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PERCEPTIONS OF PEDIATRIC OVERWEIGHT AND WEIGHT MANAGEMENT:
A COMPARISON OF PARENTS AND PHYSICIANS

A Thesis
Presented to
The Faculty of the Department of Public Health
Western Kentucky University
Bowling Green, Kentucky

In Partial Fulfillment
Of the Requirements for the Degree
Master of Public Health

By
Lisa K. Thomason

May 2004

PERCEPTIONS OF PEDIATRIC OVERWEIGHT AND WEIGHT MANAGEMENT:
A COMPARISON OF PARENTS AND PHYSICIANS

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PERCEPTIONS OF PEDIATRIC OBESITY AND WEIGHT MANAGEMENT:
A COMPARISON OF PARENTS AND PHYSICIANS

Lisa Thomason

May 2004

32 pages

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Pediatric overweight is of paramount importance in Kentucky, as studies show prevalence rates are higher in the state than the national average. Research suggests that comprehensive treatments involving diet training, exercise training, and psychological counseling are most effective at reducing overweight in children. Little research has been done, however, to compare parents' and physicians' perceptions of obesity, its treatment, or barriers to weight management.

The purpose of this study is to examine differences in attitudes toward pediatric obesity and weight management among parents and physicians, specifically related to the importance of diet training, exercise training, and psychological counseling. Surveys were sent to a population of pediatricians and family practitioners serving pediatric patients in the ten-county Barren River Area Development District of south-central Kentucky and to a convenience sample of 160 parents, identified when they brought their child(ren) to a physician for an office visit.

Data were analyzed 1) descriptively and 2) inferentially to test hypotheses. Frequencies and measures of central tendency were conducted on categorical and continuous data. A series of t-tests were conducted at a 95% confidence interval to determine if differences existed

between parents and physicians concerning the importance of 1) diet training, 2) exercise training, or 3) psychological counseling to pediatric weight control.

Results showed a 42.9% prevalence of overweight among the children of sampled parents. Results also showed that physicians rated the three treatment modalities under study as significantly more important than did parents. Additionally, parents and physicians identified different barriers to the successful treatment of child overweight. While physicians felt child and family adherence issues presented the largest barriers, parents cited cost and self-esteem concerns as larger barriers to pediatric weight management.

This study has many public health implications, including potential benefits from awareness efforts and educational training related to the identification of child overweight and the importance of a comprehensive treatment strategy. Additionally, physicians who are aware of parents' concerns related to finances and their child's self-esteem might be able to tailor their educational efforts to address those concerns, thus increasing treatment adherence.

Introduction

Data gathered through the National Health and Nutrition Examination Surveys (NHANES) show the prevalence of childhood obesity has doubled since 1963, reaching 13% nationally in 1999 (Gidding, et al., 1996; Tietzen, Boosalis, Clasey, Ringley, & Henry, 2002). These numbers are disturbing, as the health problems associated with obesity include cardiovascular disease, diabetes mellitus, hypoventilation, arthritis, and cancer, as well as numerous psychosocial problems, such as social stigmatization and low self-esteem (Gidding, et al., 1996; Tietzen, et al., 2002). Longitudinal studies suggest that overweight children, and especially overweight adolescents, typically remain overweight into adulthood, further increasing their risks for significant health problems and decreasing their overall quality of life (Gidding, et al., 1996; Freedman, Khan, Dietz, Srinivasan, & Berenson, 2001). Overweight and obesity also carry economic consequences, usually related to type II diabetes mellitus, cardiovascular disease, or hypertension. In 2000, estimated costs attributed to overweight and obesity in the United States reached \$117 billion (Tietzen, et al., 2002).

While national childhood obesity rates are high, some studies show that the rates in Kentucky are even higher. In a study of children enrolled in Kentucky's Women, Infants, and Children (WIC) supplemental feeding program, the percentage of overweight children had increased 19% in the previous five years (Tietzen, et al., 2002). A study of rural children in the Appalachian region of Kentucky found the prevalence of obesity to be 33% (Crooks, 1999 and 2000). In Owensboro, prevalence of obesity in the 15,000 children studied was 21% (Tietzen, et al., 2002).

Because of the seriousness of the problem, the Surgeon General in 2001 issued *The Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity* (U.S.

Department of Health and Human Services, Surgeon General). The document asks state and local governments to establish goals to effectively reduce overweight and obesity.

Although treatment of pediatric obesity is a relatively new phenomenon, programs that focus on diet training, exercise training, and psychological counseling, including behavior modification techniques, have been shown to be most effective (American Academy of Pediatrics, 2002; Drohan, 2002). Additionally, programs that involve the entire family, rather than the child alone, are most successful, highlighting the importance of parents in the treatment of child overweight (Drohan, 2002).

Research Problem

In order to effectively combat childhood obesity, parents and physicians must be in agreement concerning what constitutes obesity and how it can best be treated and prevented. Such a consensus may already exist in Kentucky, or it may need to be promoted through educational efforts and constructive patient-provider communication. Once an agreement exists, parents and physicians can work together to address childhood obesity in individual cases and in communities.

To assess whether or not such an agreement exists, many questions must be answered. Are parents and physicians equally adept at identifying overweight in children? Do the groups agree on the roles played by genetics and by lifestyle in the etiology of overweight? Do the groups agree on the importance of diet training, exercise training, and psychological counseling in the prevention and treatment of overweight? Do physicians and parents identify the same barriers to treatment of overweight in children? If the answer to any of these questions is No, it becomes the role of public health educators to present information to one or both of the groups

until parents and physicians can become effective partners in addressing healthy weight in their children and patients.

The purpose of this study is to ascertain if differences exist in knowledge and attitudes towards childhood obesity and its potential for treatment between parents and health care providers of pediatric patients in the Barren River Area Development District (BRADD) of south-central Kentucky.

Hypotheses

H_0_1 : There will be no difference between parents and physicians related to belief regarding the importance of diet training for treatment of pediatric obesity.

H_0_2 : There will be no difference between parents and physicians related to belief regarding the importance of exercise training for treatment of pediatric obesity.

H_0_3 : There will be no difference between parents and physicians related to belief regarding the importance of psychological counseling for treatment of pediatric obesity.

Review Of Literature

Numerous studies have been conducted to determine practitioners' attitudes and beliefs about obesity. Hoppè and Ogden (1997) questioned 586 primary care nurses concerning their beliefs about obesity, their treatment practices, and their own Body Mass Index (BMI). Results suggest that nurses believed lifestyle factors were larger causes of obesity than biological factors and that patient non-compliance was the most likely reason cited for treatment failures. The nurses rated obesity as a serious health threat and believed overweight individuals were more likely to suffer medical problems than normal weight individuals. The majority of nurses were confident in their abilities to give weight loss advice, but few were confident that their patients would lose weight. Nurses who worked in weight loss clinics were more confident in giving advice and in patient outcomes than other nurses. Nurses with high BMI values believed obesity was less preventable than those with lower BMIs (Hoppè and Ogden, 1997).

Other studies also indicate that practitioners are pessimistic about weight loss success. Price, Desmond, Krol, Snyder, and O'Connell (1987) surveyed general practitioners and found that only 29% believed overweight people could lose significant amounts of weight. In the same survey, 37% of the practitioners believed patients could not maintain their weight loss. A study by Cade and O'Connell (1991) reported that general practitioners believed they were less effective than family members or the media in persuading their patients to lose weight.

Research has suggested some factors can influence health professionals' attitudes and beliefs regarding obesity. Studies of dietitians found that dietitians who had a personal experience with weight problems were more likely to have positive attitudes regarding their overweight patients (Maiman, Wang, Becker, Finlay, & Simonson, 1979; Oberrieder, Walker, Monroe, & Adeyanju, 1995). A survey among female nurses found that older nurses and nurses

who were dissatisfied with their own weights were more likely to have negative attitudes towards obesity and overweight individuals (Bagley, Conklin, Isherwood, Pechiulis, & Watson, 1989).

Nurses with more years of professional education, however, were more likely to have more favorable attitudes (Bagley, et al., 1989).

Less research has been done concerning parents' beliefs about obesity or about physicians' beliefs about childhood obesity specifically. In 2001, a group of researchers staged focus groups with 18 low-income mothers to determine their perceptions of their children's weight statuses, the etiology of childhood obesity, and barriers to its treatment (Jain, et al., 2001). The researchers found that the mothers distrusted growth charts; these mothers would not be concerned about a child in the upper percentiles of a growth chart unless that child was inactive or was teased by his/her peers. The mothers also said they would not be concerned about a child's weight if he/she ate predominantly healthy foods. They believed that overweight children would eventually gain enough height to "grow into" their weight and that a child's growth patterns were genetic and largely unchangeable (Jain, et al., 2001).

Baughcum, et al. (2001) used two surveys to question 1,087 mothers about their feeding practices and beliefs related to obesity in their children. Results indicated that overweight mothers were more concerned about their infants becoming underweight than mothers who were not overweight. Results also indicated that mothers of overweight children were more concerned about their child overeating than mothers of children who were not overweight. The study also found that 80% of mothers with one or more overweight children between 23 months and 60 months of age did not consider their child to be overweight (Baughcum, et al., 2001).

Price, Desmond, Ruppert, and Stelzer (1989) surveyed 500 pediatricians concerning their attitudes, beliefs, and practices related to childhood obesity. Of the 324 physicians who

responded to the survey, 83% strongly agreed that pediatricians were obligated to counsel the parents of obese children concerning the health risks of obesity, but only 22% felt very competent in prescribing weight loss programs. Seventy percent of the pediatricians reported that counseling children and their parents about weight loss was difficult, and only 11% reported it was professionally gratifying. Few of the pediatricians strongly agreed that childhood obesity was becoming more prevalent, and only 23% believed that obese children had more medical problems than non-obese children. The study found no differences in attitudes towards obesity between male and female pediatricians or between overweight and non-overweight pediatricians (Price, et al., 1989).

Methods

The data for this thesis research were taken from two surveys administered as part of a CATCH planning grant funded by the American Academy of Pediatrics. The surveys included 1) a physician survey and 2) a parent survey. The physician survey is an original instrument designed for the grant. The parent survey was a modified version of an instrument designed and tested in 1989 by Price, et al. to determine perceptions and practices regarding childhood obesity. The internal validity of their survey was assessed using Cronbach's alpha and was found to have a reliability coefficient of .79.

Participants and Eligibility

For the purpose of this study, a physician was defined as any pediatrician or general/family practitioner listed with the Western Kentucky Institute for Rural Health Development and Research who practices in one of the 10 counties in BRADD and sees pediatric patients. Based on this definition, 86 physicians were identified, representing the total population of physicians in the area who see pediatric patients.

A parent was defined as any person, male or female, with at least one child. A child was defined as any son or daughter by birth, any stepchild, or any adopted child under the age of 15 who has never married. For this study, 160 parents were identified and included in the sample when they brought their child(ren) to a physician's office for a patient visit.

Data Collection

Physician survey. Data were collected through a confidential, standardized, self-administered, written questionnaire. The questionnaires were mailed, along with a cover letter

explaining the purpose of the study, to each of the 86 physicians identified. Included in the mailing were self-addressed, stamped envelopes and a fax number, providing two alternative methods of returning the survey. A month after the original mail out, a second copy of the cover letter and questionnaire, as well as a second self-addressed, stamped envelope, was sent to each of the physicians who had not responded to the survey. Such an action has precedent for increasing physician response (Price, et al., 1989). The Institutional Review Board at Western Kentucky University approved this study.

Parent survey. The parent questionnaires were distributed from 19 physician practices that had granted permission for the distribution in an item on the physician survey. Practices were delivered 25 copies of the parent survey and a self-addressed, stamped envelope to return the surveys. Included in the packet were suggested guidelines for administering the survey. Office associates were asked to hand the surveys to parents as they brought their children in for appointments. The parent was instructed to complete the survey while in the waiting area and return it to the office associate. Practices were asked to return the surveys en masse within six weeks. Phone calls were made to each of the practices one week after delivering them to ensure they had been received and to answer any questions the physicians or office staff had. The Institutional Review Board at Western Kentucky University also approved this study.

Sample Size

Physician survey. Of the 86 physicians identified in the population, 44 returned questionnaires. The responding physicians represented six of the 10 counties in BRADD: Barren, Butler, Edmonson, Hart, Logan, and Warren.

Parent survey. A convenience sample of 160 parents completed questionnaires. Because packets of 25 surveys had been sent to 19 physician practices, this number represents 33.7% of the potential sample size. Respondents represented eight of the 10 counties in BRADD: Barren, Butler, Edmonson, Hart, Logan, Metcalfe, Simpson, and Warren.

Measures

Demographics

Physician survey. In an open-ended question, respondents were asked to give the city and county in which their practice was located. They were also asked to identify their medical specialty as “pediatrics,” “family practitioner,” or “other.” If “other” was selected, an open-ended response option allowed respondents to indicate their specialty.

Parent survey. Parent respondents were asked to give their age, measured as a continuous variable, as well as their gender and ethnicity, both measured nominally. They were also asked in an open-ended question for the city and county in which they resided.

Prevalence of Child Overweight

Physician survey. Respondents were asked to estimate the percentage of their patients, ages 3 through 14, who were overweight. The item was measured as a continuous variable.

Parent survey. Respondents were asked to provide the gender, measured nominally, and age, height, and weight, measured continuously, of all their children under the age of 15. Based on these data, a BMI value was computed for each child to determine weight status of that child.

The BMI formula used in the calculations was:

$$\text{BMI} = \frac{\text{weight (in pounds)}}{\text{height (in inches)}^2} \times 703$$

Using BMI-for-Age growth charts developed by the Centers for Disease Control and Prevention in 2000 (Dalton and Watts, 2002), BMI values were plotted to determine a BMI-for-age percentile. Percentiles were recoded into categories of “average” (BMI-for-age percentile $\leq 84\%$), “overweight” (BMI-for-age percentile 85%-94%), or “obese” (BMI-for-age percentile $\geq 95\%$). Parents were also asked to rate their perception of each child’s weight status as “underweight,” “average,” “overweight,” or “obese.” The parent’s perceived status was then compared to the child’s actual status.

Diet Training

Physician survey. A five-point scaled item was used to assess the importance of diet training to a weight loss program. Physicians were asked to rate “...how important [diet training] is for a pediatric weight control clinic/program.” The scale was anchored by the responses “Not important” (1.0) and “Very important” (5.0). For descriptive purposes, data were recoded and trichotomized into: “Not important” (1.0-2.3), “Neutral” (2.4-3.6), and “Important” (3.7-5.0).

Parent survey. A five-point scaled item was used to assess agreement with the statement, “Nutrition counseling...is an important part of a weight loss program.” The scale was anchored by the responses “Strongly Disagree” (1.0) and “Strongly Agree” (5.0). For descriptive purposes, data were recoded and trichotomized into: “Disagree” (1.0-2.3), “Neutral” (2.4-3.6), and “Agree” (3.7-5.0).

Exercise Training

Physician survey. A five-point scaled item was used to assess the importance of exercise training to a weight loss program. Physicians were asked to rate "...how important [exercise training] is for a pediatric weight control clinic/program." The scale was anchored by the responses "Not important" (1.0) and "Very important" (5.0). For descriptive purposes, data were recoded and trichotomized into: "Not important" (1.0-2.3), "Neutral" (2.4-3.6), and "Important" (3.7-5.0).

Parent survey. A five-point scaled item was used to assess agreement with the statement, "Exercise counseling...is an important part of a weight loss program." The scale was anchored by the responses "Strongly Disagree" (1.0) and "Strongly Agree" (5.0). For descriptive purposes, data were recoded and trichotomized into: "Not important" (1.0-2.3), "Neutral" (2.4-3.6), and "Important" (3.7-5.0).

Psychological Counseling

Physician survey. A five-point scaled item was used to assess the importance of psychological counseling to a weight loss program. Physicians were asked to rate "...how important [psychological evaluation] is for a pediatric weight control clinic/program." The scale was anchored by the responses "Not important" (1.0) and "Very important" (5.0). For descriptive purposes, data were recoded and trichotomized into: "Not important" (1.0-2.3), "Neutral" (2.4-3.6), and "Important" (3.7-5.0).

Parent survey. A five-point scaled item was used to assess agreement with the statement, "Mental health counseling...is an important part of a weight loss program." The scale was anchored by the responses "Strongly Disagree" (1.0) and "Strongly Agree" (5.0). For descriptive

purposes, data were recoded and trichotomized into: “Not important” (1.0-2.3), “Neutral” (2.4-3.6), and “Important” (3.7-5.0).

Most Significant Barrier to Pediatric Weight Management

An open-ended question was used on both the physician and the parent surveys to assess perceptions concerning the most significant barrier to pediatric weight management. These responses were reviewed for similar themes; those responses sharing ideas were collapsed into general categories. Key words like price, cost, family, child, self-esteem, or time were used to group responses.

Data Analysis

Data were coded, then entered and analyzed using SPSS version 10.0. Data were analyzed 1) descriptively and 2) inferentially to test hypotheses. For descriptive purposes, measures of frequency were computed for categorical data, including the recoded and trichotomized variables. Measures of central tendency were also computed for continuous data.

Responses for “Most Significant Barrier” were analyzed descriptively. All responses were recorded verbatim, analyzed for content, and collapsed into themed categories. Frequencies of themed responses were then calculated and compared between physician and parent samples.

To test the hypotheses, a series of t-tests were conducted at a 95% confidence interval.

Results

Descriptive Statistics

Demographics

Physician survey. Of the 86 physicians identified in the population, 44 returned questionnaires, a response rate of 51.2%. As shown in Table 1, most of the physicians ($n=32$, 72.7%) practice in Warren County, the largest of the counties within BRADD. Other counties with responding physicians included Barren, Butler, Edmonson, Hart, and Logan Counties. Half of the physician respondents ($n=22$, 50%) also specialized in pediatrics, while the remaining half were family practitioners, allergists, or internists (See Table 1).

Parent survey. A total of 160 parents completed the survey. Most of the parent respondents were female ($n=126$, 88.1%). The majority was also Caucasian ($n=116$, 80.0%). The largest minority group represented was African-American ($n=22$, 15.2%), although there were also respondents of Hispanic/Latino ($n=3$, 2.0%), Asian ($n=2$, 1.4%), and American Indian ($n=1$, 0.7%) ethnicities. These percentages are similar to the ethnic percentages in BRADD, except for a slight over-sampling of African-Americans (Barren River Area Development District, personal communication, September 3, 2003). Respondents represented eight of the ten counties in BRADD, including Barren, Butler, Edmonson, Hart, Logan, Metcalfe, Simpson, and Warren Counties, with the majority residing in Warren County ($n=81$, 51.3%). The percentages of respondents by gender, ethnicity, and county are shown in Table 2.

Prevalence of Child Overweight

Physician survey. When asked to estimate the percentage of patients they served who were between the ages of 3 and 14 and who were overweight, physicians reported a wide range

of percentages. Estimates ranged from as little as 5% to as many as 60%. As shown in Table 3, roughly 15% of physicians ($n=7$, 15.9%) estimated fewer than 10% of their patients were overweight, while 4.5% ($n=2$) estimated that over 50% of their patients were overweight. Most of the physicians ($n=35$, 79.6%), however, estimated percentages that fell in the middle of that range. The mean percentage of estimated overweight was 27.98%, but there was a large standard deviation of 13.82. Other measures of central tendency included a median score of 27.5% and a mode of 40%.

Parent survey. Complete height/weight data were available for 161 of the 216 children represented by the parent survey. Of those 161 children, the calculated BMI-for-age values from the parent survey (See Table 4) reveal that 42.9% ($n=69$) of the parents' children were overweight ($n=24$, 14.9%) or obese ($n=45$, 28.0%). Parents' perceptions of their children's weight status, however, were quite different. Of these overweight and obese children, only seven parents (10.1%) correctly identified their child as such. Close to 90% of parents ($n=62$, 89.9%) perceived their overweight children to be of average or normal weight (See Table 5).

Diet Training

Physician survey. The physicians surveyed gave a mean ranking of 4.777 ($SD=.4802$) to the importance of diet training in a pediatric weight control program. Responses ranged from 3.0-5.0. Percentage calculations done on the trichotomized variables indicate 95.5% of physicians ($n=42$) believed diet training is important to pediatric weight control. Two physicians (2.5%) were neutral in their rating of diet training (See Table 6).

Table 1

Demographic Characteristics of Physician Respondents

Demographic Characteristic	<i>n</i>	%
Location		
Barren	5	11.4
Butler	1	2.3
Edmonson	2	4.5
Hart	2	4.5
Logan	2	4.5
Warren	32	72.8
Total	44	100.0
Specialty		
Pediatrics	22	50.0
Family Practice	17	38.6
Other	5	11.4
Total	44	100.0

Parent survey. Parents assigned the importance of diet training in pediatric weight control a mean ranking of 4.039 ($SD=.8287$). Responses ranged from 1.0-5.0. Percentage calculations done on the trichotomized variables indicate 70.4% of parents ($n=100$) agreed that diet training is an important component of pediatric weight control. Slightly more than a quarter of parents ($n=38$, 26.8%) were neutral about diet training, and 4 parents (2.5%) disagreed that it was important (See Table 6).

Table 2

Demographic Characteristics of Parent Respondents

Demographic Characteristic	<i>n</i>	%
Gender		
Male	17	11.9
Female	126	88.1
Total	143	100.0
Ethnicity		
Caucasian	116	80.0
African American	22	15.2
Hispanic/Latino	3	2.0
Asian	2	1.4
American Indian	1	0.7
Other	1	0.7
Total	145	100.0
County of Residence		
Barren	22	13.9
Butler	25	15.8
Edmonson	7	4.4
Hart	3	1.9
Logan	8	5.1
Metcalfe	2	1.3
Simpson	10	6.3

Table 2 (cont.)

Warren	81	51.3
Total	158	100.0

Table 3

Physician Estimates of Overweight Prevalence Among Patients Ages 3-14

<u>Percent Overweight</u>	<u>n</u>	<u>% of Respondents</u>
1% - 10%	7	15.9
11% - 20%	10	22.7
21% - 30%	12	27.4
31% - 40%	11	25.0
41% - 50%	2	4.5
51% - 60%	2	4.5
Total	44	100.0

Table 4

Frequencies of Child Weight Statuses

<u>BMI-for-Age Percentiles</u>	<u>BMI Data</u>	
	<u>f</u>	<u>%</u>
$\leq 84^{\text{th}}$	92	57.1
$85^{\text{th}} - 94^{\text{th}}$	24	14.9
$\geq 95^{\text{th}}$	45	28.0
Total	161	100.0

Table 5

Parents' Perceptions of Child Weight Status when Child BMI-for-Age was >85%

Perception	<i>f</i>	%
Correct	7	10.1
Incorrect	62	89.9
Total	69	100.0

Exercise Training

Physician survey. Physicians gave a mean ranking of 4.502 ($SD=.6705$) to the importance of exercise training in a pediatric weight control program. Responses ranged from 3.0-5.0. Percentage calculations done on the trichotomized variables indicate nearly nine out of 10 physicians ($n=39$, 88.6%) believed exercise training is important to pediatric weight control. Slightly more than 10% ($n=5$, 11.4%), however, were neutral about its importance (See Table 6).

Parent survey. Parents gave a mean ranking of 3.899 ($SD=.9927$) to the importance of exercise training in pediatric weight control. Responses ranged from 1.0-5.0. Percentage calculations done on the trichotomized variables indicate 63.8% of parents ($n=102$) agreed that exercise training is an important component to pediatric weight control. Almost 30% ($n=45$, 28.1%) were neutral about exercise training, and 8.1% ($n=13$) disagree that it is important (See Table 6).

Psychological Counseling

Physician survey. Physicians gave a mean ranking of 3.86 ($SD=.8472$) to the importance of psychological counseling in a pediatric weight control program. Responses ranged from 2.0-

5.0. Percentage calculations done on the trichotomized variables indicate that slightly over two-thirds of physicians ($n=28$, 65.1%) believed that psychological counseling is an important element of a pediatric weight control program. Over 30% ($n=13$, 30.2%), however, were neutral about its importance, and almost five percent ($n=2$, 4.7%,) did not believe it was important (See Table 6).

Parent survey. Parents gave a mean ranking of 3.43 ($SD=1.0677$) to the importance of psychological counseling in a pediatric weight control program. Responses ranged from 1.0-5.0. Percentage calculations done on the trichotomized variables indicate less than half of parents ($n=66$, 42.6%) agreed that psychological counseling is important, while nearly that many ($n=65$, 41.9%) were neutral about its importance. Over 15% of parents ($n=24$, 15.5%) disagreed that psychological counseling is important to pediatric weight control (See Table 6).

Most Significant Barrier to Pediatric Weight Management

Physician survey. Family adherence issues were the most common responses ($n=19$, 47.5%) cited by physicians concerning the most significant barriers to child weight management (See Table 7). Child adherence issues were the second most commonly listed barriers ($n=10$, 25%). Other barriers included the lack of a weight control program ($n=6$, 15%), financial issues ($n=3$, 7.5%), and other environmental factors ($n=2$, 5%).

Parent survey. Financial issues were the most commonly cited barriers by parents ($n=29$, 35.4%). A concern for the child's self-esteem was the second most common response ($n=23$, 28.0%). Also listed were family adherence issues ($n=15$, 18.3%), child adherence issues ($n=6$, 7.3%), and other barriers ($n=6$, 7.3%). Three parents (3.7%) identified lack of a weight control program as the most significant barrier (See Table 7). Twenty-two parents (13.75%) also

reported that they would enroll their child in a weight loss program, regardless of barriers, if their doctor recommended it.

Table 6

Importance of Diet Training, Exercise Training, and Psychological Counseling to Pediatric Weight Control

Treatment	Physician		Parent	
	<i>n</i>	%	<i>n</i>	%
Diet Training				
Not Important	---	---	4	2.5
Neutral	2	4.5	38	26.8
Important	42	95.5	100	70.4
	$M = 4.777, SD = .4802$		$M = 4.039, SD = .8287$	
Exercise Training				
Not Important	---	---	13	8.1
Neutral	5	11.4	45	28.1
Important	39	88.6	102	63.8
	$M = 4.502, SD = .6705$		$M = 3.899, SD = .9927$	
Psychological Counseling				
Not Important	2	4.7	24	15.5
Neutral	13	30.2	65	41.9
Important	28	65.1	66	42.6
	$M = 3.860, SD = .8472$		$M = 3.430, SD = 1.067$	

Table 7

Most Significant Barriers to Pediatric Weight Control, as Reported by Physicians and Parents

Barrier	Physician		Parent	
	<i>n</i>	%	<i>n</i>	%
Family adherence issues	19	47.5	15	18.3
Child adherence issues	10	25.0	6	7.3
Lack of a weight control program	6	15.0	3	3.7
Financial issues	3	7.5	29	35.4
Concern for child's self-esteem	---	---	23	28.0
Other	2	5.0	6	7.3
Totals	40	100.0	82	100.0

Table 8

T-Test Analysis Comparing Parents and Physicians on Importance of Diet Training, Exercise Training, and Psychological Counseling to Pediatric Weight Management

Variable	Parent	Physician	<i>t</i>
	<i>M</i>	<i>M</i>	
Diet Training	4.039	4.777	5.620**
Exercise Training	3.899	4.502	3.794**
Psychological Counseling	3.430	3.860	2.436*

* $p < .02$, ** $p < .001$

Inferential Statistics

To test Hypothesis 1, an independent samples t-test was computed. There was a significant difference between parents and physicians (See Table 8). Physician respondents rated the importance of diet training in pediatric weight control significantly higher than parent respondents. Mean scores were 4.777 ($SD= .4802$) and 4.039 ($SD= .8287$), respectively. Consequently, the null hypothesis is rejected.

To test Hypothesis 2, an independent samples t-test was again computed. There was also a significant difference between parents and physicians (See Table 8). Physician respondents rated the importance of exercise training in pediatric weight control significantly higher than parent respondents. Mean scores were 4.502 ($SD= .6705$) and 3.899 ($SD= .9927$), respectively. Again, the null hypothesis is rejected.

To test Hypothesis 3, another independent samples t-test was computed. There was once more a significant difference between parents and physicians (See Table 8). Physician respondents rated the importance of psychological counseling in pediatric weight control significantly higher than parent respondents. Mean scores were 3.860 ($SD= .8472$) and 3.430 ($SD= 1.0677$), respectively. The null hypothesis is again rejected.

Discussion

The purpose of this study was to begin a line of inquiry into differences in attitudes toward pediatric obesity and pediatric weight management through diet training, exercise training, and psychological counseling among physicians and parents in south-central Kentucky. Additionally, this study sought to gauge the prevalence of overweight among the children in this region.

Results from this study provide further evidence that the prevalence of overweight and obesity among children in Kentucky is greater than the national average. Among the sampled population, 42.9% of children were overweight or obese, while the national rate remains around 13%. Part of the reason for this discrepancy is related to the definition used for overweight. While the survey used in this study considered BMI-for-age values above the 85th percentile as overweight, NHANES limited its definition to values above the 95th percentile. Even when the same definition is used, however, the rate in BRADD remains much higher, with a prevalence of 28.0%. Although the reasons for rates being twice the national average are unknown, it is possible that the rural counties within BRADD 1) lack the resources needed to keep children active and 2) lack the health professionals to keep parents informed of weight management techniques. This second possibility is somewhat supported by the distribution of physicians in the region.

Because studies have shown that overweight children are more likely to grow into overweight adults than those children who are not overweight, Kentucky may face a medical crisis in the future when its overweight children become overweight adults and suffer from one or more of the medical conditions associated with overweight. Considering that the medical costs associated with overweight in 2000 were well over \$100 billion, the potential costs in 30

years are staggering.

Before proper treatment of pediatric overweight can be implemented, it is imperative that physicians and parents be able to identify overweight among their patients and children. When the mode estimate among physicians of patient overweight is considered (40%), it appears that the majority of physicians are able to identify the problem within their patient panel; however, parents are not identifying the problem within their own children. The gross underestimation by parents may be indicative of a true lack of understanding of what the normal weight of a child should be, or it may represent a reluctance to acknowledge their children's weight statuses. Previous studies have also shown that parents believe children will grow into their weight, so the underestimation may reflect a lack of concern by parents (Jain, et al., 2001). The results may also indicate that parents are not discussing the weight status of their children with physicians.

Physicians and parents also differed in the importance they placed on overweight treatment modalities. Physicians consistently ranked diet training, exercise training, and psychological counseling as more important to pediatric weight control than did parents. This observation is possibly a function of physician training in weight management. Since parents do not have this same training, physicians may want to communicate the importance of all three components to the parents. As the enforcers of any child therapy, parents must share the physician's belief in the value of the treatment to improve success rates.

Diet training was the component ranked highest by physicians and parents. However, significant differences were still found between the groups as nearly 100% of physicians found diet training important, compared to only 77.5 % of parents. The finding that physicians place such a large degree of importance on diet training indicates they believe that weight status is

modifiable through diet changes. The fact that fewer parents place that degree of importance on diet may indicate that they are less confident as a group that diet changes can affect weight status. It may also indicate that some parents feel confident in their abilities to prepare nutritious meals for their children, making diet training unnecessary, or are unwilling to change their meal preparation habits.

Both groups also ranked exercise training as the second most important component of a pediatric weight loss program. When percentages were calculated of respondents who indicated exercise training was important, there was a 7% decline among both physicians and parents from the importance of diet training. This decline may indicate a belief that exercise methods require less instruction than dietary change. As in the diet training variable, the fact that more physicians reported exercise training as important may indicate that physicians are more likely to believe that a modifiable factor like exercise can affect weight.

Psychological counseling was assigned the least importance in pediatric weight loss by both parents and physicians. In both samples, the percentage of respondents who felt psychological counseling was important dropped roughly 20% from the percentage of respondents who felt exercise training was important. The role of mental health in weight management is the most recent facet to be scientifically studied, and the drop in perceived importance may indicate that mental health is not yet seen by the medical community or the general public as necessary to treatment of overweight.

Although the differences between parents and physicians in degrees of importance placed on diet training, exercise training, and psychological counseling were significant, both groups ranked the three components in the same order. This commonality may imply that weight loss

efforts that introduce dietary changes first, followed by exercise training, and then psychological counseling will have the greatest acceptance rate.

Physicians and parents apparently consider different barriers to weight management. Family adherence and child adherence to a weight loss plan were identified by physicians as the most significant barriers to pediatric weight management. While these barriers are valid concerns, they represent a “victim-blaming” attitude. This attitude implicitly accuses the patients and families of intentional non-compliance without examining the potential background causes of the lack of compliance. The physician responses also provide further support for the theory that physicians on the whole believe lifestyle is the main agent in weight status.

While every barrier identified by physicians was also identified by parents, parents additionally indicated a concern that focusing on a child’s weight status might lower his or her self-esteem. While not enough literature exists to support or counter this supposition, it seems to ignore the effect untreated overweight may have on a child’s body image and perception of self. The fact that most health insurance plans do not cover treatment for overweight is reflected in the finding that financial issues were the largest barriers cited by parents. Based on these responses, cost and self-esteem concerns are probably instrumental in the demise of motivation and effort to adhere to a weight loss regimen, leading to the family and child adherence issues listed as barriers by physicians.

Limitations

This study has three characteristics that compromise its external validity. One such characteristic is geographic location. Because both samples came from a single region in

Kentucky, they may not be representative of other regions. Another characteristic is the study's small sample size, as only 160 parents completed surveys. The population of physicians in the region is also small, so generalizing results to a larger population might not be accurate. The final characteristic affecting external validity is that the parent sample was a convenience sample and was drawn from physicians' offices who were supportive of efforts addressing pediatric weight status; therefore, the 160 parents who participated in the study may be different from other parents in the area.

It is unknown why the prevalence of overweight found in this study (42.9%) is so much greater than the national average. As previously discussed, a portion of the variation is related to definition. However, even when the same definition is used, overweight in BRADD is twice as high as the national average. While it is possible that the children represented by the parent survey are not representative of the whole population of children served by the physicians, this possibility is reduced since the surveys were conducted at multiple sites over a six-week time period when many children were getting back-to-school physicals.

The study is also limited in that all data are self-reported. With the growing attention the media have recently given to child overweight, it is possible that respondents attempted to answer questions in ways they thought were desirable, rather than answering in ways that were reflective of their true attitudes and beliefs.

Future Studies

Findings from this thesis research generate many questions that warrant further examination. For example, research is needed to determine the reason why some physicians and

many parents are underestimating the prevalence of overweight in the child population. Additionally, further research is needed to examine beliefs regarding the roles played by lifestyle and genetics in the weight status of children. This study indicates that parents judge the role played by genetics as more significant than physicians. Both groups, however, seem to believe that lifestyle has the greatest influence, as reflected in the high values placed on modifiable factors in obesity treatment.

Significant differences were found between parents and physicians in all areas analyzed in this study. Further research is needed to determine why these differences exist. The differences may be due to differences in awareness or education, or due to subjective feelings associated with parenthood compared to the more objective feelings a physician has toward his or her patients.

Conclusions

Parents and physicians perceive differing levels of importance regarding diet training, exercise training, and psychological counseling for pediatric weight management. Physicians consistently rated each of the three treatment modalities higher than parents. This difference may indicate that physicians believe weight status is largely related to lifestyle factors while parents believe it is controlled more by genetic factors. However, both physicians and parents see diet training as the most important modality, followed by exercise training, and then psychological counseling.

Results reveal the need for further educational and awareness efforts. Both parents and physicians may benefit from education concerning the correct identification of pediatric

overweight and obesity. Both groups may also profit from education and training on the importance of physical activity and mental health to a weight loss plan. Awareness efforts are needed to inform physicians of the barriers identified by parents to weight management. Once aware of these perceptions, particularly of self-esteem fears, physicians can tailor their patient education sessions and materials to ease parental concerns.

Becoming aware of the differences that exist in knowledge and attitude is the first step in a long process of unifying the parent and physician communities in the treatment and prevention of childhood overweight. Once that unification occurs, however, the odds of developing and implementing successful, comprehensive programs encouraging healthy weights will rise dramatically.

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