

East Tennessee State University

Digital Commons @ East Tennessee State University

ETSU Faculty Works

Faculty Works

1-1-2011

Primary Care Practice Addressing Child Overweight and Obesity: A Survey of Primary Care Physicians at Four Clinics in Southern Appalachia

Nicole Holt

East Tennessee State University

Karen E. Schetzina

East Tennessee State University, schetzin@etsu.edu

William T. Dalton

East Tennessee State University

Fred Tudiver

East Tennessee State University

Hazel Fulton-Robinson

East Tennessee State University

See next page for additional authors

Follow this and additional works at: <https://dc.etsu.edu/etsu-works>



Part of the [Pediatrics Commons](#)

Citation Information

Holt, Nicole; Schetzina, Karen E.; Dalton, William T.; Tudiver, Fred; Fulton-Robinson, Hazel; and Wu, Tiejian. 2011. Primary Care Practice Addressing Child Overweight and Obesity: A Survey of Primary Care Physicians at Four Clinics in Southern Appalachia. *Southern Medical Journal*. Vol.104(1). 14-19. <https://doi.org/10.1097/SMJ.0b013e3181fc968a> ISSN: 0038-4348

This Article is brought to you for free and open access by the Faculty Works at Digital Commons @ East Tennessee State University. It has been accepted for inclusion in ETSU Faculty Works by an authorized administrator of Digital Commons @ East Tennessee State University. For more information, please contact digilib@etsu.edu.

Primary Care Practice Addressing Child Overweight and Obesity: A Survey of Primary Care Physicians at Four Clinics in Southern Appalachia

Copyright Statement

This document is an author manuscript from [PMC](#). The publisher's final edited version of this article is available at [Southern Medical Journal](#).

Creator(s)

Nicole Holt, Karen E. Schetzina, William T. Dalton, Fred Tudiver, Hazel Fulton-Robinson, and Tiejian Wu



Published in final edited form as:

South Med J. 2011 January ; 104(1): 14–19. doi:10.1097/SMJ.0b013e3181fc968a.

Primary Care Practice Addressing Child Overweight and Obesity: A Survey of Primary Care Physicians at Four Clinics in Southern Appalachia

Nicole Holt, MPH¹, Karen E. Schetzina, MD, MPH², William T. Dalton III, PhD³, Fred Tudiver, MD⁴, Hazel Fulton-Robinson, BS^{1,2}, and Tiejian Wu, MD, PhD^{1,4}

¹ Department of Biostatistics and Epidemiology, East Tennessee State University (ETSU), Johnson City, TN 37614

² Department of Pediatrics, James H. Quillen College of Medicine, East Tennessee State University (ETSU), Johnson City, TN 37614

³ Department of Psychology, East Tennessee State University (ETSU), Johnson City, TN 37614

⁴ Department of Family Medicine, James H. Quillen College of Medicine, East Tennessee State University (ETSU), Johnson City, TN 37614

Abstract

Background—The prevalence of childhood overweight and obesity in southern Appalachia is among the highest in the United States (US). Primary care providers are in a unique position to address the problem; however, little is known about attitudes and practices in these settings.

Methods—A 61-item healthcare provider questionnaire assessing current practices, attitudes, perceived barriers, and skill levels in managing childhood overweight and obesity was distributed to physicians in four primary care clinics. Questionnaires were obtained from 36 physicians.

Results—Physicians' practices to address childhood overweight and obesity were limited, despite the fact that most physicians shared the attitude that childhood overweight and obesity need attention. While 71% of physicians reported talking about eating and physical activity habits with parents of overweight or obese children, only 19% reported giving these parents the tools they needed to make changes. Approximately 42% determined the parents' readiness to make small changes for their overweight or obese children. Physicians' self-perceived skill level in managing childhood overweight and obesity was found to be a key factor for childhood overweight and obesity related practices.

Conclusion—Primary care physicians in southern Appalachia currently play a limited role in prevention/intervention of childhood overweight and obesity. Training physicians to improve their skills in managing childhood overweight and obesity may lead to an improvement in practice.

Contact Information for Corresponding Author: Tiejian Wu, MD, PhD, Associate Professor, Department of Biostatistics & Epidemiology, East Tennessee State University, PO Box 70259, 149 Lamb Hall, Johnson City, TN 37614, wut@etsu.edu.

Proprietary Statement: None of the authors declare a conflict of interest.

IRB Approval: East Tennessee State University Institutional Review Board approval was received for this research.

Financial Disclosure: This project was funded by the National Institutes of Health (1R15HD054950-01A2)

Introduction

Childhood overweight and obesity has reached epidemic proportions in the United States (US). According to the Centers for Disease Control and Prevention (CDC), in 2008 approximately 20% of children aged 6–11 years old were overweight.¹ The prevalence of obesity in children of the same age group has more than doubled in the last two decades.^{2,3} Children in rural and lower socioeconomic regions, especially in the southern states, have an even higher prevalence of obesity.^{4,5} According to the CDC, overweight for a child aged 2–19 years old is defined as having a body mass index (BMI) greater than or equal to the 85th percentile but less than the 95th percentile, while obesity is defined as having a BMI at the 95th percentile or greater.⁶ Being overweight increases the risk of developing many serious chronic health problems including cardiovascular disease, type 2 diabetes, and sleep apnea.^{7,8,9} Overweight children also face psychosocial problems such as poor emotional and social health.⁹ An overweight child is also much more likely to be overweight or obese as an adult.¹⁰

Because almost all children receive their healthcare in a primary care setting, primary care physicians are optimally positioned to intervene with patients and families in the prevention and management of childhood overweight and obesity. Despite the unique role that primary care physicians may play, there has been little research on this topic. For example, not much is known about healthcare providers' attitudes, barriers, and skill levels regarding the evaluation and treatment of childhood overweight and obesity.¹¹ Limited research suggests that effective programs are believed to be time and resource intensive.¹² In a study conducted in the UK, clinic staff felt that child obesity was too difficult a problem to address and believed it was particularly challenging in the primary care setting due to the lack of effective intervention, time, and resources.¹³ An understanding of these factors is important to assist in further developing training and clinical resources for providers in primary care settings.

The purpose of the current study was to examine current practices, attitudes, barriers and skill levels regarding childhood overweight and obesity management among primary care physicians in southern Appalachia. It is particularly important to understand current perspectives and practices of healthcare providers who may be seeing high rates of overweight and obesity among their patients, but have limited resources for addressing health concerns.¹⁴ Furthermore, this study builds upon work in a previous study conducted in 2006¹⁵ by including pediatricians along with family physicians, and by providing a current assessment of the practices and skill levels of primary care providers pertaining to childhood overweight and obesity. The previous study found that few primary care physicians were ready to assess, treat and monitor childhood obesity. The study also concluded that physician skill levels in addressing childhood overweight and obesity were inadequate.¹⁵

Since the publication of the previous findings, the American Academy of Pediatrics has published new recommendations from a national expert committee for the prevention, assessment, and treatment of childhood overweight and obesity in primary care.¹⁶ The expert committee recommended universal assessment of obesity risk, including consideration of weight status based on BMI along with the child's health status, family history, eating and activity behaviors, and family concerns and attitudes at least annually at well child visits.¹⁶ Healthcare providers have been given specific guidance in assessing readiness to change and educating all patients about obesity prevention. A staged approach to obesity treatment using patient/family-centered communication, a behavioral treatment approach, and care delivery based on the chronic care model has been recommended.^{17,18}

Methods

Primary care providers in four clinics in southern Appalachia, two general pediatric clinics, and two family medicine clinics agreed to participate in the Parent-Led Activity and Nutrition (PLAN) for Healthy Living, a study to evaluate the effects of brief intervention and group visits with parents on the weight status of overweight and obese children. As part of this larger study, a healthcare provider questionnaire on child obesity was distributed to physicians and resident physicians in the four clinics. A total of 81 physicians - 23 attending physicians, and 58 resident physicians - received the questionnaire. A total of 36 physicians returned questionnaires, resulting in a response rate of 37.9% among resident physicians, and 60.9% among attending physicians with an overall response rate of 44.4%.

Measures

Demographics—Background information about the physicians, including age, gender, and years in practice was collected (Table 1). Information on the physicians' specialty and residency status was also collected.

Health Care Provider Questionnaire—Physicians' current practices addressing childhood overweight and obesity were assessed with twelve items/activities, using the same questionnaire as the previous study.¹⁵ The twelve items are listed in Table 2 and were grouped into three categories: assessment, treatment, and follow-up. For each question the responses were coded as follows: currently not doing (0), or currently doing (1). Summary scores for physician practices were calculated by summing the coded responses for the six assessment items, two treatment items, and four follow-up items. Scores were then converted to a 10-point scale for ease of interpretation.

To assess attitudes and perceived barriers, physicians were asked to rate their level of agreement with a number of statements. The statements for attitudes included eight items such as: "child overweight - needs treatment"; "overweight children will not outgrow their overweight" (reverse coded); and "child overweight is more amenable to treatment than adult overweight" (Table 3). The items for perceived barriers included the following: lack of patient motivation, lack of parental involvement, lack of clinician's time, lack of reimbursement, lack of treatment skills, lack of supportive services, no effective treatment, and negative effect or eating disorder concerns (Table 4). Physicians' responses were coded using a three-point Likert scale of rarely, sometimes, and most of the time (coded as 0, 1, and 2, respectively).

Physicians were also asked to rate their skill levels in managing childhood obesity as low, moderate, or high (coded as 0, 1, and 2, respectively) regarding behavioral change techniques (Table 5). Summary scores were calculated by summing the coded responses. Scores were then converted to a 100-point scale for ease of interpretation. The Pearson correlation coefficient was calculated between each of the responses, assessment, treatment, and follow-up, and each of the predictors listed on Table 6. The questionnaire items on providers' attitudes, skill levels, and barriers were adopted from a questionnaire developed by a group of experts consisting of researchers, clinicians, and health educators,¹¹ and are the same as those used in the previous study.¹⁵ SPSS® (SPSS, Inc., an IBM Company, Chicago, IL) software was utilized in the statistical analysis of the data.¹⁹

Results

Approximately 60% of all responding physicians were female. The average age of respondents was 39 years, with most having been in practice less than ten years. Two-thirds of responding physicians reported family medicine as their specialty, and the remaining one-

third were pediatricians. Approximately 61% of the physicians responding were resident physicians (Table 1).

Table 2 shows primary care physicians' practices in addressing child overweight and obesity. In general, among the physicians surveyed there were limited practices addressing childhood overweight and obesity. For example, only 25.7% of physicians reported raising the issue of overweight or inappropriate weight gain to parents when overweight is not present. While 70.6% of physicians reported talking about eating and physical activity habits with parents of overweight or obese children, only 19.4% reported giving these parents the tools they needed to make changes in eating and physical activity. Less than half (41.7%) of physicians reported determining the parents' readiness to make small changes for their overweight or obese child. In terms of monitoring of overweight and obese patients, 14.7% of physicians reported documenting changes in dietary and activity patterns to help the focus of conversation, while 28.6% reported providing consistent follow-up for possible health consequences. Physician practice scores averaged 3.59 for assessment, 3.71 for treatment, and 2.88 for follow-up, out of a possible score of 10.

Table 3 shows primary care physicians' attitudes pertaining to childhood overweight. Nearly 80% of physicians reported that overweight children need treatment "most of the time" and 51% of physicians thought that children would rarely outgrow their overweight. Results suggest that most physicians believe that children will not often "outgrow" their overweight and that obesity is more amenable to treatment in children than in adults. Approximately 86% of physicians believe that, "most of the time," child overweight leads to future chronic disease risk and lower quality of life. The average attitude score was 47.77 out of a possible 100, with higher scores indicating greater concern about consequences and the need for treatment of child overweight.

Perceived barriers to child obesity treatment are listed in Table 4. More than 70% of physicians reported that lack of parental involvement was a barrier often or most of the time in the treatment of childhood obesity. Nearly 57% perceived that lack of clinician time is often a barrier, and approximately 70% felt that lack of support services is a problem often or most of the time. Lack of reimbursement and lack of clinician knowledge and skills were perceived to be moderate barriers in the treatment of childhood obesity. No effective treatment and concerns with negative treatment effects were perceived as less common barriers. The mean summary score for barriers was 42.72 on a scale of 0–100, indicating a moderate level of perceived barriers.

Physicians' self-perceived skill levels in treating childhood obesity are included in Table 5. Nearly 38% of physicians reported low perceived skill levels for the use of behavioral management strategies. For most physicians, moderate perceived skill levels were reported for modification of eating practices, physical activity and sedentary behaviors. Physicians also reported lower perceived skill levels for addressing family conflicts and guidance in parenting techniques. Overall the average summary score was 47.01 on a scale of 0–100, indicating a moderate level of perceived skill.

Results from correlation analysis are presented in Table 6. The index for self-perceived skill level is significantly associated with the physician practice indices for assessment, advisement, and reinforcement/follow-up, suggesting that physicians' skill levels/competencies in managing child overweight and obesity may be a key factor affecting their practices. In addition, more years in practice were associated with more assessment activities in managing child overweight and obesity.

Discussion

Childhood obesity is a growing problem in the US, especially in the region of southern Appalachia. It is important to look at how healthcare providers are addressing this critical public health issue in order to identify the need for additional training and services. This study adds to the current understanding of physician practices in assessment, treatment, and follow-up of child overweight and obesity, as well as attitudes and perceptions regarding management.

Comparison of findings between the current and previous study¹⁵ is useful for describing changes in provider practices, attitudes and skill levels, and may help to clarify the need for services and training in the region. Physicians in the current and previous studies believe that childhood overweight requires treatment most of the time. Despite this recognition of need, physicians still describe suboptimal practices for overweight and obesity management, particularly in the area of behavioral treatment. Physicians in the current study appear to be reporting higher skill levels in the assessment of the degree of overweight, as compared to the previous study conducted in 2006.¹⁵

Perceived skill level appears to be a key factor in determining whether or not a physician will address the issue of childhood obesity. In the current study, physicians' self-perceived skill levels were significantly correlated with the frequency of reported practices for assessment, treatment, and follow-up of childhood overweight and obesity. Similar to the previous study,¹⁵ providers reported the lowest skill levels in providing guidance in parenting techniques and addressing family conflicts. Perceived skill in modifying specific behaviors was similar to the previous study. These findings are important as behavioral modification has been recommended as a component of effective treatment.^{17,20} Similar to previous studies,^{11,15} the most frequently reported barriers in this study were lack of parental involvement, lack of patient motivation, and lack of support services.

This study suggests that while the majority of physicians in a southern Appalachian sample describe a need for childhood overweight treatment, the current practices in assessing, treating, and follow up for childhood overweight and obesity are limited. In addition, our data suggests that physician skill levels may be improving, particularly in terms of assessing the degree of overweight. This study continues to identify a need for additional training in behavioral treatment approaches. Future efforts aimed at training physicians in behavioral modification techniques may increase physician involvement in childhood overweight prevention and treatment.

There are several limitations in this study. Only four clinics in southern Appalachia were included. A random selection of a larger number of study sites in the region would be ideal. Therefore, caution should be taken in generalizing these findings. Although the current study provides a timely and useful update of providers' practice on childhood obesity, bias could be induced in the comparison of the two studies. Finally, a large portion of providers surveyed were resident physicians. Their views and practices could be different from experienced physicians, which were not analyzed separately due to the small sample size. Future studies to address these limitations are warranted.

Brief description

The prevalence of childhood obesity in southern Appalachia is among the highest in the United States. Primary care providers are in a unique position to address the problem; however, their practices in managing childhood obesity remain limited. Improving

primary care providers' skill levels in managing childhood obesity might be the key factor to enhance practice.

Key points

1. The prevalence of childhood overweight and obesity in southern Appalachia is among the highest in the United States.
2. In this survey, 71% of primary care providers reported talking to parents about their children's eating and physical activity; however, only 19% reported giving parents the tools needed to make changes in eating and physical activity.
3. Based on physicians' responses to the survey conducted in this study, there is a need for training to improve skill levels in managing childhood overweight and obesity.

Acknowledgments

The study is funded by the National Institutes of Health (1R15HD054950-01A2)

References

1. Centers for Disease Control and Prevention. Fast Stats, Obesity and Overweigh page. [Accessed March 28, 2010.]. <http://www.cdc.gov/nchs/fastats/overwt.htm>
2. Centers for Disease Control and Prevention. Healthy You, Childhood Obesity page. [Accessed March 28, 2010.]. <http://www.cdc.gov/HealthyYouth/obesity/>
3. Centers for Disease Control and Prevention. Overweight and Obesity, NHANES Surveys (1976–1980 and 2003–2006) page. [Accessed March 28, 2010.]. <http://www.cdc.gov/obesity/childhood/prevalence.html>
4. Institute of Medicine. Report: Preventing Childhood Obesity: Health in the Balance page. [Accessed March 24, 2010.]. <http://www.iom.edu/Reports/2004/Preventing-Childhood-Obesity-Health-in-the-Balance.aspx>
5. Lutfiyya MN, Lipsky MS, Wisdom-Behounek J, Inpanbutr-Martinkus M. Is rural residency a risk factor for overweight and obesity for U.S. children? *Obesity*. 2007; 15:2348–2356. [PubMed: 17890504]
6. Centers for Disease Control and Prevention. Overweight and Obesity, Defining Childhood Overweight and Obesity page. [Accessed March 28, 2010.]. <http://www.cdc.gov/obesity/childhood/defining.html>
7. Berenson GS. Obesity – a critical issue in preventive cardiology: the Bogalusa Heart Study. *Preventive Cardiology*. 2005; 8:234–241. [PubMed: 16230878]
8. Marcovecchio M, Mohn A, Chiarelli F. Type 2 diabetes mellitus in children and adolescents. *Journal of Endocrinological Investigation*. 2005; 28:853–863. [PubMed: 16370570]
9. Schwimmer JB, Burwinkle TM, Varni JW. Health-related quality of life in severely obese children and adolescents. *JAMA*. 2003; 289:1813–1819. [PubMed: 12684360]
10. Centers for Disease Control and Prevention. Overweight and Obesity, Childhood Overweight and Obesity page. [Accessed March 28, 2010.]. <http://www.cdc.gov/obesity/childhood/>
11. Story MT, Neumark-Stzainer DR, Sherwood NE, et al. Management of Child and Adolescent Obesity: Attitudes, Barriers, Skills, and Training Needs among Health Care Professionals. *Pediatrics*. 2002; 110:210–214. [PubMed: 12093997]
12. Perrin EM, Finkle JP, Benjamin JT. Obesity prevention and the primary care pediatricians office. *Curr Opin Pediatr*. 2007; 19:354–361. [PubMed: 17505200]
13. Walker O, Strong M, Atchinson R, Abbott J. A qualitative study of primary care clinicians' views of treating childhood obesity. *BMC Family Practice*. 2007; 8:50. [PubMed: 17767720]

14. Jones CA, Parker TS, Ahearn M, Mishra AK, Variyam JN. Health status and health care access of farm and rural populations. United States Department of Agriculture. Economic Research Service Bulletin Number. 2005; 57:1–72.
15. Wu T, Tudiver F, Wilson JL, Velasco J. Child Obesity Interventions in Rural Primary Care Practice: A Survey of Primary Care Providers in Southern Appalachia. *South Med J*. 2007; 100(11):1099–1104. [PubMed: 17984741]
16. Barlow SE, the Expert Committee. Expert Committee Recommendations Regarding the Prevention, Assessment, and Treatment of Child and Adolescent Overweight and Obesity: Summary Report. *Pediatrics*. 2007; 120:S164–S192. [PubMed: 18055651]
17. Spear BA, Barlow SE, Ervin C, et al. Recommendations for Treatment of Child and Adolescent Overweight and Obesity. *Pediatrics*. 2007; 120:S254–S288. [PubMed: 18055654]
18. Bodenheimer T, Wagner EH, Grumbach K. Improving primary care for patients with chronic illness: the chronic care model, part 2. *JAMA*. 2002; 288:1909–1914. [PubMed: 12377092]
19. SPSSR®, Inc. [computer program]. Version 16. Chicago: IBM;
20. Ritchie LD, Crawford PB, Hoelscher DM, Sothorn MS. Position of the American Dietetic Association: Individual-, family-, school-, and community-based interventions for pediatric overweight. *Journal of the American Dietetic Association*. 2006; 106:925–945. [PubMed: 16812927]

Table 1

Characteristics of responding physicianst

	n	%
Gender		
Male	15	41.7
Female	21	58.3
Age		
<35	20	58.8
≥ 35	14	41.2
Ethnicity		
White	25	69.4
Other	11	30.6
Years in practice		
<10	24	66.7
≥ 10	12	33.3
Specialty		
Family Medicine	24	66.7
Pediatrics	12	33.3
Residency Status		
Resident 1 st year	5	13.9
2 nd year	8	22.2
3 rd year	9	25.0
Attending Physician	14	38.9

Table 2

Physician practice in assessment, treatment and follow-up of childhood overweight and obesity

Statements on practice	Percent for each response	
	Currently Not Doing	Currently Doing
Assessment:		
Raise the issue of overweight or obesity, or inappropriate weight gain to parents when overweight is not present	74.3	25.7
Assess child BMI and waist circumference at every visit during which weight is measured	91.7	8.3
For the child who is obese or overweight, talk with parent about eating and physical activity habits	29.4	70.6
For the child who is obese or overweight, determine the parent's readiness to make small changes	58.3	41.7
For the child who is obese or overweight, assess the parent and family's commitment to making a change	66.7	33.3
For the child who is obese or overweight, identify possible barriers to improved nutrition	72.2	27.8
Treatment:		
For the child who is obese or overweight, give the parents the tools they need to make changes in eating and for physical activity	80.6	19.4
For the child who is obese or overweight, discuss principles of better nutrition and greater physical activity with parent and family	45.7	54.3
Follow-up:		
For the child who is obese or overweight, document changes, both positive and negative, in dietary and activity patterns to help focus the conversation	85.3	14.7
For the child who is obese or overweight, recognize any success and progress the parent and child have made	50.0	50.0
For the child who is obese or overweight, provide consistent follow-up to monitor possible health consequences such as hypertension and insulin resistance	71.4	28.6
For the child who is obese or overweight, refer the child to a clinic specialized in child obesity treatment/management	80.0	20.0

BMI, body mass index

Table 3

Physician attitudes toward childhood overweight

Statements on attitudes	Percent for each response		
	Most of the time	Sometimes	Rarely
Child overweight needs treatment	78.4	18.9	2.7
Adolescent overweight needs treatment	91.7	5.6	2.8
Overweight children will outgrow their overweight	2.7	45.9	51.3
Overweight adolescents will outgrow their overweight	2.9	22.9	74.2
Childhood overweight is more amenable to treatment than adult overweight	13.9	75.0	11.1
Adolescent overweight is more amenable to treatment than adult overweight risk	13.9	72.3	13.9
Overweight affects chronic disease risk	86.5	10.8	2.7
Overweight in childhood or adolescence affects quality of life in the future	86.1	11.1	2.8

Table 4

Physician perceived barriers to childhood obesity treatment

Statements on barriers	Percent for each response		
	Most of the time	Sometimes	Rarely
Lack of patient motivation	21.6	75.6	2.7
Lack of parent involvement	32.4	56.7	10.8
Lack of clinician time	8.1	81.0	10.8
Lack of reimbursement	5.4	64.8	29.7
Lack of clinician knowledge	0.0	78.4	21.6
Lack of treatment skills	5.6	66.7	27.7
Lack of support services	18.9	48.6	21.6
No effective treatment (treatment futility)	2.8	61.1	36.1
Negative treatment effect or eating disorder concerns	0.0	33.3	66.7

Table 5

Physician perceived skill levels in treating childhood obesity

Statements on skill levels	Percent for each response		
	Low	Moderate	High
Use of behavioral management strategies	37.8	43.2	18.9
Modification of eating practices	16.2	62.2	21.6
Modification of physical activity	5.4	73.0	21.6
Modification of sedentary behavior	13.5	73.0	13.5
Guidance in parenting techniques	29.7	64.9	5.4
Addressing family conflicts	45.9	51.4	2.7
Assessment of the degree of overweight	13.9	44.4	41.7

Table 6

Correlations between predictors and response variables

	Assessment		Treatment		Follow-up	
	n	r	n	r	n	r
Age	30	0.247	32	0.160	30	0.045
Years in practice	33	0.344*	35	0.199	33	0.225
% Obese patients seen	33	-0.028	34	-0.083	32	-0.148
Perceived attitude	29	0.092	31	0.154	29	0.048
Perceived barriers	31	-0.002	33	0.257	31	0.086
Perceived skill level	33	0.378*	34	0.431*	32	0.447**

n = sample size

r = correlation coefficient

* Significant at 0.05

** Significant at 0.01