I, Emily A. Iobst, hereby submit this work as part of the requirements for the degree of:

Doctor of Philosophy
in:
Psychology

It is entitled:
The Relationship Among Gender, Age, Blame, and Children’s Attributions About an Overweight Peer

This work and its defense is approved by:

Chair: Laura Nabors, Ph.D.

Kenneth Gee, Ph.D., P. Neal Ritchey, Ph.D.

David Smith, Ph.D., Robert Stutz, Ph.D.
The Relationship Among Gender, Age, Blame, and Children’s Attributions About an
Overweight Peer

A dissertation submitted to the

Division of Research and Advanced Studies
of the University of Cincinnati

In partial fulfillment of the requirements
For the degree of

DOCTORATE OF PHILOSOPHY (Ph.D.)

In the Department of Psychology
of the College of Arts and Sciences

June 22, 2007

By

Emily A. Iobst

B.A., Bucknell University, 2001
M.S., Villanova University, 2003

Committee Chair: Laura A. Nabors, Ph.D., ABPP
Committee: Kenneth Ghee, Ph.D.
P. Neal Ritchey, Ph.D.
David Smith, Ph.D.
Robert Stutz, Ph.D.
Abstract

Research has shown that children are often less accepting of their overweight peers as compared to their average weight counterparts (e.g., Brylinsky & Moore, 1994; Cramer & Steinwert, 1998). Blaming one for his/her overweight condition may lead to more negative attributions about that person, according to attribution theory (Weiner, 1986). The current study examined the role of blame in children’s attributions about their overweight peers. Further, the current study investigated whether perceiver characteristics, specifically age and gender, were related to children’s attributions about their overweight peers, and the extent to which blame mediated these relationships. A confirmatory factor analysis was conducted to determine whether the seven traits (e.g., being bad, worried, happy, nice) measured in this study were reflective of a single, unidimensional factor rather than separate constructs.

Data for two hundred ninety-one children (aged 3- to 11-years-old) were analyzed for this study. Participants were assigned to view a videotape of a same-sex peer dressed to appear overweight. Following the viewing of the videotape, children completed the Child Interview (Lehmkuhl, 2005; Lehmkuhl et al., 2002; Lehmkuhl et al., 2004), which assessed the participants’ perceptions of the target child on certain traits, their perceptions about how much the child was to blame for being overweight, and how much they generally accepted the target child.

Results of the confirmatory factor analysis indicated that six of the seven traits loaded onto a single factor, referred to as “judgment.” Blame was significantly and positively associated with judgment, with higher blame scores (low blame) being related to higher judgment scores (more positive judgment). Gender was neither related to blame nor judgment.

Results also suggested age level differences in blame and attributions about overweight peers. However, these age level differences depended on which endogenous variable was being examined. Five-to 8-year-olds reported the least amount of blame, and, through mediation, the most accepting views of the model, compared to the other age groups. Young children (aged 3- to 4-years-old) were less accepting compared to the other two age groups, and thus, interventions should focus on this age group to possibly prevent negative opinions in later years. Further, because positivity toward overweight peers did not continue into the 9- to 11-year-old age group, interventions should also be directed at this age group, who might be apt to be less accepting of their overweight peers due to the social concerns and identity formation (Jones & Crawford, 2006; Neumark-Sztainer, Falkner, Story, Perry, Hannan, & Mulert, 2002) during this time in development. Future research should examine the impact of interventions on children’s perceptions of fault for peers who are overweight to determine what techniques are related to improved perceptions of peers who are physically different.
Acknowledgements

I would like to thank my mentor and committee chair, Dr. Laura Nabors, for her unwavering support and encouragement throughout my graduate career. I would also like to thank my committee members, Dr. Kenneth Ghee, Dr. P. Neal Ritchey, Dr. David Smith, and Dr. Robert Stutz, for their guidance on this project. Special thanks are reserved for Dr. Ritchey for his invaluable help with the statistical aspects of this project. Finally, I would like to thank my family and friends for their unfailing support and encouragement these past four years.

This study was supported by the Department of Psychology at the University of Cincinnati.
Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABSTRACT</td>
<td>i</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>iii</td>
</tr>
<tr>
<td>TABLE OF CONTENTS</td>
<td>1</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>2</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>3</td>
</tr>
<tr>
<td>CHAPTERS</td>
<td></td>
</tr>
<tr>
<td>I. INTRODUCTION</td>
<td>4</td>
</tr>
<tr>
<td>II. METHOD</td>
<td>21</td>
</tr>
<tr>
<td>III. RESULTS</td>
<td>28</td>
</tr>
<tr>
<td>IV. DISCUSSION</td>
<td>35</td>
</tr>
<tr>
<td>V. REFERENCES</td>
<td>46</td>
</tr>
<tr>
<td>VI. APPENDICES</td>
<td></td>
</tr>
<tr>
<td>Appendix A Measures and Rating System</td>
<td>53</td>
</tr>
<tr>
<td>Appendix B Covariance Matrix for Variables in the Model</td>
<td>57</td>
</tr>
</tbody>
</table>
List of Tables

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Age and Gender of Children who Viewed the Overweight Videotape</td>
<td>22</td>
</tr>
<tr>
<td>2.</td>
<td>Loadings of the Six Items for the One-Factor Solution for Judgment</td>
<td>29</td>
</tr>
<tr>
<td>3.</td>
<td>Means and Standard Deviations for Six Traits and Blame</td>
<td>31</td>
</tr>
<tr>
<td>4.</td>
<td>Differences in Average Judgment among Age Groups where Gender and Blame are Controlled</td>
<td>33</td>
</tr>
<tr>
<td>5.</td>
<td>Differences in Average Blame among Age Groups where Gender and Judgment are Controlled</td>
<td>33</td>
</tr>
</tbody>
</table>
List of Figures

<table>
<thead>
<tr>
<th></th>
<th>Hypothesized Mediation Model of Observed Relations among Latent Variables</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>27</td>
</tr>
<tr>
<td>2</td>
<td>Mediation Model of Observed Relations among Latent Variables</td>
<td>32</td>
</tr>
</tbody>
</table>
Current estimates indicate that 14 to 17% of the children and adolescents in this country are overweight (Ogden, Carroll, Curtin, McDowell, Tabak, & Flegal, 2006; Swallen, Reither, Haas, & Meier, 2005). The prevalence of childhood overweight has increased dramatically in the past twenty years. Studies have suggested that the prevalence rates have tripled between 1980 and 2000, with a 50% increase in whites and similar increases in other races (Ogden et al., 2002; Strauss & Pollack, 2001). Weight issues for our nation’s children are of concern because overweight youth tend to become overweight adults (Dietz, 2004). Thus, childhood overweight and its sequelae are rising concerns that our country must face. The current study is focused on children’s views of their overweight, not obese, peers. Because the preponderance of the research has focused on children’s acceptance of obese youth rather than overweight youth, studies on perceptions of obese and overweight children are included in this literature review.

It is clear that childhood overweight is a societal problem that is beginning to be addressed by this country in research, prevention, and treatment - and even in the media (e.g., *Honey, We’re Killing the Kids*, Kelehar, 2006; Johnston & Steele, 2007; Mackey & La Greca, 2007; Serrano, Gresock, Suttle, Keller, & McGarvey, 2006). In addition to the significant health concerns associated with being overweight, it is imperative that we study other aspects related to weight status in children. For example, children who are considerably overweight face significant psychological issues. These children have reported a lower health-related quality of life due to depressive symptoms and low levels of perceived social support from classmates (Zeller & Modi, 2006). They also report being teased more often than average weight children (Neumark-Sztainer, Story, & Faibisch, 1998; Neumark-Sztainer et al., 2002). Overweight children are also more likely
to have lower self-esteem (Pierce & Wardle, 1997) and have a more negative body image (Duncan, Al-Nakeeb, & Nevill, 2004). Further, weight-related teasing during childhood has been linked to psychological problems in adulthood (Jackson, Grilo, & Masheb, 2000). Therefore, being significantly overweight in childhood can have negative short-term and long-term physical and psychological effects. Less is known about why typical weight children react negatively to their overweight peers. This study sought to fill this gap in the literature by examining children’s perceptions of a child who was overweight. Specifically, the objective of this study was to investigate the relations among gender and age of typical weight children, the blame they assign for weight status, and their attributions about an overweight peer.

Given the psychosocial and emotional risks associated with being overweight as a child, it is important to investigate the factors affecting acceptance of children who are overweight. Research has demonstrated that children who believe that being overweight is under the control of the overweight person – and blame that person – tend to perceive that person more negatively than if they believe the condition is not under that person’s control (Bell & Morgan, 2000; Juvonen, 1991; 1992; Sigelman & Begley, 1987). Pierce and Wardle (1997) found that overweight children who believed that their weight status was due to an internal cause (i.e., that they were responsible for their weight status) had lower self-esteem than those that believed their weight status was due to an external cause. Children in this study also felt that their overweight status hindered their social interaction with other children.

The current study sought to clarify the role of blame or fault in children’s attributions about an overweight child. At times, the words blame and fault are used
interchangeably in this document. If blame/fault leads average weight children to make negative attributions about their overweight peers, this factor could be targeted in interventions to improve acceptance of overweight children. In addition, if overweight children themselves come to believe that their weight problems are their fault, it could further decrease their self-esteem and willingness to interact with others. Therefore, it is important to study blame/fault as it relates to attributions made about an overweight peer.

In addition, the extant literature is unclear regarding the relationship of gender and attributions about an overweight child. Some studies have found that girls are more accepting of their overweight peers (Bell & Morgan, 2000; Cohen, Budesheim, MacDonald, & Eymard, 1997; Cohen, Klesges, Summerville, & Meyers, 1989), at least one study has found that boys are more accepting of overweight peers (Sigelman, Miller, & Whitworth, 1986), and other studies have not found a gender difference (Brylinsky & Moore, 1994; Cramer & Steinwert, 1998). Because of this discrepancy, the relations among gender, blame/fault, and attributions about an overweight child were examined in this study.

Further, the literature shows age differences in acceptance of overweight peers. However, the research is unclear whether younger or older children are more accepting of overweight weight status. Some studies have found that younger children are more accepting (Brylinsky & Moore, 1994; Cramer & Steinwert, 1998; Lehmkuhl, 2005), while others have found that older children are more accepting (Cohen et al., 1989). Other studies have found a curvilinear relationship, such that children in early adolescence (grades sixth through ninth) were more accepting of their overweight peers than their older (twelfth grade) or younger (kindergarten through fifth grade) counterparts.
Developmental differences are important to assess to determine age ranges at which interventions to change children’s attitudes about their overweight peers might be needed.

The current study examined perceptions of an overweight model for children in different age ranges (preschool, elementary, early adolescent/late elementary school). These age ranges were selected based on the age ranges of previous studies investigating children’s views of their overweight peers (e.g., Brylinsky & Moore, 1994; Cramer & Steinwert, 1998; Lehmkuhl, 2005) and were further specified following data analyses examining the extent to which age groups’ responses clustered together.

The remaining sections of this introduction section will review major topics associated with children’s acceptance of overweight peers. First, the research on stigmatization of overweight/obese children will be introduced. Second, research conducted in our laboratory will be outlined. Third, gender and age differences in acceptance of overweight peers will be discussed. Fourth, “blame” is defined and explored in terms of the degree of control attributed to the “blamed” individual. Fifth, the research examining the role of blame in perceptions about overweight children is summarized. Finally, the introduction closes with the aims guiding the data analyses utilized in the study.

Stigmatization of Obese Children

The stigmatization of grossly overweight and obese children has been studied for many years. For example, Maddox, Back, and Liederman (1968) instructed adults to rank six line drawings of children with one “apparently normal” child and five children with disabilities (a child with a deformed leg, a child in a wheel chair, a child missing a hand,
a child with a facial deformity, and a “grossly overweight” child) in the order that they liked each child. Results indicated that the overweight child was ranked last significantly more than any other child. This means that research from almost 50 years ago showed greater stigmatization of overweight children as compared to other children with potentially stigmatizing conditions.

Richardson (1970) utilized a methodology similar to that of Maddox and colleagues (1968), but had children, rather than adults, rate their acceptance of children in line drawings. Specifically, children (aged 5 to 18) rated line drawings of children with five physical differences (child with crutches and a brace on the left leg, child sitting in a wheelchair, child with left hand missing, child with facial disfigurement, and an obese/grossly overweight child) and a child with no physical differences. The drawing of the obese child was consistently rated as least liked across age groups and gender. Similar results were found in another study (Sigelman et al., 1986), where Caucasian children in preschool through second grade rated line drawings of children with potentially stigmatizing conditions (“normal,” Black, of opposite sex, glasses-wearing, wheelchair bound, facially disfigured, and obese) in order of liking. Again, the very overweight target child was rated as least liked (Sigelman et al.).

While these early studies set the groundwork for the current study, these studies only measured how much participants liked the child portrayed in the line drawing as being very overweight/obese in comparison to the other children in the drawings, not what their perceptions of the child were. Specifically, these studies did not measure participants’ perceptions of the child’s traits (e.g., intelligence, attractiveness). Further,
these studies investigated children’s attitudes about obese children rather than overweight children.

Research on Perceptions of Overweight Children

Two research projects (Brylinsky & Moore, 1994; Cramer & Steinwert, 1998) have examined attitudes about an overweight child who was not grossly overweight or obese, which is also the aim of the current study. In the first project, Brylinsky and Moore (1994) were interested in determining if children identify body build stereotypes. In other words, these researchers wanted to assess whether or not children associate certain traits (positive or negative) with certain body builds. In this study, children, aged kindergarten to fourth grade, rated line drawings of a chubby (overweight), a thin, and an average weight child on 12 pairs of bipolar adjectives (cute/ugly, quiet/loud, friends/no friends, nice/mean, neat/sloppy, smart/stupid, strong/weak, healthy/sick, brave/afraid, not teased/teased, works hard/lazy, happy/sad). Children rated the drawings on a seven-point scale, with the bipolar adjectives on the ends of the scale. Results suggested that bipolar adjectives could be separated into two dimensions, social and interpersonal interactions and physical attributes. While the average weight child was rated positively on both dimensions, the overweight child was rated negatively on both dimensions. Therefore, children believed that the overweight child was less socially and physically appealing than the average weight child. The use of line drawings was a limitation of this study. Research has shown that children are not always able to understand that line drawings are representative of real children (DeLoache, Peralta de Mendoza, & Anderson, 1999). Further, a limited age range was assessed; a broader age range would allow for interpretations about progression of children’s body build stereotypes over time.
Finally, in the second project, which was comprised of two experiments, Cramer and Steinwert (1998) used narratives (i.e., scripts) and line drawings of overweight, thin, and average children to examine preschoolers’ attitudes about an overweight child. In the first experiment, children aged three- to five-years-old were told stories about the children depicted in the line drawings and were asked to choose which of the children was “mean” and which was “nice.” In the second experiment, participants were asked to assign 12 bipolar adjectives (smart/stupid, healthy/sick, neat/sloppy, many friends/few friends, strong/weak, works hard/lazy, nice/mean, happy/sad, doesn’t get teased/gets teased, brave/afraid, good looking/ugly, quiet/loud) to children in drawings (thin, average weight, and overweight). Next, they were asked to designate which of the three children they would prefer as a playmate. Results of the two experiments demonstrated that participants labeled the overweight child as “mean” more than they did the thin child, they selected more negative attributions for the overweight child, and they selected the overweight child less frequently to be a playmate than they did the thin or average weight child. Interestingly, these researchers also recorded data about the weight status of the children who were judging the line drawings. They discovered that overweight participants were as likely to stigmatize the overweight child as participants who were thin and average weight; participants who were overweight held the same types of negative attitudes toward the overweight child depicted in the line drawings as the other children. Again, use of line drawings limits the interpretations of the results of this study. This study only used very young children, which only allows generalizability to a narrow age range.
Overview of Research Conducted in the Children and Community Laboratory

The data for the current study was part of an existing data set in our laboratory, the “Children and Community Laboratory” in the Department of Psychology at the University of Cincinnati; assessment of peer perceptions of children who are “overweight” has been the focus of several studies (Lehmkuhl, 2003; 2005; Lehmkuhl, Nabors, & Barzman, 2006; Lehmkuhl, Nabors, & Deck, 2002; Lehmkuhl, Nabors, & Deddens, 2007; Lehmkuhl, Nabors, Parkins, & Drury, 2004). The goal of our research team was to determine if weight status (overweight or average weight) and perceiver characteristics (gender and age) influenced children’s acceptance of overweight children (L. A. Nabors, personal communication, January 8, 2007). In these studies, children were randomly assigned to view one of two videotapes. Children’s perceptions of an average weight child depicted in a videotape (condition one) were compared to children’s perceptions of that same child dressed to appear overweight (condition two). The same child models were used in both videotapes in order to control for attractiveness of the child. The average weight child in condition one was dressed to appear overweight for the videotape used in condition two. A videotape was used so that children judged children, rather than line drawings, which can appear contrived (Bell & Morgan, 2000).

In addition, investigators in our lab recruited a fairly large age range of participants, ages 3- to 13-years-old, in order to examine the impact of age on children’s perceptions (Lehmkuhl, 2005). The children viewed a same gender child, because children are often more accepting of peers of the same gender (Cohen et al., 1989). The following paragraphs summarize key findings from studies conducted in our laboratory.
Lehmkuhl, Nabors, Parkins, and Drury (2004) found that weight status did not affect school-aged (10- to 13-year-old) children’s responses about how much they would like to be friends with or play with the child in the videotape. This study did, however, find that girls provided higher acceptance ratings of the overweight model than boys. Similar results were found by Lehmkuhl, Nabors, and Barzman (2006) with younger children, aged 3- to 6-years-old, and by Lehmkuhl, Nabors, and Deddens (2007) and Lehmkuhl, Nabors, and Deck (2002) with children aged 7- to 13-years-old.

Most recently, Lehmkuhl (2005) examined acceptance ratings of 612 children (aged 3 to 13) from the larger data set of our laboratory. Lehmkuhl reported that weight status did not predict children’s perceptions of negative traits, suggesting that attributions about the overweight child did not differ from those about an average weight child. Similar to other studies (Bell & Morgan, 2000; Cohen et al., 1997; Cohen et al., 1989), Lehmkuhl found that girls were more accepting of the model, irrespective of weight status, compared to boys. Interestingly, boys provided higher acceptance ratings for the overweight compared to the average weight model. Lehmkuhl concluded that this may have occurred because boys may have viewed the overweight model as being “big and strong,” which may be a more desirable trait for boys than for girls. Age of the children providing the ratings was related to perceptions of models regardless of the model’s weight status. Specifically, adolescents and preschool-age children provided higher negative ratings of the models compared to children in elementary school.

The current study is clearly informed by the previous research conducted in the Children and Community Laboratory (Lehmkuhl, 2003; 2005; Lehmkuhl et al., 2006; Lehmkuhl et al., 2002; Lehmkuhl et al., 2007; Lehmkuhl et al., 2004). For example, the
current study investigates age and gender effects on children’s attributions about an overweight child. While the current study examines these perceiver characteristics, it adds to the research conducted in the Children and Community Laboratory by investigating the mediating role of blame/fault between both gender and age and children’s attributions about the overweight model. Further, the current study evaluates whether the children’s attributions of seven traits reflect a single, unidimensional factor rather than different constructs. Previous work in the Children and Community Laboratory has not examined whether items on the scale pertaining to traits reflect a single factor. Using a reflective measurement model to evaluate whether the traits reflect a unidimensional factor, “judgment,” provided information about whether these traits are caused by the same factor rather than by different constructs (Ritchey, Frank, Hursti, & Tuorila, 2002). If a unidimensional trait, termed judgment, emerged, then it would be possible to incorporate this latent variable into the relationships being tested in the path model for this study. The following paragraphs review how perceiver characteristics, namely gender and age, are related to children’s perceptions of peers who are overweight.

Perceiver Characteristics

Gender Differences in Judgments of Obese Peers. Research has found that boys and girls have different attitudes toward peers who are obese. For instance, Cohen and colleagues (1989; 1997) found that boys responded less favorably to obese peers than girls. Bell and Morgan (2000) also found that boys react more negatively to obese peers than girls. Conversely, Sigelman and colleagues (1986) found that girls responded less favorably to an obese child than boys. Richardson (1970) also found that girls were less accepting of obese peers than boys. There is not a clear trend regarding the relationship
between gender of the perceiver and acceptance of obese children. The unclear relationship between gender and acceptance of obese children may be because the aforementioned studies only considered gender differences for a limited age range and without controlling for age (e.g., Bell & Morgan, 2000; Sigelman et al., 1986).

**Gender Differences in Judgments of Overweight Peers.** On the other hand, there is not clear evidence for differences between boys’ and girls’ attitudes toward a peer who is merely overweight. For example, studies have not found gender differences in acceptance ratings for an overweight child (Brylinsky & Moore, 1994; Cramer & Steinwert, 1998), while another study found that girls were more accepting than boys (Lehmkuhl, 2005). The current study considered gender differences across a broader age range, and it was expected that girls would react more positively than boys to the overweight peer, as has been found in studies similar in methodology to the current study (e.g., Lehmkuhl, 2005). Further, the current study investigated blame assigned by boys and girls, which, to my knowledge, has not been done with such a large age range.

**Age Differences in Judgments of Obese Peers.** Results from research investigating the relationship among age of the “perceiving” child and acceptance or judgment of peers who are obese are equivocal. Some have found that younger children are less accepting of their peers who are obese. Using sociometric nominations (liking versus disliking) of first, third, and fifth graders’ classmates, Cohen and colleagues (1989) found that first- and third-grade males reported less liking for their peers who were obese. Interestingly, weight was not a factor in fifth graders’ acceptance of peers who were significantly overweight.
Other studies have considered a curvilinear trend for age level differences in ratings for an obese peer. For example, Richardson (1970) found that children (ages 5 to 18) were less accepting of a line drawing of a child who was obese as compared to drawings of children with other handicaps. However, the children were the least accepting of the child who was obese at very young ages (kindergarten to fifth grade) and older ages (high school). The middle age range (sixth to ninth grade) appeared to be more accepting of the child who was obese, particularly in males. Richardson (1970) suggested that early adolescence is the peak for acceptance of peers who are obese.

*Age Differences in Judgments of Overweight Peers.* Studies examining children’s perceptions of their overweight peers are also not in agreement about age level differences. Some studies have reported that older children react more unfavorably than younger children. For example, Brylinsky and Moore (1994) asked children in kindergarten to fourth grade to rate thin, average, and overweight drawings of children using bipolar adjectives. These researchers found that the negative stereotype of overweight children emerged in second grade and increased with age. Cramer and Steinwert (1998) found that while five-year-olds were more likely to assign negative adjectives to a drawing of an overweight peer and think that this child was “mean” than three-year-olds, three-year-olds still assigned more negative than positive adjectives to the chubby peer than to the average weight or thin peer. Lehmkuhl (2005) found a curvilinear relationship between age and children’s acceptance of their overweight peers. However, Lehmkuhl found that elementary school aged children (aged 7- to 9-years-old) were more accepting of their overweight peers than preschool children or older adolescents (10- to 13-years-old). Hence, the extant literature is not in agreement about
the relations among age and children’s acceptance of their overweight peers. I expected that children in early elementary school would be most accepting of their overweight peers based on findings from previous studies in the Children and Community Lab (e.g., Lehmkuhl, 2005).

*Attribution Theory and Children’s Assignment of Blame*

Attribution theory (Weiner, 1986) can help explain the stigmatization of overweight persons. This theory posits, in part, that peoples’ perceptions of others’ personal failures are based on whether the failure is considered to be controllable or the person is at fault for the failure. That is, the causal controllability of a negative or unexpected event can affect others’ perceptions of and reactions to that person. If a person is believed to be in control of (to blame for) a negative event that occurs, others will react negatively to him or her. On the other hand, if the negative event is perceived to be uncontrollable (i.e., the person is not blamed), others will express sympathy and liking for the person. In the current study, children were asked the following question, worded with “blame” and “fault” as verbs, about the child in the videotape: “How much is Tom/Jackie to blame or how much is it Tom/Jackie’s fault that he/she is fat?” The words blame and fault were used to clarify the meaning of the question for children.

The effect of blame on children’s perceptions of their peers has been examined by several researchers (e.g., Juvonen, 1991, 1992; Musher-Eizenman, Holub, Miller, Goldstein, & Edwards-Leeper, 2004; Sigelman et al., 1987, 1991). However, the concept of blame has been labeled differently in different studies. For example, Juvonen (1991, 1992) calls blame “perceived responsibility,” while Sigelman and colleagues (1987; 1991) and Musher-Eizenman and colleagues (2004) refer to “controllability” for a
condition. For the purposes of this study, “blame” will be operationalized as being in control of causing one’s condition or fault for one’s condition.

Blame for one’s condition may differ between age groups. For example, Sigelman (1991) assessed how much blame preschool children assigned to one of two children they heard about in a script, one who was obese and one who was in a wheelchair. Children were assigned to hear one of four scripts that explained the child’s condition (e.g., scripts gave causal information or no information regarding the child’s condition). Overall, younger children blamed the target child more than the older children did, regardless of the causal information given to explain the condition.

Juvonen (1991, 1992) also found that the perceived responsibility for or control of the cause of a condition affected how children felt about their classmates who were different. In these two studies, children (fifth through seventh grade) were asked to provide sociometric ratings for the other children in their class. Results suggested that children who perceived their atypical classmates (classmates with social image concerns, rule breaking behavior, low achievement, social withdrawal, and physical appearance differences) as being responsible, or to blame, for their “idiosyncrasies” reported more anger and less sympathy toward these children. They were also less likely to like the “deviant” classmate if they believed he/she caused his/her condition. Further, the more children perceived the classmate as deviant, the more likely they were to reject that classmate. Therefore, the extent to which children perceived the “deviant” classmates to be at fault for their differences affected how children felt about and behaved toward that classmate. Because blame seems to play such an important role in children’s perceptions (Bell & Morgan, 2000; Juvonen, 1991; 1992; Sigelman & Begley, 1987) and it may
differ between age groups (Sigelman, 1991), the extent to which blame mediates the relationships between age and children’s attributions about their overweight peers was evaluated in the current study.

The Role of Blame in Perceptions about Obese Children

Research has examined the extent to which perceptions of blame influence children’s peer acceptance. Sigelman and Begley (1987) proposed that information about blame for a medical condition (e.g., being in a wheel chair, being obese) would affect children’s (kindergarteners and first graders; fourth and fifth graders) perceptions of a peer with the medical condition. For this study, typically developing children were either told that the target child was responsible for his or her medical condition (that it was the child’s fault), was not responsible for the condition (that it was not the child’s fault), or were given no information about the “controllability” of the condition. For the grossly overweight child, in the high responsibility condition, participants heard that the child “ate too much and did not try to diet,” whereas in the low responsibility condition the obese child was labeled as having a glandular disease.

Sigelman and Begley (1987) found that the children with medical conditions, such as a child portrayed as obese, were evaluated more negatively when the perceivers (i.e., the typically developing children) believed the children were to blame for their medical condition. Specifically, the child who was obese was liked less (received lower acceptance ratings) when he/she was described in a vignette as being in control of or responsible for being overweight (e.g., eating too much) compared to when he/she was described as not being to blame for his/her weight status. Interestingly, when children were given no information about the controllability of the condition, 97% of participants
reported that the obese target child was to blame for being overweight due to controllable internal causes (e.g., eating too much or eating the wrong things). This finding leads one to believe that children may blame peers who are obese for their weight status in the absence of information about the cause of the child’s condition.

The Role of Blame in Perceptions about Overweight Children

Musher-Eizenman and colleagues (2004) investigated preschool children’s attitudes and behavioral intentions toward children of different body sizes. One hundred sixty-eight children were asked to provide adjective ratings, friendship selection, and attributions of control for three figures: overweight, thin, and average weight. The researchers found that children who believed the overweight child was at fault for his/her weight status provided more negative ratings about the child (i.e., the child was mean, stupid, sloppy, ugly, loud, had no friends) than children who did not believe that the child was to blame for his/her weight status. However, perceptions of the child as being at fault for his/her weight status did not influence children’s friendship or acceptance ratings for the overweight child. These results seem counterintuitive and are not consistent with Sigelman and Begley’s (1987) findings. Therefore, this remains an area where further research can provide clarification about relations among blame and attributions of typically developing children toward an overweight child.

Ideas Guiding the Current Study

Several ideas, consistent with attribution theory (Weiner, 1986) influenced study aims. This research extends the work of Sigelman and Begley (1987) by examining differences in attributions and blame between boys and girls and addresses differences in attributions and blame across a broader age range. Further, the role of blame and fault has
not been examined as a mediator between attributions and gender and age and the current study extends the literature by examining these factors. I expected that children who perceived the child as “to blame” or “at fault” for his/her weight status would provide more negative attributions than those who did not perceive the child to be at fault.

The current study has several advantages. For example, the current study assesses a range of traits (seven traits) that are both positive and negative. Further, the age range is larger than that of most of the previous research in this area (Juvonen, 1991, 1992; Musher-Eizenman et al., 2004; Sigelman & Begley, 1987). This allows for an examination of developmental trends in attributions about an overweight child. In addition, gender is also investigated in order to determine its effects on the relationship of blame/fault to attributions about an overweight peer. Recent research in this area has not controlled for such a large age range when assessing the mediating role of blame on the relationship between gender and attributions. Next, following the method developed by Bell and Morgan (2000) and Lehmkuhl, Nabors, and Deck (2002), a videotape of the target child was used rather than line drawings or a vignette. Previous research has typically used line drawings (e.g., Cramer & Steinwert, 1998; Musher-Eizenman et al., 2004), and drawings might not be interpreted by children as representative of a real child (DeLoache et al., 1999). While the current study is an analog study, the use of videotapes increases the realism of the target child above that of much of the previous work in this area.

Aims of the Current Study

1. Determine whether the seven traits measured in this study reflect a single, unidimensional factor, “judgment.”
2. Examine the relationship between blame/fault and “judgment,” with the prediction that higher blame/fault will be associated with a more negative judgment.

3. Examine the relationship between gender and judgment, as mediated by blame/fault.

4. Examine the relationship between age and judgment, as mediated by blame/fault, with the hypothesis that age would have a curvilinear relationship with both judgment and blame.

Method

Participants

Participants in the current study were 291 children (146 boys and 145 girls) ranging in age from 3 to 11 years ($M = 6.31, SD = 2.45$). These children were assigned to view a videotape of a model dressed to appear overweight and were a subset of children from a dataset in the Children and Community Laboratory (Lehmkuhl, 2005). Table 1 presents the number of male and female participants recruited in each age group. All participants were Caucasian. Children were recruited from ten preschools and seven elementary schools in or near a large Midwestern city. Average income for each school was obtained using data from the United States Census (US Census Bureau, 2000). Fifteen of the schools had average household incomes higher than the national mean (national $M = \$41,994$) and two schools were at or below the average reported in the national statistics (Lehmkuhl, 2005). Two Caucasian children, a boy and a girl, participated as models for the videotapes. Both children were seven-years-old. Parental

---

1 Children aged 12- and 13-years-old in Lehmkuhl’s (2005) sample were initially considered for inclusion in data analyses for this study. However, due to the small numbers of participants in these age ranges ($n = 14$), and the fact that their responses seemed to differ greatly from the other age ranges, the age range for the current study was limited to 3- to 11-year-olds.
consent and child assent were required for study participation (for the children and the models). The study was approved by a university-based Institutional Review Board.

Table 1

*Age and Gender of Children who Viewed Overweight Videotape*

<table>
<thead>
<tr>
<th>Age</th>
<th>Total</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>30</td>
<td>14</td>
<td>16</td>
</tr>
<tr>
<td>4</td>
<td>61</td>
<td>30</td>
<td>31</td>
</tr>
<tr>
<td>5</td>
<td>53</td>
<td>32</td>
<td>21</td>
</tr>
<tr>
<td>6</td>
<td>16</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>7</td>
<td>30</td>
<td>16</td>
<td>14</td>
</tr>
<tr>
<td>8</td>
<td>29</td>
<td>16</td>
<td>13</td>
</tr>
<tr>
<td>9</td>
<td>34</td>
<td>21</td>
<td>13</td>
</tr>
<tr>
<td>10</td>
<td>24</td>
<td>10</td>
<td>14</td>
</tr>
<tr>
<td>11</td>
<td>14</td>
<td>2</td>
<td>12</td>
</tr>
</tbody>
</table>

*Videotapes*

*Stimulus Videotapes.* Stimulus videotapes showed either the boy or girl model dressed to appear overweight either playing cards or kicking a ball. The models were dressed to appear overweight by adding sand, bunting, and cotton underneath similar clothing (a larger sweatshirt and jeans). Bags of sand were wrapped in cotton and bunting and secured under the children’s clothing with tape to increase their body size and weight.
Adding the bags of sand to the bunting allowed the children to “feel” heavier and move in a way more consistent with a larger body type. A psychologist specializing in human factors research also consulted on the costume and advised that the children were dressed in a believable manner. Given that children often prefer to interact with the same gender children (Cohen et al., 1989), children viewed models of the same gender. Lehmkuhl (2005) conducted a study to verify if the children judged the model to be overweight. Results from Lehmkuhl’s (2005) study indicated that children judged the model to be overweight in comparison to the average weight model after viewing both of the videotapes.

Measures

*Child Interview*. The *Child Interview* assessed children’s acceptance of the models in different situations (Lehmkuhl, 2005; Lehmkuhl et al., 2004; Lehmkuhl et al., 2002). Questions were developed from a review of literature on children’s acceptance of peers with physical differences (e.g., Bell & Morgan, 2000; Lehmkuhl, 2005; Nabors & Larson, 2002; Nabors & Morgan, 1993; Sigelman, 1991). Questions for the current study included: “How nice is Tom/Jackie?” “How bad is Tom/Jackie?” “How happy is Tom/Jackie?” “How smart is Tom/Jackie?” “How often is Tom/Jackie going to get in a fight?” “How often is Tom/Jackie angry?” and “How often is Tom/Jackie worried?” Questions were selected to assess children’s ratings of the target child on seven traits in order to determine the attributions made about that child. Another question used in data analyses was “How much is Tom/Jackie to blame or how much is it Tom/Jackie’s fault that he/she is fat?”
Tom was the name used in questionnaires presented to boys, while Jackie was the name used for girls. Appendix A presents all measures used in the current study as well as the rating system. Children responded to questions using 4-point Likert scales using smiley faces, words as anchors, and bars (no acceptance to very high acceptance; Lehmkuhl, 2005; Nabors & Larson, 2002; Nabors, Lehmkuhl, & Warm, 2003; see Appendix A). The smiley faces ranged from a frowning face indicating no or very little acceptance to a large smiley face indicating very high acceptance. Under each smiley face, a bar of a different size ranging from small (no acceptance) to large (high acceptance) was used for the preschool-age children. Bars were used to help the younger children understand “more” or “less” of a trait. Under each smiley face and bar, words designated the amount or strength of agreement for each item. For example, for the question “how much would you like to be friends with Tom/Jackie?” under the large smiley face and longest bar the form read “a lot/all the time” and under the frowning face and smallest bar the form read “not at all/never.” Children circled or indicated to the examiner, depending on the age of the child, the smiley face, bar, or word that corresponded to their desired response for that item.

Test-retest reliability for the Child Interview was assessed by Lehmkuhl (2005). Sixty-two other children, aged 3 to 13, viewed either the normal weight or overweight videotape and then were administered the Child Interview (time one). Two weeks later, the same procedure was completed with the same participants (time two). Mean acceptance ratings were positively correlated at time one and time two, indicating acceptable test-retest reliability ($r = .76, p < .001$).
Procedure

Administration of the Child Interview

Children viewed their assigned videotape and then completed the Child Interview. The Child Interview was developed by Dr. Nabors and has been used in previous research examining children’s acceptance of peers who are overweight (Lehmkuhl, 2003; Lehmkuhl, 2005; Lehmkuhl et al., 2002). All interviews took place in a room separate from the classroom. Children recruited from elementary schools (6- to 11-years-old) participated in small groups of four to six same-gender children and completed the Child Interview independently. Participants were instructed not to discuss their answers with the other children. An examiner was present in the event that a child had questions about the measure. All examiners were Caucasian. Some children completed the measures individually rather than in groups. This occurred primarily due to space constraints at the school (i.e., a large enough room was not available). Children recruited from preschools (3- to 6-years-old) participated individually with an examiner. During individual interviews, the examiner read items to the child and recorded their responses (Lehmkuhl, 2003; Lehmkuhl, 2005; Lehmkuhl et al., 2004; Lehmkuhl et al., 2002). Upon completing the Child Interview, all children received lollipops and/or stickers as a reward. Finally, the children returned to the classroom with the examiner. If a child did not want to participate, he/she drew a picture and then received the small prize, and returned to his/her classroom.
Data Analysis Plan

Using a reflective measurement model with confirmatory factor analysis, the seven traits were assessed to determine if they were representative of a single underlying factor, “judgment.” Next, a path model that includes the measurement model of “judgment” - a structural equation model (SEM) - was used to examine the relationships between blame/fault and judgment and the extent to which the relationships between judgment and gender, and judgment and age, were mediated by blame/fault.

The SEM (LISREL model; Jöreskog & Dörbom, 1999) can be perceived of as an extension of multiple regression. However, in this SEM, there is more than one dependent variable. SEM allows one to test a theory of causal order among a set of variables. A SEM that includes a measurement model provides two types of results: (1) whether or not the model is consistent with the observed data and (2) the magnitude of the hypothesized effects, given that the model fits the data. It is important to note that if the model is consistent with the observed data, the model is viewed as “plausible” rather than “correct” because multiple models may be consistent with the same observed data (Klem, 1995). The hypothesized SEM is illustrated in Figure 1, with the hypothesis that age would have a curvilinear relationship with blame/fault.
Several tools are typically used to assess model fit. The chi-square statistic is the most basic fit statistic (Kline, 2005). The chi-square statistic tests the degree of difference between observed covariances and those predicted by the solution. A non-significant chi-square statistic signifies that the model should not be rejected (i.e., that the model does fit the data). Despite the fact that the chi-statistic is widely used and reported, it has a significant problem. Specifically, the chi-square statistic is significantly affected by sample size, which may lead to a rejection of the model even though the differences between observed and predicted covariances may be minimal (Kline, 2005). Accordingly, researchers typically limit the sample size to 200, a number that is large enough to detect an effect, but that will not overly inflate the degrees of freedom of this statistic, when reporting the chi-square statistic.

Because of the constraints of the chi-square statistic, other indices are also typically used to determine model fit. As outlined in Kline (2005), I report the Root Mean
Square Error of Approximation (RMSEA) and the Standardized Root Mean Square Residual (SRMR). The RMSEA provides an estimate of the average absolute discrepancy between the model covariance estimates and the observed covariances. An RMSEA value less than .05 indicates a close approximate fit to the data, a RMSEA less than .08 represents a reasonable fit, and a RMSEA greater than or equal to .10 suggests a poor fit (Browne & Cudeck, 1993; Kline, 2005). The SRMR is a measure of the mean absolute correlation residual (i.e., the overall difference between the observed and predicted correlations). A SRMR value of less than .10 suggests a reasonably good fit to the data (Kline, 2005).

Results

Confirmatory Factor Analysis

To determine whether the seven traits were representative of a single underlying factor, called “judgment,” a confirmatory factor analysis was conducted using LISREL software (Jöreskog & Dörbom, 1999). The seven items from the Child Interview included “How nice is Jackie/Tom?,” “How often is Jackie/Tom going to get in a fight?” and “How happy is Jackie/Tom?” (see Appendix A). The error terms of the positively worded items, “How nice is Tom/Jackie?” “How happy is Tom/Jackie?” and “How smart is Tom/Jackie?” were allowed to covary. The correlated error terms for these positively worded items are a representation of measurement error (Ritchey et al., 2002). One item (“How often is Jackie/Tom going to get in a fight?”) was eliminated because it did not load reliably on the construct “judgment.” A model with the remaining six items loading on a single factor was determined to be a good fit of the data, \( \chi^2 (6, N \text{ set to } 200) = 10.88, p \geq .09 \). A Cronbach’s alpha was computed to determine the reliability for this scale, had
it been treated as a composite. This scale had a Cronbach’s alpha of .733, indicating adequate reliability.

The loadings of the items ranged from .47 to .63. While the loadings of the items were relatively close in number to one another, certain items clustered together. For example, items assessing how “bad” and “worried” Tom/Jackie was were similar (and lower) in loadings than the other questions. Similarly, items asking how “nice,” “happy,” and “angry” Tom/Jackie was were similar in loadings. The item assessing how “smart” Tom/Jackie was had the highest loading and was not as close to the other items’ loadings.

The loadings of the six-item solution are listed in Table 2.

Table 2

*Loadings of the Six Items for the One-Factor Solution for Judgment*

<table>
<thead>
<tr>
<th>Item</th>
<th>Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Not) Bad</td>
<td>.48</td>
</tr>
<tr>
<td>Nice</td>
<td>.54</td>
</tr>
<tr>
<td>Happy</td>
<td>.59</td>
</tr>
<tr>
<td>Smart</td>
<td>.63</td>
</tr>
<tr>
<td>(Not) Angry</td>
<td>.57</td>
</tr>
<tr>
<td>(Not) Worried</td>
<td>.47</td>
</tr>
</tbody>
</table>
Structural Equation Model

The hypothesized model (previously shown in Figure 1), allowing the error terms of the positively worded items comprising “judgment” to covary, provided a good overall fit, $\chi^2 (26, N \text{ set to } 200) = 32.25, p > .185$, RMSEA = .035 (90% confidence interval = .00 - .07), SRMR = .038. Once good fit was determined, the model was re-run to conduct the statistical testing with the actual $N (N = 291; \text{ see Figure 2})$.$^2$ Of note, for the variables in model, higher values are representative of higher positive judgment and less blame. Means and standard deviations for the six traits and blame are presented in Table 3. Blame was significantly and positive related to judgment, meaning those who scored higher on blame (meaning less blame) also score higher on judgment (meaning more positive judgment). The results of this analysis revealed significant relationships by age group, which are explained in the following paragraphs. However, gender was not significantly related to the blame or judgment variables.

$^2$ The covariances between variables in the structural model are presented in Appendix B.
Table 3

*Means and Standard Deviations for Six Traits and Blame*

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Not) Bad</td>
<td>3.01</td>
<td>1.09</td>
</tr>
<tr>
<td>Nice</td>
<td>3.48</td>
<td>0.92</td>
</tr>
<tr>
<td>Happy</td>
<td>3.51</td>
<td>0.85</td>
</tr>
<tr>
<td>Smart</td>
<td>3.38</td>
<td>0.92</td>
</tr>
<tr>
<td>(Not) Angry</td>
<td>3.02</td>
<td>1.03</td>
</tr>
<tr>
<td>(Not) Worried</td>
<td>2.88</td>
<td>1.04</td>
</tr>
<tr>
<td>Blame</td>
<td>2.80</td>
<td>1.26</td>
</tr>
</tbody>
</table>

Because age was expected to have curvilinear relationship with blame/fault (Richardson, 1970), this variable was dummy coded into three age groups: 3- to 4-year-olds, 5- to 8-year-olds, and 9- to 11-year-olds. Due to the dummy coding, the effects of age are not interpreted in the same manner as the other variables. Specifically, when entering dummy coded variables into the model, one group is left out, and is the "reference" category. The values of the variables left in the equation are reflective of mean differences between those groups and the group that was left out of the equation. For these sets of equations, the 3- to 4-year-olds had a significantly lower mean judgment value (meaning more negative judgment) than both the 5- to 8-year-olds and the 9-to 11-
year-olds. In addition, the 5- to 8-year-olds had significantly higher mean blame values (meaning less blame) than either of the other age groups; see Tables 4 and 5.

![Diagram](attachment:image.png)

*Figure 2. Mediation model of observed relations among variables. The numerical values represent standardized path coefficients (i.e., beta weights). *p < .05.*
Table 4

*Differences in Average Judgment among Age Groups where Gender and Blame are Controlled at Significance of .05*

<table>
<thead>
<tr>
<th>Age groups</th>
<th>Mean difference for Judgment</th>
</tr>
</thead>
<tbody>
<tr>
<td>3- to 4-year-olds contrasted with 5- to 8-year-olds</td>
<td>-0.268</td>
</tr>
<tr>
<td>3- to 4-year-olds contrasted with 9- to 11-year-olds</td>
<td>-0.229</td>
</tr>
<tr>
<td>5- to 8-year-olds contrasted with 9- to 11-year-olds</td>
<td>ns</td>
</tr>
</tbody>
</table>

Table 5

*Differences in Average Blame among Age Groups where Gender and Judgment are Controlled at Significance of .05*

<table>
<thead>
<tr>
<th>Age groups</th>
<th>Mean difference for Blame</th>
</tr>
</thead>
<tbody>
<tr>
<td>3- to 4-year-olds contrasted with 5- to 8-year-olds</td>
<td>-0.302</td>
</tr>
<tr>
<td>3- to 4-year-olds contrasted with 9- to 11-year-olds</td>
<td>ns</td>
</tr>
<tr>
<td>5- to 8-year-olds contrasted with 9- to 11-year-olds</td>
<td>0.195</td>
</tr>
</tbody>
</table>

To further examine the effects of age, other analyses were performed comparing the age group that had a significant effect on an endogenous variable to the other two age groups combined. Specifically, the 3- to 4-year-olds were compared to the other two age groups (combined) on the judgment variable, resulting in a value of -.239, which is the
direct effect of age on judgment. Next, the 5- to 8-year-olds were compared to the other
two age groups (combined) on the blame variable, resulting in a value of .158. The
indirect effect of age on judgment was calculated by multiplying the effect of age on
blame (with 5- to 8-year-olds compared to the other two age groups; .158) by the direct
effect of blame on judgment (.276; see Figure 2). Finally, the total effect of age on
judgment was calculated by summing standardized coefficients of the indirect effect of
age on judgment and the direct effect of age on judgment, resulting in a value of -.195.

Stated differently, the direct effect of age on judgment (with 3- to 4-year-olds
 contrasted to the other two age groups) was compared to the indirect effect of age on
judgment, mediated by blame (with 5- to 8-year-olds contrasted to the other two age
groups). These results indicated that being aged 5 to 8 (in contrast to the other two age
groups) had a modest indirect upward pressure on average judgment, through blame.
Further, being aged 3 to 4 (in contrast to the other two age groups) had a modest direct
downward pressure on average judgment. Thus, the tendency for the very young to
attribute lower positive judgments (designated by significantly lower path coefficient) is
offset by the 5- to 8-year-old groups’ tendency to assign blame to a lower extent
(indicated by their significantly higher path coefficient) than the 3- to 4-year-olds and for
this lower attribution of blame to lead to lower negative judgments. Despite this, the
major difference that resulted was lower attributed positive judgments by the 3- to 4-
year-olds than the other age children, which is reflected in the total effect (-.195) of age
on judgment.
Discussion

Summary of Study Findings

This study examined the relationships between gender, age, blame, and attributions about an overweight peer. As expected, children who provided “higher” blame ratings also reported lower judgment (proxy variable for acceptance) of the child in the videotape. It was also expected that blame would mediate the relationships between age and gender and judgments about the overweight peer. Study results confirmed this expectation for one of the age groups; blame did, in fact, mediate the relationship between age and judgments about an overweight peer, but only for 5- to 8-year-olds. In addition, study findings indicated that age had a curvilinear relationship with blame and judgment, but were not consistent with Richardson’s (1970) findings, using a model depicted as obese, with regard to which particular age group was the most accepting. Study results confirmed Lehmkuhl’s (2005) findings, showing that elementary school-aged children (aged 5- to 8-years-old) reported lower levels of blame for the overweight peer model compared to the other two age groups. However, this study extended Lehmkuhl’s (2005) results by documenting a curvilinear relationship. Interestingly, the youngest age group (aged 3- to 4-year-old) reported lower judgment scores (indicating lower acceptance) compared to the other two age groups. Therefore, early intervention to improve young children’s attitudes is advisable and studies are needed to determine whether interventions lead to improved attitudes in early adolescence. The next four sections of this discussion address whether study aims were supported by results of data analyses.
Aim 1: Determine whether the seven traits measured in this study reflect a single, unidimensional factor, “judgment.”

Results of the confirmatory factor analysis revealed that a six-item, rather than a seven-item, solution best fit the data. Therefore, results partially supported Aim 1. Because the six items loaded on one factor, these items are reflective of the same theoretical construct. Therefore, research findings suggest that ratings for different traits truly reflect judgment, and perhaps even shorter measures may be used in order to determine children’s judgments about their peers.

It is interesting to note that the more positive traits (e.g., happy, smart, nice) had higher loadings than the negative traits (e.g., worried, angry, sad) on “judgment.” Perhaps children’s judgments of their peers’ positive traits are more representative of how they feel about their peers than their judgments of negative traits. On the other hand, children may have been influenced by a social desirability bias, with participants being less willing to make unfavorable judgments about their peers in order to avoid appearing judgmental or prejudiced to the examiners.

The item “How often is Jackie/Tom going to get in a fight?” was eliminated because it did not reliably load onto the factor “judgment.” The elimination of this item was not entirely surprising because it is thought to be more representative of the child’s behavior than an actual trait. If the item had been worded “How mean is Jackie/Tom?” perhaps the factor analysis might have yielded different results, with this question loading on the factor “judgment.” Post-hoc analyses revealed that children’s ratings of “How often is Jackie/Tom going to get in a fight?” were significantly associated with how much blame was assigned to that child ($r = .448, p < .001$). Thus, although the “fight” item did
not load onto “judgment,” it was related to blame in a similar manner to the negatively worded trait items. Therefore, after rewording the question to reflect a child’s aggressive tendencies, this trait should be considered in future studies.

*Aim 2: Examine the relationship between blame/fault and “judgment,” with the prediction that higher blame/fault will be associated with more negative judgment.*

Higher blame scores (indicating lower levels of blame) were related to higher judgment scores (indicating more favorable judgments about the models), meaning that Aim 2 was supported. Thus, children reporting higher levels of blame were also less accepting of the overweight child. Also, those children who were blaming the overweight child less for his/her condition were also attributing fewer positive traits to the child. These results are consistent with previous work in this area (e.g., Musher-Eizenman et al., 2004; Sigelman & Begley, 1987). Moreover, the findings of the current study are compatible with the tenets of attribution theory (Weiner, 1986), which state that believing that an individual is at fault for his/her condition leads to less favorable reactions toward this individual.

Overall, in inspecting the mean ratings for the trait scores, it appears that children were fairly positive in terms of their trait ratings (means ranging from 2.88 to 3.51). This means that children were fairly positive about the characteristics of the overweight child. The ratings of blame, however, also were in the mid-range of the scale ($M = 2.80$), indicating that children did attribute some blame to this child for his or her condition. Inspection of data for individual children indicated that some children tended to blame the model more than others. When developing interventions, it may be advantageous to assess attributions of blame to determine whether a child needs to be in an intervention
program or needs to participate in a more expansive program to change his or her attitudes toward peers who are overweight.

These results have several implications for intervention. If children are blaming an overweight child for his/her condition, which then leads to less favorable attitudes toward that child, it may be that blame itself should be targeted as the focus of intervention. Perhaps intervening at the level of blame could prevent attitudes that are not as accepting, thus avoiding the potentially stigmatizing interactions that likely follow negative judgment. In addition, because ratings for more “positive” traits for the overweight child were fairly optimistic, it may be that only some children, who provided lower ratings of positive traits and higher blame ratings, need to participate in intervention programs. An intervention that alerts these children to the many causes of being overweight might help divert the causal controllability that children assign to their overweight peers. If children understand that being overweight is not entirely due to an individual’s eating and exercise habits, they might be less apt to blame their overweight peers, which would also improve acceptance of these children.

*Aim 3: Examine the relationship between gender and judgment, as mediated by blame/fault.*

The effects of gender on blame and on judgment were evaluated in the path model. To our knowledge, previous research has not assessed gender differences in these two variables for such a large age range, controlling for age. However, gender did not have a significant relationship with either endogenous variable, and therefore Aim 3 was not supported. This result is consistent with other studies that have shown no gender differences in perceptions of overweight peers (e.g., Brylinsky & Moore, 1994; Cramer &
Steinwert, 1998). Other researchers (e.g., Bell and Morgan, 2000; Cohen et al., 1989), who assessed gender differences without controlling for effects related to children’s ages, may have found differences that were related to developmental rather than gender differences. The fact that the results of the current study indicated that boys and girls provided similar responses is encouraging, in that it suggests that they might respond similarly to interventions to reduce perceptions of blame toward children who are overweight. I had expected girls to have more positive attitudes, but the fact that they attributed a similar level of blame as boys might have occurred because girls have become more relationally aggressive toward peers than in the recent past, and girls who exhibit higher levels of relational aggression could be more likely to be less accepting of their peers (Conway, 2005).

**Aim 4: Examine the relationship between age and judgment, as mediated by blame/fault, with the hypothesis that age would have a curvilinear relationship with both judgment and blame.**

The impact of age was evaluated for three age groups (3- to 4-year-olds, 5- to 8-year-olds, and 9- to 11-year-olds). While the relationships between age and blame and age and judgment were curvilinear, these results differed depending on the endogenous variable being explored. Specifically, 3- to 4-year-olds had significantly lower positive judgments than the other age groups, meaning that they were least accepting of their overweight peers. Five- to 8-year-olds blamed the child less for his/her weight status compared to children in the other age groups. These results confirmed Lehmkuhl’s (2005) findings, that elementary school-aged children provided relatively more positive ratings about their overweight peer. Results were curvilinear, which is consistent with
Richardson’s (1970) notion that children of different ages have differing attitudes toward peers with physical differences. Given that different age groups were significantly related to different endogenous variables, it is important to continue to assess the nature of the relationship between age and children’s perceptions of their overweight peers in future studies. Qualitative methods may help researchers understand what children of different ages mean when they refer to an overweight child as being to blame for his/her weight status. Also, it would be important to add older participants (in high school) to the sample to determine if older adolescents would provide ratings indicating a negative view of the overweight child and relatively higher levels of blame for the child. Including a greater number of adolescents in future studies would allow for further analysis of the effects of blame on peer relationships in early adolescence and allow researchers to reexamine Richardson’s (1970) findings.

Results suggested that the youngest children were less accepting of the overweight models compared to the 5- to 8-year-olds, which is consistent with the findings of Cramer and Steinwert (1998) and Lehmkuhl (2005). According to cognitive-developmental theory (Piaget, 1929), young children (pre-school aged) tend to focus on the external attributes of their peers, and often believe that a peer’s physical attributes will be representative of their internal attributes, such as personality and behavior. Following this theory, if young children do not like their peers’ physical attributes, they may provide less favorable opinions about their peers’ internal attributes. This may be the reason that children in the youngest age group provided the least positive ratings. Examining young children’s reasons for reporting their ratings may provide information that is consistent with Piaget’s theory.
Five- to 8-year-olds assigned significantly less blame for the overweight child compared to the younger and older age groups. Children in this age group may be more accepting of peers’ weight status because they are beginning to learn that physical differences might not be representative of their peers’ internal attributes (Cramer & Steinwert, 1998). These findings suggested that interventions should be aimed at very young children, who might only attend to physical attributes of their peers (Cramer & Steinwert, 1998; Sigelman et al., 1986) and older children (aged 9 and above), who may be more concerned with the impact of physical attributes on peer acceptance (Jones & Crawford, 2006; Neumark-Sztainer et al., 2002). If interventions are directed toward the youngest age group, it may be possible to prevent the problems with acceptance that occur when the children become older, providing evidence for the success of “early” intervention. Developing interventions for older youth may still be helpful, especially for those children that tend to blame children for being overweight.

Limitations of the Current Study

Several factors limit the interpretation of results from this study. Most importantly, the current study only included Caucasian children as participants, which may limit the generalizability of the results. The models in the videotapes were both Caucasian, and children viewed a model of the same racial group in order to eliminate the potentially confounding effects of race and perceptions of ideal body weight on attitudes about overweight peers (Lehmkuhl, 2005). Research has shown that cultural or ethnic group differences affect acceptance of overweight body types (Flynn & Fitzgibbon, 1996). Specifically, research has suggested that African-American children may have larger ideal body sizes and tend to be less concerned about their weight than Caucasian
children (Adams et al., 2000; Thompson, Rafiroiu, & Sargent, 2003). In our study, it might have been the case that African-American children would have been more accepting toward the overweight child. Accordingly, future studies should examine attitudes about overweight peers in other racial groups.

Another limitation was that the ages of the models in the videotapes were not matched to the age of the participants. The models in the videotapes were seven-year-olds, which is in the middle age group for study analyses. Because the model was either older or younger than the children in the other two groups, the age of the model could have influenced children’s ratings of the model’s traits. For example, the overweight, seven-year-old model may have appeared even more overweight to a three-year-old because the model was bigger than typical age peers. Alternatively, the overweight, seven-year-old model may have appeared large to an eleven-year-old because the child looked unusually short and heavy compared to most children in their age range. Matching the age of the models to the age range of children providing acceptance ratings might have yielded different results, making this an issue for additional research endeavors.

Further, one can not understand what blame meant for the child providing the ratings. Specifically, blame could have meant different things to different children. As mentioned, future research should consider a qualitative approach to examine what blame means to individual children. When this issue is investigated, researchers can ask children why they assign blame, and ask about children’s reasons for “blaming” their overweight peers.

Next, the weight of the participants was not measured in this study. Weight status of the participant as it relates to assignments of blame to an overweight peer has not yet
been studied for such a large age range. Cramer and Steinwert (1998) discovered that overweight raters were as likely to provide negative ratings for the overweight target child as raters who were thin and average weight. However, these researchers did not investigate relations among mediating variables, such as blame and children’s attitudes. In a study assessing ratings of blame for overweight children, it could be the case that overweight participants would assign less blame to children they perceive to look similar in body shape to themselves, providing a sympathetic reaction to these children. Average or underweight participants might assign more blame to the overweight child because they perceive the child to be different from themselves, as would be suggested by in-group bias (Tajfel, 1982). As a result, including participants’ weight would be an important next step in a future study when assessing for blame assignment.

In addition, the positive and negative items loaded slightly different on the “judgment” factor, with the more positive items loading more highly on the factor. Further, the “fight” item did not reliably load on “judgment” and was dropped, although it did correlate with blame, suggesting that overweight children may be judged to be more aggressive by their peers who tend to blame children for their overweight status. Consequently, had this item from the Child Interview (Lehmkuhl, 2005; Lehmkuhl et al., 2004; Lehmkuhl et al., 2002) been reworded, it would load on the judgment factor.

Finally, aspects of the research design could limit interpretation of study results. First, because this is an analog study, it is uncertain whether participants actually believed the child in the videotape was a “real” child. Their perceptions of the situation as being “unrealistic” might have influenced their ratings. It will be important to assess children’s behavior toward their overweight peers in “real world” settings, such as
observational research studies in classroom and neighborhood environments. Second, this study was cross-sectional in nature, which does not allow us to make inferences on the progression of an individual child’s perceptions of an overweight peer. Future research should employ longitudinal designs to investigate this progression.

Future Directions

There are several directions that should be considered for future work in this area. For one, examining the perceptions of other racial groups about overweight status will be an important next step, especially given that racial groups differ on opinions of ideal body size (Adams et al., 2000; Thompson, Rafiroiu, & Sargent, 2003). Next, older children’s perceptions, especially those of teenagers, should be considered. This age might be a crucial age range to consider given that teenagers are more interested in dating and are focused on “looks” of other children (Craig & Dunn, 2007). Further, elucidation of the effects of blame on overweight children should be investigated. If children are being blamed for being overweight, do they know? If so, how does being blamed for their condition make them feel, and what can be done to aid these children in coping with being blamed for their different physical condition? Finally, studying not only children’s attitudes about, but also behavior toward their overweight peers will be an important next step in the research in order to determine whether attitudes are consistent with behavior.

Conclusion

Study results provided information regarding children’s perceptions of their overweight peers. Children may be somewhat less accepting of peers who are overweight at very young ages. In their elementary school years, they may blame these children less for their physical differences, resulting in more accepting attitudes toward youth who are
overweight. However, improvement in attitudes may not be maintained in early adolescence, which is another developmental stage at which children may be less accepting of their peers who are overweight. Accordingly, both preschoolers and adolescents may need to be targeted for interventions aimed at improving their attitudes toward overweight peers. Results also indicated that children who blamed their peers for being overweight were more likely to have less favorable attitudes toward these children. Future research should be directed at examining factors that are associated with blaming of children who are overweight, such as qualitative studies elucidating the reasons behind children’s assignments of blame.

In summary, study findings help us understand more about children’s perceptions of their overweight peers, which also leads to a greater understanding of how to apply these findings clinically and practically. Learning that higher levels of blame leads to lower acceptance of children who are overweight helps to inform clinicians, who should design and deliver interventions to address this factor. In addition, identifying the age groups that seem to be more “at risk” for being less accepting of their overweight peers allows practitioners to focus interventions toward age groups that may benefit most from participating in interventions to improve peer interactions.
References


Kelehar, R. (Executive Producer). (2006). *Honey, we’re killing the kids* [Television Series]. TLC.


Appendix A:

Measures

*Child Interview* for Elementary School-Age Children and Preschoolers

Rating System used with Preschool Children to Complete the *Child Interview*
Questions from the Child Interview

1. How nice is Jackie/Tom?

Always  Sometimes  A Little Bit  Not

2. How bad is Jackie/Tom?

Never  Sometimes  Once in a while  All the time

3. How happy is Jackie/Tom?

Very  Sometimes  A little bit  Not

4. How smart is Jackie/Tom?

Very  Sometimes  A little bit  Not
5. How often is Jackie/Tom going to get into a fight?

- Never
- Sometimes
- Once in a while
- All the time

6. How often is Jackie/Tom angry?

- Never
- Sometimes
- Once in a while
- All the time

7. How often is Jackie/Tom worried?

- Never
- Sometimes
- Once in a while
- All the time

8. How much is Jackie/Tom to blame or how much is it Jackie/Tom’s fault that she/he is fat?

- Not her/his fault
- A little bit her/his fault
- Mostly her/his fault
- All her/his fault
A Lot/All The Time

Not at All/Never

Little Bit

Once in a While or a Little Bit

Sometimes or Some

Not at All/Never

Rating System used with Preschool Children to Complete the Child Interview

53
Appendix B:

Covariances Between Variables in Structural Model
### Appendix B

*Covariance Matrix for Variables in Model*

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. (not) bad</td>
<td>1.16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. nice</td>
<td>0.32</td>
<td>0.97</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. happy</td>
<td>0.27</td>
<td>0.36</td>
<td>0.71</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. smart</td>
<td>0.30</td>
<td>0.40</td>
<td>0.39</td>
<td>0.84</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. (not) fight</td>
<td>0.50</td>
<td>0.62</td>
<td>0.25</td>
<td>0.47</td>
<td>1.47</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. (not) angry</td>
<td>0.25</td>
<td>0.24</td>
<td>0.35</td>
<td>0.30</td>
<td>0.50</td>
<td>1.04</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. (not) worried</td>
<td>0.27</td>
<td>0.24</td>
<td>0.18</td>
<td>0.27</td>
<td>0.21</td>
<td>0.34</td>
<td>1.07</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. gender</td>
<td>-0.02</td>
<td>0.04</td>
<td>0.02</td>
<td>0.00</td>
<td>0.02</td>
<td>0.03</td>
<td>0.04</td>
<td>0.25</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. blame</td>
<td>0.17</td>
<td>0.23</td>
<td>0.06</td>
<td>0.30</td>
<td>0.68</td>
<td>0.20</td>
<td>0.19</td>
<td>0.03</td>
<td>1.60</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Age Ranges</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. 3- to 4-year-olds</td>
<td>-0.05</td>
<td>-0.10</td>
<td>-0.06</td>
<td>-0.06</td>
<td>-0.05</td>
<td>-0.04</td>
<td>-0.05</td>
<td>0.00</td>
<td>-0.02</td>
<td>0.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. 5- to 8-year-olds</td>
<td>0.02</td>
<td>0.07</td>
<td>0.05</td>
<td>0.03</td>
<td>0.04</td>
<td>0.08</td>
<td>0.04</td>
<td>-0.02</td>
<td>0.10</td>
<td>-0.13</td>
<td>0.24</td>
<td></td>
</tr>
<tr>
<td>12. 9- to 11-year-olds</td>
<td>0.04</td>
<td>0.06</td>
<td>0.02</td>
<td>0.04</td>
<td>0.01</td>
<td>-0.02</td>
<td>0.02</td>
<td>0.01</td>
<td>-0.08</td>
<td>-0.07</td>
<td>-0.10</td>
<td>0.18</td>
</tr>
</tbody>
</table>