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Childhood and Adolescent Obesity: Nationwide Pediatric Healthcare Provider Practices and Their Role in Treatment and Prevention of the Obesity Epidemic

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Executive Summary

The purpose of this research is to explore screening and treatment patterns as well as the underlying provider confidence in their decision-making related to the overweight and obese child and adolescent patient. The screening and treatment of obesity in the child and adolescent population are affected by complex social implications and physical side effects. Without a clear consensus on screening, diagnosis and alternative treatment plans, healthcare providers will not maximize the opportunity to provide primary and secondary prevention to the growing epidemic.

Statistical analysis of secondary survey data was conducted to explore screening and treatment patterns as well as the underlying health care provider confidence in their decision making related to the overweight and obese child and adolescent patient.

The original investigators are comprised of the authors from the six published articles in *Pediatrics* (Vol. 110 No. 1 July 2002). These articles examined the results of a needs assessment eight page questionnaire consisting of 35 questions from three topic areas related to childhood and adolescent obesity (Area 1 focused on attitudes, perceived skills and training needs of providers. Area 2 addressed provider approach to assessment and treatment. Area 3 collected information pertaining to provider characteristics and practice information).

Results indicate that the majority of pediatric providers are concerned about the current status of childhood and adolescent obesity. Furthermore, perceived skill proficiency and interest in further education are influenced by provider's belief that barriers to effective treatment exist. Barriers include lack of clinician time, lack or reimbursement, lack of parent involvement and patient motivation, lack of support services, futility of treatment, misinformed provider beliefs, need for further training, and years in practice. This highlights the fact that obesity is a multifaceted and complex condition that is difficult to manage in the pediatric population.

Many challenges exist in improving diagnosis and treatment practices, but provider interest in training provides an ample opportunity to address pertinent barriers and to develop practitioner guidelines, protocols, and educational tools.

Introduction

The increase in overweight and obesity[1] has led to a nationwide epidemic for all ages, races and gender. In the last four decades the obese U.S. adult population has grown from 12.8% in 1960-1962 to 22.5% in 1988-1994 (Kuczmarski, Flegal, Cambell, & Johnson, 1994), and to 30% in 1999-2002 (Prevalence of Overweight and Obesity, n.d.). The prevalence of overweight among children and adolescents has also revealed a growing trend over the last two decades. The CDC published results from the National Health and Nutrition Examination Survey (NHANES) revealing that the rate of obesity had increased to 15% of children and adolescents by 2000 (Prevalence of Overweight, n.d.).

The cause of obesity is multifaceted, and is linked to a number of factors that fall under the three general areas of behavior, environment, and genetics. On an individual basis, these factors have a complex effect when they interact, which ultimately leads to being overweight and possibly obese (Factors Contributing to Obesity, n.d.). Overweight and obese (body mass index of 25 and above) individuals are at increased risk for a number of medical conditions, including coronary heart disease, high blood pressure, osteoarthritis, insulin resistance, stroke, gall bladder disease, gout, lipid disorders, arthritis, respiratory tract disease, and some cancers (Health Consequences, n.d.). One ailment that has caused increased concern is the prevalence of type II diabetes in children. A disease that has typically been diagnosed in adults (40 years or older) now affects an alarming number of children, with an estimated 80% being overweight at time of diagnosis (Type 2 Diabetes in Youth, n.d.). The presence of obesity-related conditions has an increasing effect on mortality rates (accounting for 13% of deaths annually, second only to

[1] Obesity is generally defined as having an excess amount of body fat. The most widely used tool to measure and define obesity is body mass index (BMI), where a BMI of more than 30.0 is labeled as obese. BMI is calculated by dividing weight (in kilograms) by height (in meters squared).
Executive summary of the clinical guidelines on the identification, evaluation, and treatment of overweight and obesity in adults. *Archives of Internal Medicine*. 1998;158: 1855-1867.

smoking as a preventable cause of death (McGinnis & Foege, 1993)), length of hospital stays, and overall health care costs (12% of the national health care budget, $102.2 billion in 1999) (Cost of Obesity, n.d.; Elixhauser, Steiner, Harris & Coffey, 1998).

Physicians have been identified as having a critical role in identifying and treating pediatric and adult obesity (Hill, 1998; Rippe, 1998). Furthermore, data from adult patients has shown that their weight loss efforts can be positively re-enforced by periodic counseling by their primary care physicians (Wadden et al., 1997; Stafford, Farhat, Misra, & Schoenfeld, 2000). Despite their importance in the screening and treating of obesity, practitioners provide relatively low rates of detection and counseling for their obese patients (Galuska, Will, Serdula & Ford, 1999), and a number of studies have shown that practitioners are more likely to address the issue of weight only when an obesity-related co-morbidity exists (Sciamanna, Tate, Lang, & Wing, 2000).

The purpose of this research is to explore screening and treatment patterns as well as the underlying health care provider confidence in their decision making related to the overweight and obese child and adolescent patient. The importance of studying provider practices is directly related to: (1) the current status of the obesity epidemic; (2) the need to improve primary and secondary intervention; and (3) the need to identify opportunities to develop and improve protocols for providers and educational tools for families, the public health sector and policy makers.

This research looks to assess what influences the use of the physical exam and blood tests for diagnosis and treatment efforts for noncompliant patients who are obese children and adolescents. Specifically, the objectives are:

- What screening practices do pediatric healthcare providers follow to identify risk for or presence of childhood and adolescent obesity?

- What treatment practices do pediatric healthcare providers practice in treating childhood and adolescent obesity?
- What affects treatment patterns for childhood obesity?

All variables represent respondent provided information concerning their assessment and treatment practices in relation to their child and adolescent patients, and focus solely on the issue of overweight and obesity. Screening practices relate to the provider's routine when assessing a child or adolescent for risk or presence of overweight and/or obesity. This includes patient history, family history, physical exam, laboratory evaluation (such as blood tests), psychological assessment, and patient activities associated with physical exercise. Treatment practices describe provider actions when treating an overweight or obese pediatric patient. Treatment practices may include dietary and physical exercise recommendations, drug or surgery interventions, referral to specialists or weight programs, and follow-up requests. Treatment patterns may be affected by provider training, patient motivation, parent involvement, provider's perceived skill proficiency, provider barriers to comprehensive care (such as lack of reimbursement or time), and provider characteristics.

From the review of literature and the descriptive statistics results of the survey data, it is hypothesized that all of the perceived provider barriers (nine barriers from Question 2 of Section I) and provider training will significantly affect the use of screening tools and the initiation of treatment. Patient motivation, parent involvement, provider training and provider time all have the potential to limit perceived provider skill proficiency and ability to initiate effective treatment programs. It is expected that the results will indicate a complex relationship between survey variables due to the multifaceted nature of pediatric obesity, lack of current provider protocols and guidelines, environmental influences on pediatric dietary habits and physical activity, and the need for comprehensive care from the healthcare community.

Methods

This research is based on a national needs assessment questionnaire developed by a group of researchers, clinicians, educators, and representatives of the Maternal and Child Health Bureau, Health Resources and Services Administration (Department of Health and Human Services), National Center for Education in Maternal and Child Health, International Life Sciences Institute, and Harris Interactive, Inc. Through the assistance of Dr. Robert Whitaker, results of this questionnaire were made available by the primary investigator, Sarah E. Barlow, and provided by the ILSI Center for Health Promotion.

Questionnaire Development

The original investigators are comprised of the authors from the six published articles in *Pediatrics* (Vol. 110 No. 1 July 2002). These articles examined the results of a needs assessment eight page questionnaire consisting of 35 questions from three topic areas related to childhood and adolescent obesity (Area 1 focused on attitudes, perceived skills and training needs of providers. Area 2 addressed provider approach to assessment and treatment. Area 3 collected information pertaining to provider characteristics and practice information). The majority of the questions had Likert scale response options (“most of the time,” “often,” “sometimes,” “rarely,” and “never”) (Trowbridge, Sofka, Holt & Barlow, 2002).

Key variables extracted for analysis include: provider beliefs; treatment barriers; perceived provider skill; provider assessment practices; provider treatment practices, and; provider characteristics.

Subjects/Respondents

This questionnaire was sent to a random sample of pediatricians (n = 1088), pediatric nurse practitioners (n = 879), and registered dieticians (n = 1652). Response rate for pediatricians (19%), pediatric nurse practitioners (33%), and registered dieticians (27%) was relatively low (Trowbridge et al., 2002).

Original analysis of respondent data was focused on descriptive statistics. Initial findings included: majority of pediatric practitioners felt that intervention with childhood and adolescent obesity was important; a number of important barriers existed for providers that hindered treatment efforts; patient assessments were generally consistent with expert recommendations; medical evaluation of overweight children and adolescents did not reach the recommended practices; and practitioners promoted health diets and increased physical activity often and rarely instituted the use of medication or highly restrictive diets as means to control weight.

Data Analysis

All responses were provided in an SPSS 12.0.0 for Windows (September 2003, SPSS, Inc., Chicago, Ill.) data source file. All statistical analyses were conducted with the SPSS software. Descriptive statistics and distributions were examined for evidence of non-normality and outliers.

Due to the high volume and closely related questionnaire variables, a factor analysis was conducted to determine if variables could be statistically grouped into factors. The Exploratory Factor Analysis (EFA) created an output of eigen values from a Principle Component Analysis (PCA). These eigen values were then used to determine the number of existing factors. A PCA non-rotated factor analysis revealed two components in Question 1 (a-h) of Section I, one component in Question 3 of Section I, two components in Question 4 of Section I, two

components in Section II, and two components in Question 13 (a-o) of Section III. Factors were created by averaging all variable responses for each respondent. Each question from the survey includes a number of individual questions (please refer to Appendix 1 for a copy of the survey), and each factor consist of responses to several questions. Nine factors were created from the factor analysis. Below are tables displaying statistics and response definitions for the nine factors.

Table 1: Statistics for Nine New Factors

Factors	N	Minimum	Maximum	Mean	Std. Deviation	Eigen Value	% Variance
Belief by Provider that Treatment is Needed (1-5)	953	1	3.4	2.2686	0.3705	2.790	34.878
Provider Belief that the Child or Adolescent Will Outgrow Weight (1-5)	943	1	5	2.7089	0.76504	1.730	21.626
Information Sources Used by Provider (1-5)	928	1	5	3.2022	0.56558	2.953	32.814
Skill Proficiency of Provider (1-3)	907	1	3	2.1038	0.42212	2.966	21.185
Provider Interest in Further Treatment Training (1-3)	894	1	3	2.3512	0.51858	4.149	29.632
Provider Practices for Patient History and Physical Examination (1-5)	906	1	5	2.9464	0.76159	11.026	30.629
Provider Practices for Psychological Assessment (1-5)	904	1	5	1.6899	0.61742	4.732	13.146
Physical Activity Approach to Treatment by Provider (1-3)	891	1	3	2.7347	0.26816	5.032	11.182
Alternative Treatments Approach by Provider (1-3)	880	1	2.5	1.0162	0.07376	7.829	17.398

Table 2: Response Definitions for Factors

Factors	Range for Response	Definition of Response
Belief by Provider that Treatment is Needed (1-5)	1 to 5	1=Most of the Time, 2=Often, 3=Sometimes, 4=Rarely, 5=Never
Provider Belief that the Child or Adolescent Will Outgrow Weight (1-5)	1 to 5	1=Most of the Time, 2=Often, 3=Sometimes, 4=Rarely, 5=Never
Information Sources Used by Provider (1-5)	1 to 5	1=Most of the Time, 2=Often, 3=Sometimes, 4=Rarely, 5=Never
Skill Proficiency of Provider (1-3)	1 to 3	1=Low, 2=Moderate, 3=High
Provider Interest in Further Treatment Training (1-3)	1 to 3	1=Low, 2=Moderate, 3=High
Provider Practices for Patient History and Physical Examination (1-5)	1 to 5	1=Most of the Time, 2=Often, 3=Sometimes, 4=Rarely, 5=Never
Provider Practices for Psychological Assessment (1-5)	1 to 5	1=Most of the Time, 2=Often, 3=Sometimes, 4=Rarely, 5=Never
Physical Activity Approach to Treatment by Provider (1-3)	1 to 3	1=Never, 2=Sometimes, 3=Never
Alternative Treatments Approach by Provider (1-3)	1 to 3	1=Never, 2=Sometimes, 3=Never

Further analyses were performed to determine if provider beliefs, perceived provider barriers, provider characteristics, and provider education material use explained assessment and treatment factor responses.

Results

A t-test was conducted between provider type (doctor, nurse, registered dietician) and assessment and treatment factors. Results showed no significant correlations with the potential dependent variables (see Table 3), so future analyses did not require the separation of the provider type variable. The factors were then assessed for the distribution of scores in a bar graph to determine if it exhibited a normal distribution. The classical normal linear regression model (CNLRM) is based on eleven assumptions, including that the stochastic term is normally distributed. Therefore, if a factor is not normally distributed the CNLRM can not be effectively applied in cases of hypothesis testing (Gujarati, 1995). Patient history and physical examination was the only factor to show a normal distribution, and was thus the only factor submitted to a regression analysis.

Table 3: Pearson Correlation Scores for Assessment and Treatment Factors vs. Profession

Factors		PROFESSION
Provider Practices for Psychological Assessment	Pearson Correlation	-0.060
	Sig. (2-tailed)	0.070
	N	904
Provider Practices for Patient History and Physical Examination	Pearson Correlation	-0.048
	Sig. (2-tailed)	0.150
	N	906
Physical Activity Approach to Treatment by Provider	Pearson Correlation	0.055
	Sig. (2-tailed)	0.099
	N	891
Alternative Treatments Approach by Provider	Pearson Correlation	-0.049
	Sig. (2-tailed)	0.147
	N	880

The following sections will outline analysis results pertaining to linear regressions, normal distributions and correlations of the survey variables and factors.

Provider Practices for Patient History and Physical Examination (PP):

The data were analyzed by linear regression, using Provider Practices for Patient History and Physical Examination (PP) as the dependent variable. Table 4 displays all independent variable names, regression coefficients and standard errors. The regression was a poor fit (R^2_{adj} = 9.2%), but the overall relations were significant ($F_{19,659} = 4.602$, $p<.001$).

Table 4: Regression Output for Provider Practices

Variable Name	Regression Coefficient	Significance p < .05	Standard Error
Constant	3.239		0.52
lack of patient motivation barrier (B1)	0.062		0.036
lack of parent involvement barrier (B2)	0.015		0.039
lack of clinician time barrier (B3)	-0.018		0.038
lack of reimbursement barrier (B4)	0.003		0.028
lack of clinician knowledge about treatment barrier (B5)	0.059		0.064
lack of treatment skills barrier (B6)	-0.085		0.066
lack of support services barrier (B7)	-0.01		0.034
futility barrier (B8)	0.009		0.035
concern about precipitating eating disorders barrier (B9)	0.051		0.036
information sources used by provider factor (IF)	0.268	.000	0.055
past experience as an assessment and treatment information source (PE)	-0.049		0.037
educational training as an assessment and treatment information source (ET)	0.023		0.023
skill proficiency of provider factor (SP)	-0.283	.000	0.071
provider interest in further treatment training factor (PI)	-0.155	.005	0.055
belief by provider that treatment is needed factor (TN)	-0.078		0.076
provider belief that child or adolescent will outgrow weight factor (OW)	0.032		0.036
provider BMI (BMI)	-0.01		0.008
provider years in practice (Y)	-0.004		0.003
provider sex (S)	0.19	.029	0.087

With other variables held constant, provider practices for patient history and physical examination was positively related to "information sources used by provider factor" (IF), increasing by .268 (moving away from "Most of the Time" toward "Never") with a decrease in information source usage ($t_{659} = 4.842$, $p = .000$), negatively related to "skill proficiency of provider factor" (SP), decreasing by .283 (moving away from "Never" toward "Most of the Time") with an increase in perceived provider skill proficiency ($t_{659} = -3.982$, $p = .000$), negatively related to "provider interest in further treatment training factor" (PI), decreasing by

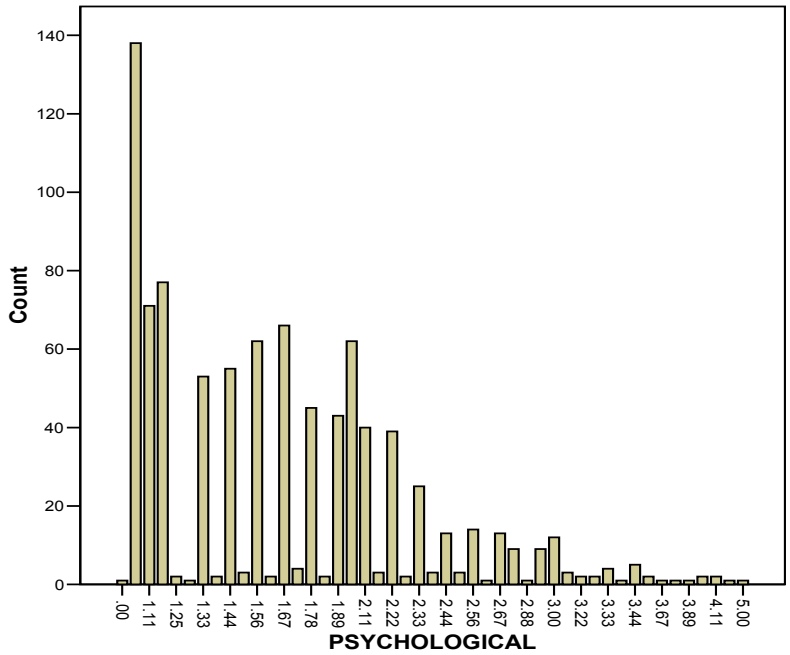
.155 (moving away from "Never" toward "Most of the Time") with an increased provider interest in further training (t_{659} = -2.810, p = .005), and positively related to "provider sex" (S), increasing by .190 (moving away from "Most of the Time" toward "Never") when the provider was a female (t_{659} = 2.190, p = .029).

PP = 3.239 + .062(B1) + .015(B2) - .018(B3) + .003(B4) + .059 (B5) - .085(B6) - .010(B7) + .009(B8) + .051(B9) + .268(IF) - .049(PE) + .023(ET) - .283(SP) - .155(PI) +.032(TN) - .078(OW) - .010(BMI) - .004(Y) + .190(S)

Provider Practices for Psychological Assessment:

Due to the absence of a normal distribution this factor was not analyzed with a linear regression model. A majority of responses from Question 8 (considering psychological aspects of weight when evaluating for overweight) in Section II were skewed toward "Most of the Time" (response = 1), with few respondents reporting "Never" (response = 5).

Graph 1: Bar Graph indicating average respondent scores for the Provider Practices for Psychological Assessment Factor



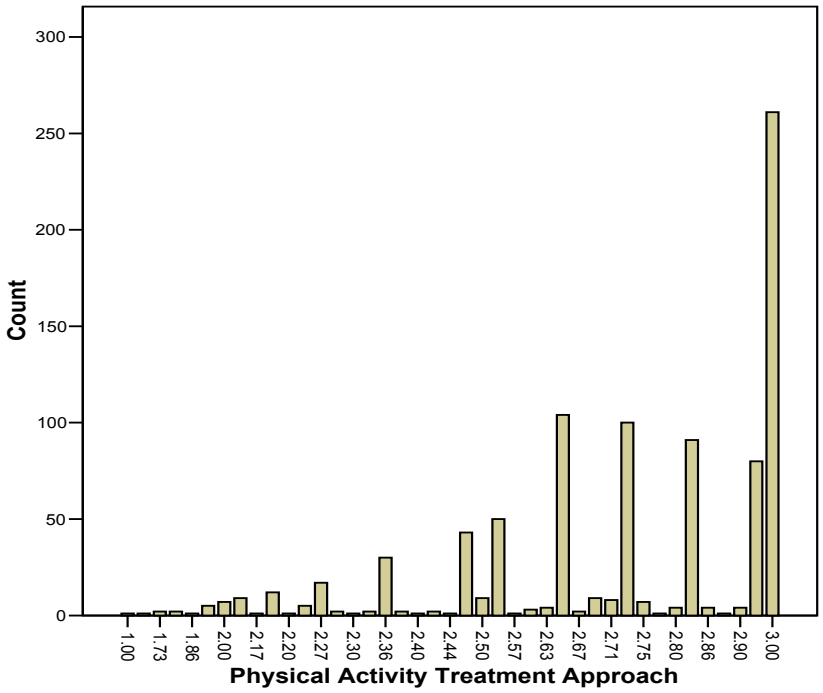
*Fractional scores represent the outcome of the Factor Analysis. The factor "Provider Practices for Psychological Assessment" was created by averaging all variable responses for each respondent.

This implies that a majority of respondents are reporting that they are considering psychological issues pertaining to weight when they evaluate children and adolescents for overweight.

Physical Activity Approach to Treatment by Provider:

Due to the absence of a normal distribution this factor was not analyzed with a linear regression model. A majority of responses from Question 13 pertaining to physical activity treatment approaches (Section II) were skewed toward "Often" (response = 3), with very few respondents reporting "Never" (response = 1).

Graph 2: Bar Graph indicating average respondent scores for the Physical Activity Approach to Treatment by Provider Factor



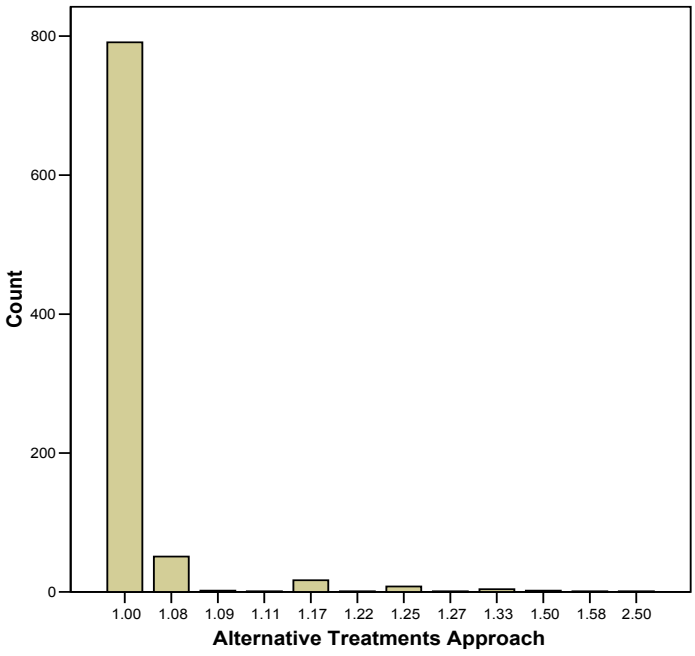
*Fractional scores represent the outcome of the Factor Analysis. The factor "Physical Activity Treatment Approach by Provider" was created by averaging all variable responses for each respondent.

This implies that a majority of respondents are reporting that they are very likely to use physical activity as a treatment approach for preschool children, school-age children and adolescents.

Alternative Treatments Approach by Provider:

Due to the absence of a normal distribution this factor was not analyzed with a linear regression model. A majority of responses from Question 13 pertaining to alternative treatment approaches (Section II) were skewed toward "Never" (response = 1), with very few respondents reporting "Sometimes" (response = 2) and no respondents reporting "Often" (response = 3), with reference to mean scores.

Graph 3: Bar Graph indicating average respondent scores for the Alternative Treatments Approach by Provider Factor



*Fractional scores represent the outcome of the Factor Analysis. The factor "Alternative Treatments Approach by Provider" was created by averaging all variable responses for each respondent.

Due to the lack of variability no inference can be made.

Perceived Provider Treatment Proficiency, Provider Interest in Further Training and Perceived Barriers to Effective Treatment:

A correlation analysis was conducted to determine if a significant relationship exists between respondent responses to treatment proficiency and interest in further training with perceived barriers to treatment.

		PERCEIVED PROVIDER TREATMENT PROFICIENCY
PERCEIVED PROVIDER TREATMENT PROFICIENCY	Pearson Correlation	1.00
	Sig. (2-tailed)	.
	N	907
LACK OF PATIENT MOTIVATION	Pearson Correlation	0.048
	Sig. (2-tailed)	0.150
	N	899
LACK OF PARENT INVOLVEMENT IN TREATMENT	Pearson Correlation	0.037
	Sig. (2-tailed)	0.266
	N	898
LACK OF CLINICIAN TIME	Pearson Correlation	**0.148****
	Sig. (2-tailed)	0.000
	N	888
LACK OF REIMBURSEMENT	Pearson Correlation	0.000
	Sig. (2-tailed)	0.990
	N	873
LACK OF CLINICIAN KNOWLEDGE ABOUT TREATMENT	Pearson Correlation	**0.185****
	Sig. (2-tailed)	0.000
	N	894
LACK OF TREATMENT SKILLS	Pearson Correlation	**0.169****
	Sig. (2-tailed)	0.000
	N	892
LACK OF SUPPORT SERVICES - NUTRITION, COUNSELING	Pearson Correlation	**0.084***
	Sig. (2-tailed)	0.012
	N	895
FUTILITY - INEFFECTIVENESS OF RECOMMENDED INTERVENTIONS	Pearson Correlation	**0.119****
	Sig. (2-tailed)	0.000
	N	888
CONCERN ABOUT PRECIPITATING EATING DISORDERS	Pearson Correlation	**-0.104****
	Sig. (2-tailed)	0.002
	N	884

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

In relation to perceived provider treatment proficiency, a significant relationship at $p<.01$ with perceived barriers and treatment included: lack of clinician time (.148); lack of clinician knowledge about treatment (.185); lack of treatment skills (.169); futility (.119); and, concern

about precipitating eating disorders (-.104). The lack of support services was found to be significant (.084) at $p<.05$.

		PROVIDER INTEREST IN FURTHER TRAINING
PROVIDER INTEREST IN FURTHER TRAINING	Pearson Correlation	1
	Sig. (2-tailed)	.
	N	894
LACK OF PATIENT MOTIVATION.	Pearson Correlation	-0.010
	Sig. (2-tailed)	0.772
	N	885
LACK OF PARENT INVOLVEMENT IN TREATMENT.	Pearson Correlation	**-0.071***
	Sig. (2-tailed)	0.036
	N	884
LACK OF CLINICIAN TIME.	Pearson Correlation	-0.044
	Sig. (2-tailed)	0.191
	N	875
LACK OF REIMBURSEMENT.	Pearson Correlation	-0.036
	Sig. (2-tailed)	0.293
	N	861
LACK OF CLINICIAN KNOWLEDGE ABOUT TREATMENT.	Pearson Correlation	-0.053
	Sig. (2-tailed)	0.119
	N	880
LACK OF TREATMENT SKILLS.	Pearson Correlation	-0.044
	Sig. (2-tailed)	0.190
	N	878
LACK OF SUPPORT SERVICES - NUTRITION, COUNSELING.	Pearson Correlation	**-0.086***
	Sig. (2-tailed)	0.011
	N	882
FUTILITY - INEFFECTIVENESS OF RECOMMENDED INTERVENTIONS.	Pearson Correlation	-0.004
	Sig. (2-tailed)	0.915
	N	874
CONCERN ABOUT PRECIPITATING EATING DISORDERS.	Pearson Correlation	-0.032
	Sig. (2-tailed)	0.338
	N	870

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

The correlation ran between provider interest in further training and perceived barriers and treatment revealed a significant relationship at $p<.05$ with the following: lack of parent involvement in treatment (-.071) and lack of support services (-.086).

With the existence of a positive correlation, the respondent is reporting that they have a higher perceived treatment proficiency or higher interest in further training when they respond that the corresponding barrier is not a significant hindrance to effective treatment of overweight

children and adults. A negative correlation shows that when the respondent is reporting that they have a higher perceived treatment proficiency or higher interest in further training the corresponding barrier is a significant hindrance to effective treatment of overweight children and adolescents.

Initiating Treatment with Overweight Children and Adolescents:

Two additional linear regressions were conducted to assess the relationships between the independent variables discussed in the previous regression analysis and two dependent variables expressed as the following questions:

1. How often do you (the provider) initiate treatment with overweight children who do not want to control their weight? (TC)
2. How often do you (the provider) initiate treatment with overweight adolescents who do not want to control their weight? (TA)

The regression for TC was a poor fit (R^2_{adj} = 8.1%), but the overall relations were significant ($F_{19,625}$ = 3.993, p<.001). See Table 5 below for independent variable names, regression coefficients and standard errors.

Table 5: Regression Output for Provider Treatment Practices with Children

Variable Name	Regression Coefficient	Significance p < .05	Standard Error
Constant	4.357		0.821
lack of patient motivation barrier (B1)	0.005		0.057
lack of parent involvement barrier (B2)	0.094		0.061
lack of clinician time barrier (B3)	0.088		0.059
lack of reimbursement barrier (B4)	-0.180	.000	0.044
lack of clinician knowledge about treatment barrier (B5)	-0.045		0.100
lack of treatment skills barrier (B6)	-0.121		0.103
lack of support services barrier (B7)	0.012		0.053
futility barrier (B8)	0.062		0.055
concern about precipitating eating disorders barrier (B9)	-0.137	.014	0.055
information sources used by provider factor (IF)	0.030		0.087

past experience as an assessment and treatment information source (PE)	-0.009		0.058
educational training as an assessment and treatment information source (ET)	-0.028		0.037
skill proficiency of provider factor (SP)	-0.280	.013	0.112
provider interest in further treatment training factor (PI)	-0.098		0.085
belief by provider that treatment is needed factor (TN)	-0.027		0.057
provider belief that child or adolescent will outgrow weight factor (OW)	0.501	.000	0.120
provider BMI (BMI)	-0.009		0.012
provider years in practice (Y)	-0.005		0.005
provider sex (S)	0.084		0.134

With other variables held constant, provider practices for initiating treatment with resistive overweight children was negatively related to "lack of reimbursement barrier" (B4), decreasing by .180 (moving away from "Never" toward "Most of the Time") with a decrease in provider belief that lack of reimbursement is an important barrier to treatment ($t_{625} = -4.098$, $p = .000$), negatively related to "concern about precipitating eating disorders barrier" (B9), decreasing by .137 (moving away from "Never" toward "Most of the Time") with a decrease in provider belief that concern about precipitating eating disorders is an important barrier to treatment ($t_{625} = -2.475$, $p = .014$), negatively related to "skill proficiency of provider factor" (SP), decreasing by .280 (moving away from "Never" toward "Most of the Time") with an increase in reported provider skill proficiency ($t_{625} = -2.499$, $p = .013$), and positively related to "provider belief that child or adolescent will outgrow weight factor" (OW), increasing by .501 (moving away from "Most of the Time" toward "Never") with an increase in the provider belief that the child or adolescent will outgrow their weight ($t_{625} = 4.165$, $p = .000$).

TC = 4.357 + .005(B1) + .094(B2) + .088(B3) - .180(B4) - .045 (B5) - .121(B6) + .012(B7) + .062(B8) - .137(B9) + .030(IF) - .009(PE) - .028(ET) - .280(SP) - .098(PI) -.027(TN) + .501(OW) - .009(BMI) - .005(Y) + .084(S)

The regression for TA was also a poor fit ($R^2_{adj} = 5.8\%$), but again the overall relations were significant ($F_{19,623} = 3.069$, $p<.001$). See Table 6 below for independent variable names, regression coefficients and standard errors.

Table 6: Regression Output for Provider Treatment Practices with Children

Variable Name	Regression Coefficient	Significance p < .05	Standard Error
Constant	3.944		0.827
lack of patient motivation barrier (B1)	-0.008		0.057
lack of parent involvement barrier (B2)	0.086		0.062
lack of clinician time barrier (B3)	0.082		0.059
lack of reimbursement barrier (B4)	-0.133	.003	0.044
lack of clinician knowledge about treatment barrier (B5)	0.017		0.101
lack of treatment skills barrier (B6)	-0.235	.024	0.104
lack of support services barrier (B7)	0.043		0.053
futility barrier (B8)	0.048		0.056
concern about precipitating eating disorders barrier (B9)	-0.061		0.056
information sources used by provider factor (IF)	0.110		0.087
past experience as an assessment and treatment information source (PE)	-0.032		0.058
educational training as an assessment and treatment information source (ET)	-0.018		0.037
skill proficiency of provider factor (SP)	-0.165		0.113
provider interest in further treatment training factor (PI)	-0.047		0.086
belief by provider that treatment is needed factor (TN)	-0.010		0.058
provider belief that child or adolescent will outgrow weight factor (OW)	0.403	.001	0.121
provider BMI (BMI)	0.001		0.012
provider years in practice (Y)	-0.013	.005	0.005
provider sex (S)	0.221		0.135

With other variables held constant, provider practices for initiating treatment with resistive overweight children was negatively related to "lack of reimbursement barrier" (B4), decreasing by .133 (moving away from "Never" toward "Most of the Time") with a decrease in provider belief that lack of reimbursement is an important barrier to treatment ($t_{623} = -3.007$, $p = .003$), negatively related to "lack of treatment skills barrier" (B6), decreasing by .235 (moving away from "Never" toward "Most of the Time") with a decrease in provider belief that lack of treatment skills is an important barrier to treatment ($t_{623} = -2.265$, $p = .024$), negatively related to "provider years in practice" (Y), decreasing by .013 (moving away from "Never" toward "Most of the Time") with an increase in reported provider years in practice ($t_{623} = -2.799$, $p = .005$), and positively related to "provider belief that child or adolescent will outgrow weight factor" (OW),

increasing by .403 (moving away from "Most of the Time" toward "Never") with an increase in the provider belief that the child or adolescent will outgrow their weight ($t_{623} = 3.328$, $p = .001$).

TA = 3.944 - .008(B1) + .086(B2) + .082(B3) - .133(B4) + .017 (B5) - .235(B6) + .043(B7) + .048(B8) - .061(B9) + .110(IF) - .032(PE) - .018(ET) - .165(SP) - .047(PI) -.010(TN) + .403(OW) + .001(BMI) - .013Y) + .221(S)

Discussion

The primary care physician is in an exclusive position to provide effective primary and secondary interventions with obese and at risk patients, a factor that can influence the adoption of healthy lifestyles and reduce the prevalence of obesity (Lawlor, Keen & Neal, 1999). By assessing what influences the provider's use of the physical exam and blood tests for diagnosis and provider's treatment efforts for noncompliant patients who are obese children and adolescents, further efforts can be made to develop provider protocols and eliminate barriers to effective prevention and treatment methods.

This study shows that pediatric providers are more apt to use diagnostics (physical exam and blood tests) with higher perceived skill proficiency, indicating a need for further education and training in the area of childhood and adolescent obesity. Also, providers report that they are more likely to use diagnostics with a higher reported interest in further training. This may suggest that providers are using diagnostic tests to support their belief that overweight or obesity exists.

With higher reported perceived skill proficiency, respondents answered that lack of clinician time, lack of clinician knowledge, lack of treatment skills, lack of support services and futility are not barriers to effective treatment of overweight children and adolescents. In addition, lack of parent involvement and lack of support services are reported to be significant barriers when respondents have a higher interest in further training.

Results also indicate that when pediatric providers initiate treatment with overweight children who do not want to control their weight, lack of reimbursement and precipitating eating disorders are not seen as significant barriers to treatment, and there is a higher reported skill

proficiency. In contrast, providers are less likely to initiate treatment when they believe that the child will outgrow their weight.

Similarly, providers reported initiating treatment with overweight adolescents who do not want to control their weight when lack of reimbursement and lack of treatment skills are not seen as significant barriers, and the provider has a higher number of years in practice. Again, the provider was less likely to initiate treatment when they expressed the belief that the adolescent will outgrow their weight.

These data reinforce the idea that further training and the development of protocols are necessary to improve providers' ability to prevent and treat overweight in the child and adolescent population. Further research is needed, however, to guide the development of continuing education and provider protocols.

In relation to current physician attitudes and practices, there exists little recent data on pediatric practitioner patterns. In a study exploring the counseling practices of pediatricians, it was found that from the eight health topics considered, diet and nutrition was the one that was most prevalent in regular counseling across age groups (Galuska et al., 2002). One factor affecting counseling included the physician's perceived confidence and ability in causing change in relation to the health topic in the individual (Cheng, Dewitt, Savageau & O'Connor, 1999). By providing additional training, general protocols, and educational tools the physician's ability to address the issue of obesity can be improved and the number of children and adolescents counseled increased. This would have a positive effect of the rate of obesity in those children and adolescents that go to yearly well-child visits.

A related study by Jelalian et al. (2003) explored a survey of 1,243 physicians from the New England area. Although focused on New England, the results revealed interesting data

concerning physician training and counseling practices. A small portion of respondents, only 4.3%, reported receiving training in the area of treating obesity. When treating obesity 92.7% of respondents reported discussing the issue with both the parent and the child when the child was under the age of 12 years. This rate declined to 79.5% when addressing obesity with adolescent patients. In relation to counseling, the rate at which the physician discussed obesity increased incrementally with the weight of their patient. This suggests that mild obesity and at risk patients may be under treated by physicians, which has been supported by the findings of Kristeller and Hoerr (1997) in their survey of physician attitudes in managing adult obesity.

It must be noted that mothers, much like the primary care physician, are in a unique position to prevent obesity. They have a central role in shaping the diet and physical activity levels of their young children. A mother's perception of their child's weight and the physician practices when addressing weight greatly affect the ability to take advantage of their opportunity to prevent overweight and obesity in future years (Jain et al., 2001; Baughcum, Chamberlin, Deeks, Powers & Whitaker, 2000).

The parent perception of their child's weight coupled with the provider's perceived barrier of lack of parent involvement in treatment requires the development of provider counseling skills, education tools, and treatment protocols. In doing so, weight can be addressed in all well-child visits by reducing parent sensitivity, lack of standardized screening, and lack of family education practices.

Due to the relatively low response rates of the survey, generalizations based on data analysis are limited. Also, the survey design could lead to potential invalid responses.

Conclusion

The majority of pediatric providers are concerned about the current status of childhood and adolescent obesity. Perceived skill proficiency and interest in further education are influenced by provider's belief that barriers to effective treatment exist. Barriers include lack of clinician time, lack or reimbursement, lack of parent involvement and patient motivation, lack of support services, futility of treatment, misinformed provider beliefs, need for further training, and years in practice. This highlights the fact that obesity is a multifaceted and complex condition that is difficult to manage in the pediatric population. Many challenges exist in improving diagnosis and treatment practices, but provider interest in training provides an ample opportunity to address pertinent barriers and to develop practitioner guidelines, protocols, and educational tools.

The treatment of obesity not only requires provider diagnostic and treatment skills, but also prevention measures. This study focuses on the provider's role in the fight against childhood and adolescent obesity, but prevention extends well beyond the health care system. Decreasing barriers to treatment, establishing provider protocols, and improving provider education during their all stages of their career can all have a positive effect on the current epidemic. To significantly impact this widespread problem efforts must be made to involve families, schools, and the community.

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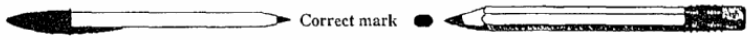
Appendix 1: ILSI Provider Survey

ILSI Research Foundation
Assessment of Overweight in Children and Adolescents

DIRECTIONS:

For each section, fill in the oval to indicate your experiences. Please be sure to use a LEAD PENCIL or a blue or black ink pen, and to fill in each oval completely. **If a question does not apply to you, leave it blank.** Thank you!



SECTION I: OVERALL TREATMENT - Experiences and Attitudes

(In the following questions, the term "adolescent" refers to young people who are undergoing or have completed puberty.)

1. In your opinion, how often is each of the following statements true?

	Most of the time	Often	Sometimes	Rarely	Never
a. Childhood overweight is a condition that needs treatment.	○	○	○	○	○
b. Adolescent overweight is a condition that needs treatment.	○	○	○	○	○
c. Overweight children will outgrow their overweight.	○	○	○	○	○
d. Overweight adolescents will outgrow their overweight.	○	○	○	○	○
e. Childhood overweight is more amenable to treatment than adult overweight.	○	○	○	○	○
f. Adolescent overweight is more amenable to treatment than adult overweight.	○	○	○	○	○
g. Overweight in childhood or adolescence has an effect on chronic disease in the future.	○	○	○	○	○
h. Overweight in childhood or adolescence has an effect on the quality of life in the future.	○	○	○	○	○

2. In your opinion, how often is each of the following an important barrier to effective treatment of overweight children and adolescents?

	Most of the time	Often	Sometimes	Rarely	Never
a. Lack of patient motivation	○	○	○	○	○
b. Lack of parent involvement in treatment	○	○	○	○	○
c. Lack of clinician time	○	○	○	○	○
d. Lack of reimbursement	○	○	○	○	○
e. Lack of clinician knowledge about treatment	○	○	○	○	○
f. Lack of treatment skills	○	○	○	○	○
g. Lack of support services (e.g., nutrition, counseling)	○	○	○	○	○
h. Futility (ineffectiveness of recommended interventions)	○	○	○	○	○
i. Concern about precipitating eating disorders	○	○	○	○	○
j. Other, *please specify:* _____	○	○	○	○	○

3. How often do you use information from each of the following sources when you assess and treat overweight children and adolescents?

	Most of the time	Often	Sometimes	Rarely	Never
a. Medical school / residency training (Pediatricians) OR Nursing school / graduate school (Nurse Practitioners) OR Undergraduate / graduate school / internship (Dietitians)	○	○	○	○	○
b. Professional journal articles	○	○	○	○	○
c. Workshops / seminars / programs / CME courses	○	○	○	○	○
d. Textbooks	○	○	○	○	○
e. Past experience	○	○	○	○	○
f. Mass media	○	○	○	○	○
g. Computer programs / web sites	○	○	○	○	○
h. Pharmaceutical companies	○	○	○	○	○
i. Other, *please specify:* _____	○	○	○	○	○

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4. For each of the following skills that are used in treatment of overweight children and adolescents, please rate your proficiency in that area and your interest in further training.

Skill	Proficiency			Interest in further training		
	Low	Moderate	High	Low	Moderate	High
a. Use of behavioral management strategies	○	○	○	○	○	○
b. Modification of patient diet / eating practices	○	○	○	○	○	○
c. Modification of patient physical activity	○	○	○	○	○	○
d. Modification of patient sedentary behavior	○	○	○	○	○	○
e. Guidance in parenting techniques	○	○	○	○	○	○
f. Addressing family conflicts / concerns	○	○	○	○	○	○
g. Assessment of the degree of overweight	○	○	○	○	○	○

5. Which of the following would you use to improve your ability to treat overweight children and adolescents?

	YES	NO		YES	NO
a. Professional guidelines	○	○	f. Telephone conferences	○	○
b. Government guidelines	○	○	g. Televised lectures	○	○
c. CME courses at national professional meetings	○	○	h. Videotapes	○	○
d. CME courses at local meetings	○	○	i. Textbooks	○	○
e. Computer programs / web sites	○	○	j. Other, *please specify:* _____	○	○

SECTION II: Your approach to the assessment and treatment of overweight children and adolescents.

1. During the past year, when you identified overweight children and adolescents, how often did you make recommendations for weight control?

	Most of the time	Often	Sometimes	Rarely	Never
a. Infants (0 - 2 years)	○	○	○	○	○
b. Preschool children (3 - 5 years)	○	○	○	○	○
c. School-age children (pre-pubertal)	○	○	○	○	○
d. Adolescents (pubertal or post-pubertal to 21 years)	○	○	○	○	○

2. How often do you use each of the following methods to assess excess weight in children and asolescents?

	Most of the time	Often	Sometimes	Rarely	Never
a. Clinical impression	○	○	○	○	○
b. Weight for age percentile	○	○	○	○	○
c. Weight for height percent (e.g., 200% of ideal weight for height)	○	○	○	○	○
d. Weight for height percentile	○	○	○	○	○
e. Change in weight velocity (crossing percentiles)	○	○	○	○	○
f. Body mass index (BMI = weight/height^2)	○	○	○	○	○
g. BMI percentile	○	○	○	○	○
h. Skinfold thickness percentile	○	○	○	○	○
i. Waist-hip ratio or waist circumference	○	○	○	○	○
j. Other, *please specify:* _____	○	○	○	○	○

3. Do you distinguish between overweight and obesity in your practice? ○ YES ○ NO

4. For each of the following methods, indicate the value you use as a cutoff. Mark the oval on the right if you never use a method. *If you answered "NO" to question 3, complete only the "Overweight" section below.*

	Overweight						Obese (if different from overweight)						NEVER USE
	110%	120%	130%	140%	150%	+150%	110%	120%	130%	140%	150%	+150%	
a. Weight for height percent (e.g., 200% of ideal weight for height)	○	○	○	○	○	○	○	○	○	○	○	○	○
	75th	85th	90th	95th	97th	99th	75th	85th	90th	95th	97th	99th	
b. Weight for age percentile	○	○	○	○	○	○	○	○	○	○	○	○	○
c. Weight for height percentile	○	○	○	○	○	○	○	○	○	○	○	○	○
d. BMI percentile	○	○	○	○	○	○	○	○	○	○	○	○	○
e. Skinfold thickness percentile	○	○	○	○	○	○	○	○	○	○	○	○	○
f. Body mass index (BMI) in the assessment of mature adolescents (kg/m²)	○ 18.5 - 24.9	○ 25 - 29.9	○ 30 - 34.9	○ 35 - 39.9	○ >40		○ 18.5 - 24.9	○ 25 - 29.9	○ 30 - 34.9	○ 35 - 39.9	○ >40		○

In the remaining questions, no distinction is made between the terms "overweight" and "obesity."

ASSESSMENT

5. When you evaluate children and adolescents for overweight, how often *in your history and physical examination* do you screen for the following conditions?

	Most of the time	Often	Sometimes	Rarely	Never
a. Hypertension	○	○	○	○	○
b. Endocrinologic disorders (e.g., hypothyroidism)	○	○	○	○	○
c. Orthopedic problems (e.g., tibia vara, slipped capital femoral epiphysis)	○	○	○	○	○
d. Type 2 diabetes mellitus or insulin resistance	○	○	○	○	○
e. Genetic syndromes associated with obesity (e.g., Prader Willi)	○	○	○	○	○
f. Sleep disorders (e.g., sleep apnea or obesity hypoventilation syndrome)	○	○	○	○	○
g. Pseudotumor cerebri	○	○	○	○	○
h. Gastrointestinal disorders associated with obesity (e.g., reflux, gallbladder disease)	○	○	○	○	○

6. When caring for overweight children and adolescents, how often do you request the following laboratory evaluations?

	Most of the time	Often	Sometimes	Rarely	Never
a. Lipid profile	○	○	○	○	○
b. Total cholesterol	○	○	○	○	○
c. Insulin	○	○	○	○	○
d. Glucose tolerance test	○	○	○	○	○
e. Glucose	○	○	○	○	○
f. Glycohemoglobin	○	○	○	○	○
g. Thyroid function tests	○	○	○	○	○
h. Cortisol	○	○	○	○	○
i. Liver enzymes	○	○	○	○	○
j. Other, *please specify:* _____	○	○	○	○	○

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7. When you evaluate children and adolescents for overweight, how often do you ask about family history for each of the following conditions?

	Most of the time	Often	Sometimes	Rarely	Never
a. Overweight	○	○	○	○	○
b. Dyslipidemia	○	○	○	○	○
c. Hypertension	○	○	○	○	○
d. Cardiovascular disease	○	○	○	○	○
e. Gallbladder disease	○	○	○	○	○
f. Eating disorders in the parents	○	○	○	○	○
g. Diabetes mellitus	○	○	○	○	○
h. Other endocrine abnormalities	○	○	○	○	○

8. When you evaluate children and adolescents for overweight, how often do you ask about or consider each of the following?

	Most of the time	Often	Sometimes	Rarely	Never
a. Poor self-esteem	○	○	○	○	○
b. Eating disorders	○	○	○	○	○
c. Depression	○	○	○	○	○
d. History of abuse (physical, sexual, or emotional)	○	○	○	○	○
e. Readiness to make changes to manage weight	○	○	○	○	○
f. Parent concern about weight	○	○	○	○	○
g. Patient concern about weight	○	○	○	○	○
h. Being teased about weight	○	○	○	○	○
i. Family dynamics	○	○	○	○	○

9a. As part of your evaluation of overweight children or adolescents, is a diet history usually obtained? ○ YES ○ NO

If "NO," skip questions 9b and 9c.

9b. Who is <u>usually</u> responsible for obtaining the diet history? *Choose only ONE.*

1. Dietitian / Nutritionist	○
2. Office / Clinic Nurse	○
3. Nurse Practitioner	○
4. Physician	○
5. Other, *please specify* _____	○

9c. How is the diet history <u>usually</u> obtained? *Choose only ONE.*

1. One-day recall	○
2. Diet diary	○
3. Usual or typical food intake	○
4. Food frequency questionnaire	○
5. Frequency of specific foods	○
6. Eating practice or pattern	○
7. Other, *please specify* _____	○

10. When caring for overweight children and adolescents, how often do you routinely ask about the following types of activity?

	Most of the time	Often	Sometimes	Rarely	Never
a. Organized physical activities (e.g., youth sports)	○	○	○	○	○
b. Unstructured physical activity or free play	○	○	○	○	○
c. Routine activity (e.g., walking to school or bus stop)	○	○	○	○	○
d. Time spent in sedentary behavior (TV, computer, video games, or reading)	○	○	○	○	○

TREATMENT

11. How often do you initiate treatment in the following patient groups?

	Most of the time	Often	Sometimes	Rarely	Never
a. Overweight *children* with no obesity-associated medical conditions	○	○	○	○	○
b. Overweight *adolescents* with no obesity-associated medical conditions	○	○	○	○	○
c. Overweight *children* who do not want to control their weight	○	○	○	○	○
d. Overweight *adolescents* who do not want to control their weight	○	○	○	○	○

12. When you treat overweight children and adolescents, whom do you routinely engage in treatment?
(Please mark only one for each age group.)

	Patient alone	Patient + Parent(s)	Patient + Parent(s) + Other household members
a. Preschool children (3-5 years)	N/A	○	○
b. School-age children (pre-pubertal)	○	○	○
c. Adolescents (pubertal or post-pubertal to 21 years)	○	○	○

13. When you treat overweight children and adolescents, how often do you use the following treatment approaches?

Eating	Preschool Children			School-age Children			Adolescents		
	Never	Sometimes	Often	Never	Sometimes	Often	Never	Sometimes	Often
a. Changes in eating patterns (e.g., snacks that are scheduled rather than "on demand")	○	○	○	○	○	○	○	○	○
b. Limitations of specific foods (e.g., chips, soda)	○	○	○	○	○	○	○	○	○
c. Low fat diet	○	○	○	○	○	○	○	○	○
d. Modest calorie restriction	○	○	○	○	○	○	○	○	○
e. Very low calorie diet, including a ketogenic diet	○	○	○	○	○	○	○	○	○
f. Commercial diet (e.g., Slimfast or other over-the-counter meal replacement)	○	○	○	○	○	○	○	○	○
g. Other diet changes, *please specify:* _____	○	○	○	○	○	○	○	○	○

Physical Activity	Preschool Children			School-age Children			Adolescents		
	Never	Sometimes	Often	Never	Sometimes	Often	Never	Sometimes	Often
h. Increase in organized activity (e.g., youth sports)	○	○	○	○	○	○	○	○	○
i. Increase in unstructured physical activity or free play	○	○	○	○	○	○	○	○	○
j. Increase in routine activity (e.g., walking)	○	○	○	○	○	○	○	○	○
k. Decrease in sedentary behavior (watching TV)	○	○	○	○	○	○	○	○	○

General	Preschool Children			School-age Children			Adolescents		
	Never	Sometimes	Often	Never	Sometimes	Often	Never	Sometimes	Often
l. Prescription medications for weight loss	○	○	○	○	○	○	○	○	○
m. Over-the-counter appetite suppressants	○	○	○	○	○	○	○	○	○
n. Herbal remedies	○	○	○	○	○	○	○	○	○
o. Weight loss surgery	○	○	○	○	○	○	○	○	○

14. Indicate how often you refer overweight children or adolescents to each of the following programs or specialists. *If any of the following programs or specialists are not available to you for referral, indicate "Not Available for Referral."*

	Most of the time	Often	Sometimes	Rarely	Never	Not Available for Referral
a. Behavior modification / behavior therapist	○	○	○	○	○	○
b. Family therapy	○	○	○	○	○	○
c. Group therapy	○	○	○	○	○	○
d. Dietitian / Nutritionist	○	○	○	○	○	○
e. Nurse	○	○	○	○	○	○
f. Exercise specialist	○	○	○	○	○	○
g. Child / Adolescent weight loss program (e.g., Shapedown, Body Shop)	○	○	○	○	○	○
h. Pediatric obesity specialist or program	○	○	○	○	○	○
i. Pediatric subspecialist (e.g., endocrinologist, pulmonologist, orthopedist)	○	○	○	○	○	○
j. Commercial adult weight loss program (e.g., Weight Watchers)	○	○	○	○	○	○
k. Self-help programs (e.g., Overeater Anonymous, TOPS)	○	○	○	○	○	○
l. Camps for overweight children / adolescents	○	○	○	○	○	○
m. Other programs for children / adolescents, *please specify:* _____	○	○	○	○	○	○

15. How frequently do you routinely schedule follow-up visits for the treatment of overweight?

- ○ More than once a week
- ○ Every 1-2 weeks
- ○ Every 3-4 weeks
- ○ Every 5-6 weeks
- ○ Every 2 months
- ○ Every 3 months
- ○ Every 4-6 months
- ○ More than 6 months

SECTION III: General Information about your background, training, and practice.

1. What year did you go into practice (excluding training)?

Example: 19 | 4 | 0 |

19 | | |

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2. Which of the following is your specialty area?

- ○ Pediatrics
- ○ General practice (adults and children)
- ○ Other (specify) _____

3. What type of care do you usually provide? (>50% of your time)

- ○ Primary
- ○ Referral

4. In which area do you spend more than 50% of your clinical work time caring for patients? *Choose only ONE.*

- ○ General Pediatric and/or Adult Practice
- ○ Adolescent Medicine
- ○ Allergy
- ○ Cardiology
- ○ Developmental / Behavioral
- ○ Emergency Medicine
- ○ Endocrinology
- ○ Gastroenterology
- ○ Hematology / Oncology
- ○ Infectious Disease
- ○ Neonatology / Perinatology
- ○ Pulmonology
- ○ Other (specify) _____

5. During a typical work week, how many hours do you spend in direct patient care?

- ○ 0-5 hours
- ○ 6-10 hours
- ○ 11-15 hours
- ○ 16-20 hours
- ○ 21-25 hours
- ○ 26-30 hours
- ○ 31-35 hours
- ○ 36-40 hours
- ○ 41-45 hours
- ○ 46-50 hours
- ○ Over 50 hours

6. During a typical complete work week, approximately how many patients do you see?

- ○ 1-10
- ○ 11-20
- ○ 21-30
- ○ 31-40
- ○ 41-50
- ○ 51-60
- ○ 61-70
- ○ 71-80
- ○ 81-90
- ○ 91-100
- ○ 101-125
- ○ 126-150
- ○ 151-175
- ○ 176-200
- ○ 201-225
- ○ 226-250
- ○ > 250

7. What is the *approximate* racial/ethnic composition of your child/adolescent patients?

	0%	<10%	10-25%	26-50%	>50%	Don't Know
a. Blacks / African Americans	○	○	○	○	○	○
b. Asian Americans / Pacific Islanders	○	○	○	○	○	○
c. Whites / European Americans	○	○	○	○	○	○
d. Native Americans / Alaskan Natives	○	○	○	○	○	○
e. Biracial / multiracial	○	○	○	○	○	○
f. Other *(specify)*: _____	○	○	○	○	○	○

g. What is the *approximate* Hispanic/Latino American composition of your child/adolescent patients?

0%	<10%	10-25%	26-50%	>50%	Don't Know
○	○	○	○	○	○

8. What is the *approximate* percentage of your patients covered by private insurance, public insurance, or are uninsured?

	0%	<10%	10-25%	26-50%	>50%	Don't Know
a. Private or commercial insurance	○	○	○	○	○	○
b. Medicaid	○	○	○	○	○	○
c. Uninsured	○	○	○	○	○	○
d. Other *(specify)*: _____	○	○	○	○	○	○

9. Approximately what percent of your INSURED patients (both privately and publicly insured) belong to a managed care system or are traditional fee-for-service?

	0%	<10%	10-25%	26-50%	>50%	Don't Know
a. Managed care system (i.e., HMO, PPO, etc.)	○	○	○	○	○	○
b. Non-managed care system (i.e., traditional fee-for-service)	○	○	○	○	○	○

10. What is your sex?

○ Male
○ Female

11. How tall are you?

feet	inches
○ 4	○ 0
○ 5	○ 1
○ 6	○ 2
○ 7	○ 3
	○ 4
	○ 5
	○ 6
	○ 7
	○ 8
	○ 9
	○ 10
	○ 11

12. How much do you weigh? *(In pounds)*

Example: 1 4 5

13. How many days of the week do you typically exercise for 30 minutes or more per day (of at least moderate activity, similiar to the intensity of a brisk walk, which results in increased breathing and heart rate)?

○ 0
○ 1
○ 2
○ 3
○ 4
○ 5
○ 6
○ 7

14. How often do you eat a low-fat diet? *(Less than 30% of calories from fat)*

○ Always
○ Most times
○ Sometimes
○ Rarely / Never
○ Don't know

15. On average, how many servings of fruits and vegetables do you eat a day?

○ 0
○ 1
○ 2
○ 3
○ 4
○ 5
○ more than 5

THANK YOU FOR FILLING IN THIS SURVEY!

Please remember to go back through and fill in each oval completely to indicate your answer and to erase any stray marks. Place the questionnaire in the postpaid envelope, and mail it.

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