

Management of Child and Adolescent Obesity: Psychological, Emotional, and Behavioral Assessment

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ABSTRACT. *Objective.* The primary objective of this study was to describe the usual psychological, emotional, and behavioral evaluations of overweight children and adolescents to target education of pediatric health care providers. A secondary aim was to determine whether certain provider characteristics were associated with recommended evaluation practices.

Methods. A total of 203 pediatricians, 293 pediatric nurse practitioners, and 444 registered dietitians completed questionnaires about their evaluation of overweight children and adolescents (response rates 19%, 33%, and 27%, respectively). Results were examined for adherence to published recommendations and for associations with certain provider characteristics.

Results. All 3 groups generally followed recommended psychological and emotional evaluation practices. Nearly all respondents obtained a diet history, and >75% evaluated physical activity as recommended. Fifty to 61% routinely initiated treatment in overweight children with no obesity-associated medical conditions, and 13% to 29% initiated treatment in children and adolescents who did not want to control weight. The majority included parents in treatment, but one third or fewer involved all household members. More than 75% sometimes referred to a mental health specialist. In general, provider's body mass index, gender, years in practice, and practice specialty were not associated with following evaluation recommendations.

Conclusions. Emotional and behavioral assessments were generally consistent with recommendations. Providers will benefit from identification of methods to engage overweight youth who do not want to control weight. *Pediatrics* 2002;110:215–221; *child obesity, adolescent obesity, management, evaluation, assessment.*

ABBREVIATIONS. BMI, body mass index; MCHB, Maternal and Child Health Bureau; HRSA, Health Resources and Services Administration; DHHS, Department of Health and Human Services; PNP, pediatric nurse practitioner; RD, registered dietitian; OR, odds ratio; CI, confidence interval.

Obesity is a challenging health problem for children as well as adults. Scientists are learning more about physiologic and environmental causes of obesity and searching for effective treatments but have not found an easy, effortless

intervention. The foundation of therapy remains modification of eating and activity.¹ Although simple to describe, this approach is rarely simple to implement and instead requires deliberate, gradual steps. An accurate assessment of medical conditions and risks needs to precede treatment. However, equally important is a thorough evaluation of psychological and emotional risks and existing eating and activity behaviors. This evaluation must precede efforts to change these behaviors.

In many obese children and adolescents, the most widespread consequences of obesity are psychosocial.² Young people are socialized to the importance of appearance early in life. Both boys and girls who perceive themselves to be different from recognized norms report dissatisfaction with themselves, and excess weight is a common reason for feeling different.³ Obese adolescents often experience significant depression and low self-esteem.⁴ Obese preschoolers have greater frequency and higher levels of emotional distress and psychiatric symptomatology than peers of normal weight.⁵ A practitioner who understands the psychological significance of a child's or adolescent's obesity will be able to focus concern on health, not self-worth, or to refer for counseling if necessary.

Research over the past 4 decades has demonstrated that childhood is a period when dietary and lifestyle patterns are initiated.⁶ These patterns influence body composition. Data from the National Heart, Lung, and Blood Institute Growth and Health study demonstrated a relationship between physical activity patterns, number of hours of television and videos watched, intake of saturated fats, and body mass index (BMI) and skinfold thickness in African American and white adolescent girls. In both groups of girls, body fatness was significantly related to sedentary activity and high-fat diet.⁷

Birch and Fisher⁸ suggested that parental preferences for high-fat, energy-dense foods limits children's acceptance of a variety of foods and disrupts a child's cues for hunger and satisfaction. These authors also found that children model their parents' eating behaviors. Diets high in fat and low in complex carbohydrates are associated with adiposity.⁹ Calorically dense foods are abundant and readily available in the United States. Fast food establishments have increased, and the busy lifestyles of many families have made these establishments an easy alternative to more nutritious meals at home.

Because physical activity can be modified, this

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component of energy expenditure is an important focus of change in childhood obesity management. Data on the adherence of children to current recommendations for physical activity are scarce. A study of a nationally representative sample of 4063 children (aged 8–16 years) during 1988–1991 showed that 20% of US children exercised vigorously twice per week or less.¹⁰ In addition, 67% of children watch >2 hours of television per day.¹⁰ This observation is of concern because television viewing appears to be linked to obesity.¹¹ In a clinical setting, the specific baseline eating and activity patterns of an overweight child form the basis for recommended change.

To assist clinicians who care for obese children and adolescents, the Maternal and Child Health Bureau (MCHB), Health Resources and Services Administration (HRSA), Department of Health and Human Services (DHHS), Rockville, Maryland, supported a national assessment of pediatric health care providers to determine their attitudes and their perception of barriers to obesity intervention, and their evaluation and intervention practices. By identifying areas of incomplete evaluation or treatment, the MCHB, HRSA, DHHS, the Centers for Disease Control and Prevention, the National Institutes of Health, the US Department of Agriculture, and professional organizations can design and implement programs to educate and assist providers in dealing with this complex problem within the limited time available at office visits. One goal of the assessment was to learn how often practitioners consider emotional state, eating and activity habits, and family's involvement and how this knowledge may affect their approach to treatment. Their responses to the questions on this subject are the focus of this article. This study's primary aim was to characterize the usual psychological, emotional, and behavioral evaluations of pediatric professionals who see overweight youth. Additional aims were to compare these approaches reported by providers to those recommended by an Expert Committee and to identify any associations between reported interventions and the respondent's type of practice and personal demographics.

METHODS

The methods used to develop and administer the needs assessment are provided in the accompanying article by Trowbridge et al.¹² Briefly, a random sample of members of the American Academy of Pediatrics ($n = 1088$), the National Association of Pediatric Nurse Associates and Practitioners ($n = 879$), and the American Dietetic Association (members from the Pediatric Nutrition and the Sports, Cardiovascular, and Wellness Practice Groups) ($n = 1652$) received the questionnaire.

In this article we present information about the practitioners' assessment of psychological and emotional factors and behaviors related to obesity. Specific questions included how often the practitioners asked about readiness to make changes, parent's concern about weight, patient concern about weight, poor self-esteem, eating disorders, depression, history of abuse, being teased about weight, and family dynamics. Practitioners reported whether they obtained a diet history and the methods they used. They reported how often they asked about different levels of physical activity, including organized physical activity, unstructured physical activity, routine activity, and time spent in sedentary behavior. Practitioners were asked how often they initiated treatment in overweight children and adolescents with no obesity-associated medical problems and how often they initiated treatment in over-

weight children and adolescents who did not want to control their weight. They reported frequency of referrals to mental health therapists. Response options to most questions were in Likert-scale format: "most of the time," "often," "sometimes," "rarely," or "never."

The authors identified recommended practices for psychological assessment and for diet and physical activity assessment. The primary source for these recommendations was a committee of experts in childhood obesity convened in March 1997 by the MCHB, HRSA, DHHS.¹ The Expert Committee based their recommendations on studies of behavioral programs for weight loss in children, especially the work of Epstein et al^{13,14} and, when published evidence was not available, their own experience. Based on this information, the recommended assessment of emotional and psychological factors was defined to include responses of "most of the time" or "often" to all specific questions in this area, with the exception of "sexual abuse." For this question, acceptable responses included "sometimes" as well as "often" and "most of the time" because sexual abuse as a cause of obesity is rare,¹⁵ and raising the possibility without some indication may cause the family unwarranted anxiety. The Committee recommended involvement of the entire household in treatment at all ages, rather than the patient alone or the patient and parent. The Committee recommended use of counselors for some families to assist with behavior change. Recommended use of counselors was defined as report of referring children or adolescents to a mental health therapist (behavior therapist, family therapy, or group therapy) sometimes or more frequently. The responses identified as consistent with recommended practices are presented in Table 1.

Because professional practice and training and personal experience with weight issues could influence a practitioner's attitude and approach when caring for overweight children, we examined the relationship of gender, BMI, years in practice, and practice specialty with the practitioners' evaluation practices. For all respondents, we calculated BMI from self-reported weight and height and grouped practitioners into 3 categories: BMI <5 kg/m², BMI 25 to 29.9 kg/m², and BMI ≥30 kg/m². We defined 3 categories based on years in practice: <5 years, 6 to 10 years, and >10 years. Practitioners were also divided into 2 groups with regard to practice specialty based on whether they spent the majority of their clinical time in general practice or in subspecialty practice including adolescent medicine, cardiology, developmental/behavioral pediatrics, endocrinology, gastroenterology, and pulmonology. Excluded from analysis were those responders who work in specialty areas such as emergency medicine or neonatology where weight or weight-related issues are unlikely to be addressed frequently. We used χ^2 tests to look for associations between these characteristics (gender, BMI, years in practice, and practice specialty) and adherence to recommended evaluation practices. Because <5% of pediatric nurse practitioners (PNPs) and registered dietitians (RDs) were male, we limited analysis of gender and evaluation practices to pediatricians. As noted in the article by Trowbridge et al,¹² because gender, BMI, specialty, and years in practice are related, any significant associations were reexamined with logistic regression multivariate analysis to control for the other responder characteristics.

RESULTS

A total of 203 (19%) pediatricians, 293 (33%) PNPs, and 444 (27%) RDs completed the assessment. Data supplied by Trowbridge et al¹² provide information about the respondents' practice settings and personal characteristics, including number of years in practice, gender, and BMI.

Evaluation of Psychosocial Factors

All groups reported routinely evaluating the psychological and emotional status of patients (Table 2). Ninety percent or more of all 3 groups reported often considering "readiness to make changes," "patient's concern about weight," and "parent's concern about weight." Eighty percent to 92% often asked about "poor self-esteem" and "being teased about weight," and 67% to 86% reported often considering "eating

TABLE 1. Recommended Practices and Responses Consistent With Recommended Practices

A. Recommended psychological assessment*	
Poor self-esteem	M or O
Eating disorders	M or O
Depression	M or O
Readiness to make changes to manage weight	M or O
Parent concern about weight	M or O
Patient concern about weight	M or O
Being teased about weight	M or O
Family dynamics	M or O
History of abuse (physical, sexual, or emotional)	M, O, or S
B. Recommended physical activity assessment*	
Organized physical activity (eg, youth sports)	M or O
Unstructured physical activity or free play	M or O
Routine activity (eg, walking to school)	M or O
Time spent in sedentary behavior (television, computer, video games, or reading)	M or O
C. Recommended participants in treatment programs for overweight children and adolescents*	
Preschool-aged children (3–5 y)	All household members
School-aged children (prepubertal)	All household members
Adolescents (pubertal or postpubertal to 21 y)	All household members
D. Referral to mental health specialist or program†	
Behavior modification/behavior therapy	M, O or S
Family therapy	M, O or S
Group therapy	M, O or S

* Adherence is defined as designated responses for all items in category.

† Adherence is defined as designated responses for at least 1 item in category.

M indicates most of the time; O, often; S, sometimes; R, rarely; N, never.

TABLE 2. Psychological and Emotional Evaluation

Psychological Evaluation	% Pediatricians (<i>n</i> = 191–193)	% PNPs (<i>n</i> = 279–285)	% RDs (<i>n</i> = 401–407)
Poor self-esteem	84.4	91.6	86.7
Eating disorders	67.7	76.3	78.4
Depression	73.0	86.4	68.9
History of abuse	36.7	53.0	45.3
Readiness to make changes	89.5	93.2	95.0
Parent concern about weight	93.2	91.5	94.3
Patient concern about weight	93.3	97.9	95.3
Being teased about weight	83.4	87.7	85.0
Family dynamics	74.7	81.0	86.0
Recommended evaluation	42.0	56.8	50.5

Percentage of pediatricians, PNPs, and RDs who responded “most of the time” or “often.” Because of missing responses, *N* varied somewhat for each question.

disorders” and “family dynamics.” Eighty-six percent of PNPs often asked about depression compared with 73% of pediatricians and 69% of dietitians. “History of abuse” was asked about least often, especially among pediatricians (37%). The practitioner’s gender, BMI, number of years in practice, and specialty were not associated with adherence to recommended psychological evaluation in any of the professional groups.

Adherence to psychological evaluation recommendations was associated with years in practice among pediatricians only. Pediatricians who followed these recommendations were more likely to be in practice 10 or more years, and this relationship persisted after adjustment for gender, specialty, and BMI category (odds ratio [OR] = 3.0; 95% confidence interval [CI]: 1.1, 8.1).

Diet History

More than 90% of all providers obtained a diet history (data not shown). Almost all dietitians (99%) obtained the diet history themselves, whereas about

20% of pediatricians and PNPs used the diet history information obtained by others. The methods most frequently used were “usual or typical food intake” (30%–46%), “diet diary” (20%–31%), and “1-day recall” (15%–26%; Table 3). No single method of obtaining the diet history was used frequently by >50% of responders. In the “other” possible response to this question, 8 of 940 responders specified a 3-day diary.

Physical Activity History

The majority of providers frequently assessed all levels of physical activity (Table 4). More than 95% of all providers asked about organized physical activities, >90% asked about unstructured physical activity or free play and about sedentary behavior, and >85% asked about routine activities. More than 91% of all providers followed recommended practices in this assessment category. Within each professional group, the respondents who adhered to recommended practices did not differ in gender, BMI, years in practice, and specialty.

TABLE 3. Usual Method of Obtaining Diet History

Diet Assessment Method	% Pediatricians (<i>n</i> = 170)	% PNPs (<i>n</i> = 241)	% RDs (<i>n</i> = 385)
1-day recall	15.3	25.7	16.9
Diet diary	31.2	30.3	20.3
Usual or typical food intake	33.5	29.9	46.2
Food frequency questionnaire	2.4	0.4	6.0
Frequency of specific foods	1.2	2.5	1.8
Eating practice or pattern	14.1	9.1	5.7

Percentage of pediatricians, PNPs, and RDs who selected each response.

TABLE 4. Evaluation of Physical Activity

Physical Activity Assessment	% Pediatricians (<i>n</i> = 190)	% PNPs (<i>n</i> = 283–284)	% RDs (<i>n</i> = 412–414)
Organized physical activities	97.4	97.6	95.9
Unstructured physical activity	91.6	93.7	95.9
Routine activity	85.3	90.8	94.0
Time spent in sedentary behavior	93.6	95.8	93.3
Recommended evaluation	78.4	86.2	87.6

Percentage of pediatricians, PNPs, and RDs who responded “most of the time” or “often.” Because of missing responses, *N* varied somewhat for each question.

Initiating Treatment in Patient Groups

Fifty percent to 61% of the responders reported initiation of treatment in overweight children who had no obesity-associated medical conditions, and a higher percentage (55%–77%) treated adolescents with no obesity-associated medical condition. Dietitians reported this approach in both age groups less often (50%–55%). A minority of responders (13%–29%) initiated treatment in overweight children and adolescents who do not want to control their weight, and again, the dietitians were least likely to endorse this approach (Table 5).

Among pediatricians, females more often than males initiated treatment in overweight children with no obesity-associated medical conditions. This relationship persisted after adjustment for specialty, years in practice, and BMI category (OR = 2.12; 95% CI = 1.02, 4.41). The specialty, BMI category, and years in practice of pediatricians were not associated with initiating treatment in children who did not want to control weight or in adolescents. Among PNPs, those with BMIs <25 more often initiated treatment in children with no obesity-associated medical condition. When adjusted for years in practice and specialty, the OR for this relationship was 2.83 (95% CI = 1.03, 7.76). PNPs in practice longer treated overweight children less often when the children did not want to control their weight. When

adjusted for specialty and BMI category, the OR was 0.38 (95% CI = 0.18, 0.78). The same relationship was true among PNPs who initiated treatment in adolescents who did not want to control weight (OR = 0.42; 95% CI = 0.2, 0.86). Among dietitians, BMI category, specialty category, and years in practice were not associated with treatment of overweight youth with no obesity-associated medical problems or with no interest in weight management.

Involvement of Parents and Other Caregivers in Treatment

The majority of practitioners (55%–73%) involved parents and patients in the treatment of obesity for both children and adolescents (Table 6). An additional 15% to 33% involved other caregivers as well. Only 14% to 28% of practitioners involved the patient alone in obesity treatment for adolescents.

Referral to Mental Health Programs and Specialists

A small percentage of the respondents routinely referred to behavior modification programs or a behavioral therapist (12%–24%), to family therapy (8%–15%), and to group therapy (5%–10%). Referral to any one of these mental health therapy options at least sometimes was 69% for pediatricians, 79% for PNPs, and 89% for RDs (Table 7). No association was found between adherence to recommendations for

TABLE 5. Initiating Treatment in Patient Groups

Patient Groups	Pediatricians (<i>n</i> = 189–190)	PNPs (<i>n</i> = 268–272)	RDs (<i>n</i> = 361–367)
Overweight children with no obesity-associated medical conditions	57.1	61.4	49.8
Overweight adolescents with no obesity-associated medical conditions	72.6	76.7	55.3
Overweight children who do not want to control their weight	26.9	25.4	14.1
Overweight adolescents who do not want to control their weight	29.0	24.3	13.3

Percentage of pediatricians, PNPs, and RDs who responded “most of the time” or “often.” Because of missing responses, *N* varied somewhat for each question.

TABLE 6. Involvement of Family in Treatment

Age of Patient	% Pediatricians (<i>n</i> = 182–188)	% PNPs (<i>n</i> = 249–273)	% RDs (<i>n</i> = 331–386)
Preschool-aged			
Parent	68.1	69.9	70.4
All household members	31.9	30.1	29.6
School-aged			
Parent	66.5	70.8	73.5
All household members	33.5	28.5	25.1
Adolescent			
Parent	59.6	61.2	55.7
All household members	26.1	19.8	15.5

Percentage of pediatricians, PNPs, and RDs who routinely involve parents or who routinely involve all household members in treatment. Because of missing responses, *N* varied somewhat for each question.

TABLE 7. Use of Mental Health Specialists

Mental Health Specialists	% Pediatricians (<i>n</i> = 183–185)	% PNPs (<i>n</i> = 263–264)	% RDs (<i>n</i> = 357–370)
Behavior modification/behavior therapist*	16.7	12.1	23.5
Family therapy*	8.1	9.1	15.2
Group therapy*	8.2	4.6	10.3
Recommended practice†	89.1	78.7	89.4

* Percentage of respondents (pediatricians, PNPs, and RDs) who responded who responded “most of the time” or “often.” Because of missing responses, *N* varied somewhat for each question.

† Percentage of respondents who reported referring overweight patients to at least one of the three mental health practices “sometimes,” “often,” or “most of the time.”

mental health referral and practitioner characteristics.

DISCUSSION

Pediatric practitioners are likely to care for overweight children and adolescents daily, yet scarce information is available on current practices of evaluating and caring for this group. Just as modification of diet and activity must begin with an understanding of present behavior, improvement of care of obese children must develop from an accurate understanding of current practice.

Studies have examined the relationship of obesity with such psychological issues as self-esteem, depression, eating disorders, and family dynamics. These studies have identified low self-esteem and significant depression in overweight children as well as higher levels of emotional distress and psychiatric symptomatology.^{4,5} The importance of readiness to make change has been examined in adults who are changing behavior,^{16,17} and evidence exists of the importance of this step in dietary change among adolescents.^{18–20} Little is known about whether pediatricians, PNPs, and RDs routinely assess these psychological issues. In a study of pediatricians’ perceptions and practices regarding childhood obesity, 71% of pediatricians strongly agreed that childhood obesity is a significant cause of peer rejection. However, the pediatricians were not asked to report whether they evaluated this consequence when they cared for overweight children.²¹ A recent study of a variety of health professionals who work with overweight adolescents found that about 75% of pediatricians, nurses, and RDs discussed weight-related self-acceptance/self-esteem issues, and 43% of pedi-

atricians, 55% of nurses, and 44% of RDs discussed weight-related stigmatization.²²

In this study, the majority of the practitioners routinely considered self-esteem, depression, readiness to change, family dynamics, and other social and emotional states. Less frequently considered was a history of abuse, an experience that can lead to excess weight gain.¹⁵ At least 67% of each professional group adhered to the recommended evaluation, which was to ask about nearly all topics often or most of the time. This information demonstrates that the respondents were concerned about psychological issues related to excess weight and assessed these issues. However, most of these providers, especially RDs, did not initiate treatment in patients who did not want to control their weight. This finding raises the question of how to care for the unmotivated, overweight child.

Literature that reports the effect of a patient’s attitude on effect of intervention does not exist. The Expert Committee suggested that parents modify diet and activity for younger children who do not want to control their weight.¹ When providers identify overweight patients who are not concerned about weight and are not ready to make changes, they may need to motivate these families for change. Age of the child, degree of overweight, and motivation of the family are all factors that could influence the approach taken by providers. Families of children or adolescents with marked obesity, especially if accompanied by medical complications, may benefit from work with a mental health professional to address resistance to change. Less than 25% of the respondents at least sometimes referred to mental health therapy. This low use could indicate that ap-

appropriate specialists or programs are unavailable or not covered by insurance. These providers may not feel that these referrals are helpful. Future work to identify appropriate strategies when overweight youth do not want to address weight could decrease the number of overweight children and adolescents untreated.

Lack of a medical complication of obesity also deterred many providers from initiating treatment. The Expert Committee recommended that weight management was an appropriate goal for children whose BMI is at the 95th percentile or higher, even in the absence of medical complications.¹ The rise in obesity prevalence²³ and the associated health risks^{24,25} suggest that providers should not exclude such children from treatment efforts.

The acquisition of a diet history was almost universal (91%–100%). However, no single method was routinely used by a majority of professionals, probably because no method is recognized as the most valid method. All methods have limitations,²⁶ and underreporting commonly occurs.²⁷ A higher proportion of dietitians often used “usual or typical food intake” to assess diet history. The practitioners also reported thorough assessments of baseline physical activity. More than 90% of each professional group often assessed nearly all types of physical activity included in the assessment. These approaches are consistent with the Expert Committee recommendations that the diet history should include a global assessment of the child or adolescent’s eating habits, and that a history of physical activity should quantify all levels of activity.¹ Increased activity¹⁴ and decreased television viewing²⁸ can improve children’s weight. Over 75% of practitioners followed recommended practices on inactivity and television viewing.

The majority of respondents reported that they involved a parent in treatment. Studies of preadolescent children have demonstrated improved long-term outcome when a parent participates in the treatment program.^{29,30} Participation by parents of adolescents, however, may have no benefit.³¹ Nearly all respondents involved a parent or the entire household in treatment of preschool and school-aged children, and >70% involved a parent or the entire household in the treatment of adolescents. The Expert Committee recommended that practitioners engage the entire household in the eating and activity changes to create a healthy environment.¹ Involvement of the entire household in weight treatment was reported by one third or fewer of the practitioners. Provider’s time for patient visits, cost of extra visits for treatment, and time available by families and other caregivers may be factors associated with these responses.

Personal experience with excess weight or with efforts to lose weight may influence the ways a practitioner cares for obese patients. The relationship of a practitioner’s body weight status and gender with clinical practices has not been studied. Physician specialty appears to influence likelihood that the physician provides weight management counseling for overweight adult patients,³² but this relationship has

not been studied in pediatric providers. In this assessment, the relationships between practitioner characteristics and reported adherence to recommended practices were modest and not consistent across the professional groups. Among pediatricians, more years in practice was associated with following psychological evaluation recommendations, and gender was associated with initiation of treatment in children with no medical problems. Among PNPs, lower BMI was associated with initiation of treatment in children with no medical problem, and fewer years in practice was associated initiation of treatment in children and adolescents who do not want to control weight. RD characteristics were not associated with any of the practices we examined. Additional study is needed to assess the robustness of these findings before educational efforts can be targeted to practitioners based on their BMI, gender, years in practice, or specialty.

CONCLUSION

The pediatric health care providers who responded to this assessment reported routine assessment of psychological and emotional states of overweight children and their families as part of weight control evaluation. In addition, they routinely assessed baseline diet habits, physical activity, and sedentary behavior. Of concern are the many providers who reported that they do not treat overweight children who have no medical conditions and overweight children who have no interest in weight control. Excess weight in many children will persist and will lead to health problems eventually. Although the low response rates limit the generalization of these results, the findings suggest that professional organizations and agencies should promote weight control efforts in children and adolescents with BMIs at the 95th percentile or above, regardless of whether they have current medical conditions. More important, research is needed on how to engage unmotivated and unconcerned families without embarrassing or alienating them. Such research should consider the age of the child and the attitude of the patient and the family. The usefulness of mental health professionals in this process should be studied, as well as the effect of involving the entire household in weight control. Because obesity treatment always requires behavior change, the emotional state of each family affects their ability to control weight successfully. Health care providers will benefit from both skillful assessment and appropriate application of this information.

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