

# Management of Child and Adolescent Obesity: Study Design and Practitioner Characteristics

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**ABSTRACT.** *Objective.* A study was undertaken to examine the attitudes and practices of health care providers in the assessment and treatment of overweight and obese children and adolescents. This study describes the study design and the practice settings and person characteristics of the practitioners included in this study.

*Methods.* A needs assessment questionnaire was developed by a working group consisting 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. The questionnaire consisted of 35 questions divided into 3 topic areas and was disseminated to a sample of pediatricians ( $n = 1088$ ), pediatric nurse practitioners ( $n = 879$ ), and registered dietitians ( $n = 1652$ ).

*Results.* Despite a low response rate (33% for pediatric nurse practitioners, 27% for registered dietitians, and 19% for pediatricians), descriptive data were obtained about a variety of practitioner characteristics. Some significant differences were observed across practitioner groups and between genders in regard to years in practice, body mass index, and dietary and physical activity behaviors. Significant relationships were also observed in some practitioner groups between body mass index and compliance with dietary and physical activity guidelines.

*Conclusions.* Our data show there is a wide variance in practitioner characteristics, particularly in regard to gender, years of practice, body mass index, and obesity-related behaviors. It is hoped the analyses presented in this and in the subsequent articles will provide useful information on current attitudes and practices and will contribute to improvements in the treatment of overweight children and adolescents. *Pediatrics* 2002;110:205–209; *child obesity, adolescent obesity, practitioner characteristics.*

dietitian; PNP, pediatric nurse practitioner; ILSI, International Life Sciences Institute; ADA, American Dietetic Association; BMI, body mass index; OR, odds ratio; CI, confidence interval.

Obesity in children and adolescents is increasingly recognized as a major health concern.<sup>1</sup> Recent surveys have demonstrated an alarming increase in the prevalence of obesity in children and adolescents in the United States and in many other countries,<sup>2</sup> paralleling similar trends in the adult population.<sup>3</sup> Obesity has important implications for the physical and emotional health of children and adolescents and increases the risk of continuing obesity and the development of chronic diseases later in life.<sup>4</sup>

Because of the significance of child and adolescent obesity as a public health issue, it is important to understand the attitudes and treatment approaches of practitioners who care for children and adolescents. It is also critical to examine the perceived needs of practitioners for specific training that could improve their assessment and management practices. In recognition of these needs, the Maternal and Child Health Bureau (MCHB), Health Resources and Services Administration (HRSA), Department of Health and Human Services (DHHS), Rockville, Maryland, in conjunction with the National Center for Education in Maternal and Child Health (NCEMCH), Arlington, Virginia, convened an Expert Committee to consider these issues and recommend guidelines for the assessment and treatment of overweight and obese children.<sup>5</sup> The committee included registered dietitians (RDs), pediatric nurse practitioners (PNPs), pediatricians, and other health professionals.

An important outcome of the Committee's deliberations was a recommendation to undertake a needs assessment of practitioners who provide care to obese children and adolescents. The needs assessment would provide a better understanding of the extent to which current assessment and treatment practices are consistent with the Expert Committee's recommendations and would identify ways in which care might be improved. To implement the needs assessment, a collaboration was established for administrative and technical support with the Center for Health Promotion of the International Life Sciences Institute (ILSI), Atlanta, Georgia, and with Harris Interactive, Inc, Rochester, New York.

This article reviews the methods used in the needs

ABBREVIATIONS. MCHB, Maternal and Child Health Bureau; HRSA, Health Resources and Services Administration; DHHS, Department of Health and Human Services; NCEMCH, National Center for Education in Maternal and Child Health; RD, registered

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Received for publication Jan 28, 2002; accepted Mar 14, 2002.

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assessment and also summarizes information about the type of practice, patient populations served, and selected personal characteristics of the practitioners who responded to the needs assessment. Related articles, based on data from the same needs assessment, describe the practitioner's reported attitudes, perceived barriers, skills and training needs, approaches to medical and laboratory assessment, emotional and behavioral assessment, and treatment practices. These related articles also assess some of the relationships of these variables to the patient and practitioner characteristics discussed in this article.

## METHODS

### Development of the Questionnaire

The questionnaire for the needs assessment was developed by a working group of the MCHB Expert Committee, NCEMCH, ILSI, and Harris Interactive, Inc. A questionnaire was developed consisting of 35 questions divided into 3 main topic areas. Section I addressed attitudes, perceived skills, and training needs of practitioners in dealing with child and adolescent obesity. Section II addressed approaches to assessment and treatment. Section III collected general information about the type of practice, the patient population served, and selected characteristics of the practitioners themselves. Response choices for most items were primarily Likert scale responses (ie, "most of the time," "often," "sometimes," "rarely," and "never").

This article describes the methods used to develop and administer the needs assessment. It also presents information from the needs assessment dealing with the practice settings and selected personal characteristics of the practitioners. This information was gathered to permit assessment of the possible influence of practice setting and practitioner characteristics on the attitudes, perceived training needs, and treatment approaches of practitioners caring for overweight and obese children and adolescents. Specifically, information was gathered about the number of years in practice, the type of practice (primary or referral), and specialty area(s). Also requested was information about the time spent in direct patient care and the number of patients seen per week, to assess the average patient load or "practice density" for each of the practitioner groups. The racial/ethnic composition of the patient population, insurance coverage, and participation in managed care were also assessed. Finally, information was requested about selected personal characteristics of the practitioners, which might influence their attitudes and practices in the management of obese children and adolescents. These characteristics included gender, height, weight, and selected dietary and physical activity habits.

### Sample Selection

Samples of practitioners for inclusion in the needs assessment were obtained from the American Academy of Pediatrics ( $n = 1088$ ), the National Association of Pediatric Nurse Practitioners ( $n = 879$ ), and the Pediatric Nutrition and the Sports, Cardiovascular and Wellness Dietitians Practice Groups of the American Dietetic Association (ADA) ( $n = 1652$ ). These two practice groups of the ADA were selected because it was believed this sample would include the RDs most likely to deal with obesity issues. The assessment was mailed to the sample from each professional

group, followed by a reminder postcard. A second copy of the assessment was sent to nonresponders. A cover letter was also sent explaining the purpose of the needs assessment, pointing out the importance of the issue of child and adolescent obesity, and urging the recipients to complete the assessment. Because of concern about low response rates, follow-up telephone calls were made to nonresponding pediatricians to encourage their participation and allow them to complete the assessment by phone.

## RESULTS

### Response Rates

Response rates varied among the 3 practitioner groups: 33% (293/879) for PNPs, 27% (444/1652) for RDs, and 19% (202/1088) for pediatricians. Of the 202 responding pediatricians, 170 (84%) responded by mail and 32 (16%) responded by telephone interview.

### Practice Setting

#### Type of Practice

The majority (78.9%) of practitioners were in general pediatric or adult practice (Table 1). PNPs worked in environments similar to pediatricians. The majority of RDs (61.4%) were also in general practice, with the remainder serving in a variety of other specialty areas.

#### Patient Load

Patient load, expressed as the average number of patients seen per hour of patient care time, was estimated based on the reported number of patients seen per week divided by the number of hours usually spent weekly in direct patient care. Pediatricians reported the highest patient loads of the 3 practitioner groups, with >30% seeing 3 or more patients per hour, compared with approximately 13% of PNPs and 5% of RDs (Table 2). Conversely, only 34.2% of pediatricians saw <2 patients per hour compared with 56.2% of PNPs and 77.4% of RDs.

### Patient Characteristics

The majority of practitioners worked in settings where <10% of patients were uninsured and where >50% of patients were enrolled in managed care. The insurance status and managed care participation of the patient populations did not differ markedly among the 3 practitioner groups. Pediatricians and PNPs were generally of the same ethnic/racial compositions as the patients they served. About one third of practitioners reported serving patient populations that were >25% African American and approximately 20% to 25% serve patient populations that were >25% Hispanic. A somewhat smaller percent-

TABLE 1. Type of Practice

Specialty	Pediatricians		PNPs		RDs	
	Number	%	Number	%	Number	%
General practice	150	78.9	216	78.3	229	61.4
Adolescent medicine	6	3.2	18	6.5	6	1.6
Cardiology	2	1.1	2	0.7	11	2.9
Developmental/behavioral	16	8.4	4	1.4	8	2.1
Endocrinology	1	0.5	2	0.7	18	4.8
Gastroenterology	2	1.1	1	0.4	2	0.5
Other specialty	13	6.4	33	11.3	99	22.2
Not specified	12	5.9	17	5.8	71	16.0

**TABLE 2.** Estimated Number of Patients per Hour

Patients per Hour	Pediatricians (n = 184)		PNPs (n = 267)		RDs (n = 394)	
	Number	%	Number	%	Number	%
<2	63	34.2	150	56.2	305	77.4
2-2.9	62	33.7	81	30.3	68	17.3
3+	59	32.1	36	13.5	21	5.3

age of RDs, about 13% to 23%, reported working with patient populations that were >25% Hispanic or African American.

### Practitioner Characteristics

#### Gender

Of the pediatricians responding to the assessment, 42.3% were male and 57.7% were female. PNPs and RDs were predominantly female (97.2% and 98.1%, respectively).

#### Years in Practice

Pediatrician (39.6%) and PNP (45.3%) respondents were more likely to have been recently trained, having entered practice within the last 5 years, compared with 17.6% of RDs. Over half of pediatricians (53.0%) and PNPs (57.4%), but only one third (32.1%) of RDs, reported being in practice for 10 years or less. Because of the small number of male PNPs and RDs, the relationship of years in practice to gender could only be examined in pediatricians. Male pediatricians were significantly more likely to have been in practice >10 years (57.5%) than their female counterparts (37.5%).

#### Body Mass Index (BMI)

The BMI of practitioners was calculated from self-reported height and weight (Table 3). The majority of practitioners had BMI values <25, although from 22% to 36% had values above that level (Table 3). The lowest prevalence of elevated BMI values was in RDs, among whom only 22.5% would be classified as overweight or obese, compared with 36.1% of pediatricians and 33.5% of PNP. Because of the small number of male PNPs and RDs, the relationship of BMI to gender could only be examined in pediatricians. Male pediatricians were significantly more likely to have BMI values >25 (56.1%) than their female counterparts (21.4%), even after controlling for years in practice (a proxy for age) (odds ratio [OR] = 3.01; 95% confidence intervals [CIs]: 1.9-4.7).

**TABLE 3.** BMI of Practitioners

Practitioners	<25		25+	
	Number	%	Number	%
Pediatricians				
Males	36	43.9	46	56.1
Females	88	78.6	24	21.4
Total	124	63.9	70	36.1
PNPs	181	66.5	91	33.5
RDs	324	77.5	94	22.5

### Dietary Habits and Exercise Habits (Table 4)

A majority of practitioners reported consuming a low-fat diet often or most of the time. However, practitioners frequently fell short of recommended guidelines for fruit and vegetable intake and physical activity. A majority of RDs reported consuming 5 or more servings of fruits and vegetables daily, but less than one third met the recommended frequency of physical activity (moderate physical activity for 30 minutes or more on 5 or more days per week). Among pediatricians and PNPs, less than one third met recommendations for fruit and vegetable intake, and only 15% to 20% met physical activity recommendations.

#### Gender Relationships to Diet and Exercise

The relationship of gender to dietary and exercise habits was examined among pediatricians. Males were less likely to eat a low-fat diet (OR = 0.44; 95% CI: 0.28-0.70) and to eat 5 or more servings of fruits and vegetables per day (OR = 0.53; 95% CI: 0.33-0.87). However, these relationships were no longer significant when BMI was added as a covariate. The physical activity habits of pediatricians were not related to gender.

### Relationships Among Practitioner Characteristics

#### Years in Practice

The number of years in practice showed significant relationships to other personal characteristics. Overall, pediatricians with >10 years of practice had significantly higher BMIs, ate more low-fat foods, and consumed 5 or more servings of fruits and vegetables per day than those with <10 years of practice (Table 5). The increased achievement exercise goals for pediatricians with >10 years of practice (28.2% vs. 16.5%) approached statistical significance ( $P = .066$ ). Among female pediatricians, increased BMI, low-fat diet, and fruit and vegetable consumption were all significantly greater among those with >10 years of practice. Among male pediatricians, these differences in personal characteristics in relation to years in practice reached statistical significance only for exercise.

Among PNPs, there were no significant differences in personal characteristics in relation to years in practice. Among RDs, those with >10 years in practice had a significantly higher prevalence of BMIs above 25 (26.7% vs 13.8%) as well as a trend ( $P = .068$ ) toward consuming 5 or more servings of fruit and vegetables per day (59.2% vs 49.6%; detailed data not shown).

#### BMI

BMI was also related to dietary and physical activity behaviors. Among male (but not female) pediatricians those with BMI values <25 were significantly more likely to report eating a low-fat diet "often" or "most of the time" (69.7%) than those with BMIs >25 (43.2%). Among PNPs, those with BMIs <25 were significantly more likely to report achieving physical activity guidelines (20.0%) than those with BMIs >25. Finally, among RDs, those with BMIs <25 were significantly more likely to consume a low-fat diet (88.0% vs 68.8%), eat 5 or more servings

**TABLE 4.** Dietary and Exercise Habits of Practitioners

Practitioners	Low-Fat Diet				Fruit/Vegetable (Servings/Day)				Exercise (Days per Week)			
	Sometimes		Often		0–4		5+		0–4		5+	
	Number	(%)	Number	(%)	Number	(%)	Number	(%)	Number	(%)	Number	(%)
Pediatricians												
Male	35	45.5	42	54.5	62	75.6	20	24.4	65	79.3	17	20.7
Female	41	36.9	70	63.1	78	69.6	34	30.4	87	79.1	23	20.9
Total	76	40.4	112	59.6	140	72.2	54	27.8	152	79.2	40	20.8
PNPs	97	35.0	180	65.0	208	74.8	70	25.2	236	84.3	44	15.7
RDs	68	16.0	358	84.0	189	44.4	237	55.6	291	68.3	135	31.7

Sometimes indicates sometimes, rarely, or never; often, often or most of the time.

**TABLE 5.** Years in Practice: Relationship to Other Personal Characteristics—Pediatricians

Years in Practice	BMI <25	BMI 25+	Low-Fat Some	Low-Fat Often	Fruit/Vegetable <5	Fruit/Vegetable 5+	Exercise <5	Exercise 5+
Males								
<10	48.4	51.6	57.1	42.9	83.9	16.1	90.3	9.7
10+	42.9	57.1	39.0	61.0	69.1	30.9	69.1	30.9
Total	45.2	54.8	46.4	53.6	75.3	24.7	78.1	21.9
Females								
<10	83.3	16.7	51.7	48.3	78.3	21.7	80.0	20.0
10+	66.7	33.3	14.3	85.7	61.1	38.9	73.5	26.5
Total	77.1	22.9	37.9	62.1	71.9	28.1	77.7	22.3
Total								
<10	71.4	28.6	53.4	46.6	80.2	19.8	83.5	16.5
10+	52.5	47.5	28.2	71.8	66.3	33.7	71.8	28.2
Total	62.6	37.4	41.6	58.4	73.7	26.3	78.1	21.9

Some indicates sometimes, rarely, or never; often, often or most of the time.

of fruits and vegetables per day (59.3% vs 45.7%) and to achieve physical activity goals (36.0% vs 17.0%).

#### Practice Type

Personal characteristics were also examined in relation to practice type. Among pediatricians and PNPs there were no significant differences in BMI, low-fat diet, fruit and vegetable consumption, or exercise patterns between those in general practice compared with those in obesity-related specialties. However, RDs in general practice were significantly more likely to have a BMI >25 (27.6%) than those in obesity-related (8.9%) or nonobesity-related (15.6%) specialties. Dietitians in nonobesity-related specialties were also significantly more likely to consume 5 or more servings of fruits and vegetables daily (67.7%) than RDs in obesity-related specialties (48.9%) or in general practice (53.1%).

## DISCUSSION

### Response Rates

Response rates are often low when sampling busy health care practitioners, but the rates observed in this assessment were lower than those observed in several other surveys sampling similar populations. For example, a recent study of body weight issues among adolescents reported an overall response rate of 53% using solely a mailed questionnaire, including a 51% response rate among pediatricians and a 60% response rate among RDs.<sup>6</sup> Another recent study reporting physician attitudes toward the management of obesity had response rates that averaged 44% across adult specialty and subspecialty groups, but were as low as 33% in some groups.<sup>7</sup>

The reasons for the low response rates in the present assessment are not entirely clear. It seems likely that a contributing factor was the length of the questionnaire (8 pages and 35 questions), and the fact that many of the questions required rather detailed responses. Some of the practitioners sampled may not have responded because they were in administrative or research positions and did not provide clinical care to children and adolescents. Similarly, some of the RDs in the initial sample may not have responded if their practice included only adults. In any case, the low response rates raise the possibility of selection bias among those who chose to respond and indicate the need for caution in interpreting these data.

### Practice Setting

The majority of respondents in the 3 practitioner groups were in general practice settings rather than in specialty practice. Patient load estimates indicated that, on average, RDs and PNPs saw substantially fewer patients per hour than pediatricians. With more patient contact time available for counseling, RDs and PNPs can play a key role in the assessment and treatment of child and adolescent obesity.

The characteristics of the patient populations served by the 3 practitioner groups appeared to be generally similar in regard to insurance coverage and managed care enrollment. However, pediatricians and PNPs more frequently reported serving patient populations with a higher minority representation than did RDs, perhaps indicating that dietitian's services are less available and/or less used for the assessment and treatment of minority children and adolescents with obesity problems.

## Practitioner Characteristics

Almost all of the PNPs (97.2%) and RDs (98.1%), and a majority of the pediatricians (57.7%) participating in the assessment were female. The majority within each practitioner group had entered practice within the last 15 years, and a substantial minority of pediatricians (37.8%) and PNPs (40.7%) were quite recently trained, having entered practice within the last 5 years. An issue to be examined in other articles stemming from this assessment is the extent to which these younger and more recently trained practitioners, many of whom are women, may bring different attitudes and practices to the management of obesity problems in children and adolescents than their older, male counterparts.

Personal characteristics of practitioners, such as their own body weight status, eating habits, and exercise habits, might affect their approach to the management of obesity. These characteristics might also influence their effectiveness in counseling and serving as role models for children and adolescents with obesity problems and their parents. In regard to body weight status, the prevalence of overweight (BMI  $\geq 25$ ) among practitioners was 36.1% overall for pediatricians, 33.5% for PNPs and 22.5% for RDs. Although substantial, this prevalence of overweight is well below the overall prevalence of 54.6% observed in the general US adult population in 1988–1994.<sup>8</sup>

Among female pediatricians the prevalence of overweight (21.4%) was less than half that of their male counterparts (56.1%). Also, among female pediatricians and RDs, those with <10 years in practice were significantly less likely to be overweight than those in practice for 10 or more years. These observations suggest that female practitioners and those who are younger and more recently trained, were generally more likely to have body weights closer to recommended levels for their height. This may place them in a better position to serve as role models for maintaining healthy body weight, although it might also be argued that they would have less personal experience with the challenges facing overweight and obese children and adolescents. The reported dietary habits of practitioners displayed substantial variability. On the one hand, a majority of the 3 practitioner groups (pediatricians, 59.6%; PNPs, 65.0%; RDs, 84%) reported consuming low-fat diets often or most of the time. However, recommended levels of fruit and vegetable consumption and physical activity were less frequently achieved, with only about 25% to 28% of PNPs and pediatricians consuming 5 or more servings of fruits and vegetables per day and only about 15% to 20% exercising for 30 or more minutes on 5 or more days per week. Dietitians did substantially better, with 56.6% meeting fruit and vegetable consumption goals and >30% complying with physical activity recommendations. As noted above, female pediatricians with <10 years in practice were less likely to be overweight than those in practice for 10 or more years, but they were also significantly less likely to eat low-fat diets and to meet recommended levels of fruit and vegetable consumption. Therefore, achievement of healthy body

weight was not necessarily accompanied by positive dietary behaviors.

These findings indicate that the interrelationships among years in practice, BMI, and the dietary and physical activity behaviors of practitioners are complex, and often inconsistent across practitioner groups and between genders. It is, nonetheless possible that these personal characteristics may affect their attitudes and practices in the management of child and adolescent obesity. The potential influences of these personal characteristics are assessed in other articles stemming from this assessment.

## CONCLUSION

Given the rapid rise in obesity prevalence, it is important to understand the practice patterns of practitioners who treat obese children and adolescents. Detailed information is difficult to obtain because issues are complex and practitioners are pressed for time. The low response rates in this assessment reflect these difficulties.

It is clear from this analysis that practitioners differ widely in their personal characteristics, including gender, years in practice, BMI, and in obesity-related behaviors such as diet and exercise. It is also clear that these personal characteristics and their interrelationships are not necessarily consistent either within or across practitioner groups. Despite these limitations, it is hoped that this article can provide useful insight into the practice settings and personal characteristics of practitioners that may influence their attitudes and treatment practices in the management of child and adolescent obesity.

Based on the same assessment, other articles in this supplement examine practitioners' attitudes, approaches to medical, laboratory, and behavioral assessment, and treatment practices of child and adolescent obesity. In this context, the influence of practitioners' personal characteristics on attitudes and practices is examined. It is hoped that, taken together, these analyses will shed useful light on current attitudes and practices, contribute to improvements in the management of obese children and adolescents, and identify training needs in health care professionals.

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