers can work with overweight students to equip them with coping strategies and provide support for students being teased. Finally, using the social ecological constraint model (Li & Rukavina, 2012a) as a guide, PE teachers can work with shareholders to develop a school-wide program to reduce obesity bias and promote healthy, physically active lifestyles.

**Future directions**

The detrimental effects of obesity bias on overweight students in PE is well documented. As we move forward with investigations in this area, there is an urgent need for researchers to address research questions that inform teaching practices. The social ecological constraint model can be used to identify and evaluate strategies to reduce obesity bias among teachers,
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Children, and adolescents. By alleviating the negative effects of bias internalization on overweight students’ emotional well-being, social functions, and health behaviors, students can lead more productive, physically active lives. It also is important to identify preventive and reactive strategies teachers can use to minimize teasing in PE. Investigating how obesity bias affects PE teachers’ teaching behaviors and how teachers can effectively include overweight students in PE can lead to significant gains in this area. From the student perspective, researchers need to examine the effects of inclusive practices and coping mechanisms on overweight students’ motivation and behaviors in PE.

Summary of key findings

• Many overweight students are stigmatized not only by their peers in PE, but also by their PE teachers.
• Many overweight students experience negative bias and weight-related teasing in PE. Weight-related teasing occurs in multiple forms and different physical activity contexts.
• Overweight students who are stigmatized are more likely to experience negative affect and less likely to be physically active and to engage in healthy eating behaviors.
• Not all overweight or obese students suffer from the adverse effects of obesity bias. The adverse effects of obesity bias can be moderated and mediated by family ties, social activities, and coping mechanisms.
• Overweight adolescents can employ multiple strategies using different mechanisms to cope with weight-related teasing. Adolescents’ selection of these strategies is dependent on their situation, and they use trial and error to determine the coping strategy effectiveness.
• Unfortunately, researchers to date have had only limited success in designing interventions to reduce explicit bias and have been even less successful in reducing implicit bias.
• Interventions that target all community members and that enhance both awareness and coping strategies are hypothesized to lead to the greatest success.

Reflective questions for discussion

1. How can we raise awareness of obesity bias and its consequences among all shareholders in our society? Design a specific action plan to raise the awareness of obesity bias and its consequences in your school or professional community.
2. Is there a need for obesity bias policies and legislation to prevent discrimination against overweight people? If so, what policies and legislation would be effective in reducing obesity bias? How can these policies and legislation be effectively implemented in schools and in PE?
3. What strategies are effective in reducing obesity bias? How can they be implemented?
4. What are effective teaching pedagogies and strategies for PE teachers to include overweight or obese students? How can PE teachers be encouraged to employ these in their teaching?
5. Compare and contrast different types of coping mechanisms and then develop a plan to teach these adaptive coping mechanisms to overweight students to protect themselves from suffering detrimental effects of obesity bias.

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