Parental Attitudes Toward Obesity and Overweight Screening and Communication for Hospitalized Children

abstract

OBJECTIVE: Many studies have evaluated BMI screening, communication, and follow-up recommendations in the outpatient setting. However, few studies have examined parental attitudes toward using the inpatient setting as a time to screen and counsel families regarding their child’s BMI. We sought to study parental attitudes about overweight and obesity screening in the inpatient setting.

METHODS: Parents (N = 101) of children aged 2 to 18 years admitted to a general pediatric hospital or surgical service were queried regarding their attitudes about screening and counseling for overweight and obesity. Children's age, gender, height, weight, and diagnosis codes were extracted from electronic medical records and billing databases. BMI was calculated, plotted, and categorized according to standard Centers for Disease Control and Prevention growth charts and expert recommendation.

RESULTS: Fourteen percent of children in the study were overweight, and 17% were obese. Parents of overweight and obese children underestimated their child’s weight status 68% of the time. The majority believed admitted children should always have their BMI calculated. Almost all parents (90%) indicated that their inpatient physician should inform them if their child were overweight or obese and that primary care providers should be informed of the results of BMI screening.

CONCLUSIONS: Parents of children admitted to the hospital believed their children should have their BMI screened. If their child was overweight or obese, parents believed they should be informed, and counseling should be initiated. These findings support using the inpatient time to screen and communicate BMI.

INTRODUCTION

Nearly a third of US children are overweight or obese, affecting their physical and mental health. Despite calls to action for physicians to address the epidemic, much research in the outpatient setting suggests that poor self-efficacy and lack of physician time remain barriers for primary care pediatricians. The current medical literature indicates that screening and documentation of overweight and obesity are related to healthy weight counseling and referral of comorbidities. It has also been demonstrated that primary care pediatricians underscreen and underdocument obesity. Perhaps related, parents consistently underreport or misperceive their children’s weight status. There is now evidence that outpatient screening followed by counseling is associated with healthier lifestyle behaviors.
Given the chronic difficulties of outpatient screening and counseling, combined with the fact that a large number of children are hospitalized each year, it is critical to investigate the inpatient setting as an opportunity for pediatric overweight and obesity screening and intervention. Although it has been demonstrated that overweight and obesity are poorly identified and documented in the hospital setting, little is known about the use of the inpatient encounter for screening and counseling. Although providers and families have more opportunities for interaction during the inpatient admission, few studies have investigated parental expectations and acceptability of this setting for communication of BMI screening results or outpatient follow-up recommendations. Early work from an emergency medicine setting suggests parents would be interested in receiving information and counseling in that setting, and investigators from Australia found that parents accepted the concept of inpatient screening and thought the hospital should take action if their children were screened as overweight or obese.

Our goal is to examine whether parents in the United States would be similarly receptive to the idea of overweight and obesity screening during their child’s inpatient stay. We hypothesized that parents in our study will find the inpatient setting acceptable for BMI screening and be willing for counseling and referral to take place in this setting.

METHODS

Setting

The study was conducted at a children’s hospital within a university health care system.

Participants

To estimate parental attitudes toward obesity and overweight screening in the inpatient setting, we surveyed a convenience sample of parents of children aged 2 to 18 years admitted to a general pediatric medical or surgical service between August 2009 and April 2011. Parents of admitted children were identified by reviewing a computer-based inpatient census Monday through Friday. If the child met study inclusion criteria, parents were approached by using a recruitment script regarding their participation in the survey.

We sought to include the parents of children that were generally previously healthy and were admitted with an acute medical or surgical problem. Parents of admitted children were identified through the daily census and were approached if their children did not meet any of the following exclusions: (1) were unable to bear weight (because of lack of ability to measure standing height), (2) were admitted to the ICU at any point in the hospitalization (because of the acuity of medical or surgical concerns), (3) had a genetic diagnosis or chronic condition affecting height or weight (eg, trisomy disorders or chronic renal disease), (4) had a known diagnosis of failure-to-thrive or an eating disorder, (5) received supplemental parental or enteral nutrition, (6) took chronic medication known to affect weight gain (eg, prolonged systemic steroid or antipsychotic medication), or (7) did not speak either English or Spanish.

Procedures

Recruitment, consent, and survey administration was performed by 1 of 2 bilingual research assistants. After consent was obtained, the parent or parents were asked to complete a written survey regarding their attitudes about overweight and obesity screening and counseling during the inpatient stay. Spanish-speaking parents, as self-identified during hospital admission demographic intake, were provided materials in Spanish.

Measures

We abstracted the children’s age, gender, race/ethnicity, reason for hospitalization, height, and weight from their medical records. Race and ethnicity were categorized based on the categories used within the medical records system. BMI was calculated, plotted, and categorized according to standard Centers for Disease Control and Prevention growth charts for age and gender and expert recommendation (<5% underweight, 5%–84% healthy weight, 85%–94% overweight, and ≥95% obese). The study in full was approved by the University of North Carolina Institutional Review Board (#09-0136).

The study questionnaire was developed to explore parental beliefs about overweight and obesity screening in the inpatient setting. We adapted the study questionnaire from other published studies and asked questions of interest to our specific research question, as well. The written questionnaire (Appendix) queried parents about their child’s health and weight and quantified their level of concern regarding their child’s weight. Parents were also asked if a medical professional had commented about their child’s weight or calculated their BMI in the past year, and whether they had taken any recent action or were planning to take action to address their child’s weight. The next portion
of the questionnaire asked parents if they would seek help, and from whom, if they wished to address their child’s weight. Finally, parents were asked about their beliefs regarding measuring a hospitalized child’s weight and height, calculating BMI, addressing weight concerns, what additional actions they thought were appropriate while their children were on the inpatient service, and what should be communicated to the child’s primary care physician (PCP).

The questionnaire was piloted with a small sample to test feasibility and understandability, and then questions were modified accordingly. Because the items on the questionnaire all represent different latent constructs, standard measures of internal consistency, such as Cronbach α, are not informative. Rather, we attempted to maximize the validity of the instrument by using previously validated measures and face validity.

**Statistical Analysis**

We used means and percentages to describe the overall sample. We used χ² statistics to test for differences in parent preferences by child demographic and health characteristics.

**RESULTS**

The patients of parents queried in our study were admitted to the General Pediatric Hospital Service or to the General Pediatric Surgical Service with the diagnosis of an acute medical or surgical condition. Of 116 parents approached who met eligibility requirements, 113 (97%) agreed to participate and were queried. Twelve participants were eliminated because their children’s height was not recorded on admission to the hospital, and therefore BMI could not be assessed.

The most common diagnoses of patients whose parents were surveyed in our study were abdominal pain, fever, dehydration, acute appendicitis, nausea and vomiting, vomiting alone, cellulitis, and pneumonia. The demographics of our patient population (Table 1) were similar to known hospital demographics, based on internal Children’s Hospital data (UNC Office of Revenue Cycle Management, personal communication, April 2012). Nineteen percent of our study participants were primarily Spanish speaking.

The prevalence of overweight and obese children in our study was roughly consistent with national and statewide outpatient data. Seventeen percent of patients in our survey were obese and 14% were overweight, for a combined prevalence of 31%. Ten percent of patients in our study were underweight.

Our results show parents underestimated their child’s weight status (Table 2) with 86% of parents of obese children and 53% of parents of overweight children thinking that their child was a healthy weight or underweight. In our study, no parent of an obese child indicated that their child was obese, but rather that the child was overweight (47%) or a healthy weight (47%). One parent of an obese child indicated that their child was underweight. Similarly, the majority (86%) of parents of overweight children also indicated that their child was a healthy weight (79%) or underweight (7%).

Few (12%) parents in our study indicated that their child’s BMI had ever been screened. In addition, the majority (68%) of parents of obese or overweight children reported that they had not been told in the previous year by any medical professional that their child was overweight or obese. Most of the parents of overweight or obese children in our study were taking no action to try to get their children to attain a healthier weight (data not shown).

Overall, 56% of parents surveyed believed that a child who is admitted to the hospital should have a BMI calculated (Fig 1). Only 17% of parents thought that their child’s BMI should not be calculated while the child was...
FIGURE 1 Do you think all children admitted to the hospital should have their body mass index calculated? *I don’t know because I don’t know what body mass index is.

TABLE 3 Parent Preferences for Inpatient Overweight and Obesity Screening by Demographic and Other Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Should Get BMI, %</th>
<th>Should Be Told if Overweight, %</th>
<th>Doctor Should Tell</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>P</td>
<td>Yes</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>African American</td>
<td>53</td>
<td>.58</td>
<td>80</td>
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<tr>
<td>White</td>
<td>59</td>
<td></td>
<td>91</td>
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<tr>
<td>Hispanic</td>
<td>47</td>
<td></td>
<td>95</td>
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<tr>
<td>Other</td>
<td>33</td>
<td></td>
<td>83</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>51</td>
<td>.39</td>
<td>87</td>
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<tr>
<td>Female</td>
<td>60</td>
<td></td>
<td>94</td>
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<tr>
<td>Age</td>
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<tr>
<td>2–8 y</td>
<td>48</td>
<td>.14</td>
<td>90</td>
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<tr>
<td>9–18 y</td>
<td>63</td>
<td></td>
<td>90</td>
</tr>
<tr>
<td>Health status</td>
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<td></td>
</tr>
<tr>
<td>Excellent</td>
<td>55</td>
<td>.87</td>
<td>91</td>
</tr>
<tr>
<td>Good/fair/poor</td>
<td>56</td>
<td></td>
<td>90</td>
</tr>
<tr>
<td>Child weight</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Obese/overweight</td>
<td>65</td>
<td>.22</td>
<td>90</td>
</tr>
<tr>
<td>Healthy/underweight</td>
<td>51</td>
<td></td>
<td>90</td>
</tr>
<tr>
<td>Perceive child as</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overweight</td>
<td>70</td>
<td>.33</td>
<td>80</td>
</tr>
<tr>
<td>Healthy/underweight</td>
<td>54</td>
<td></td>
<td>91</td>
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<tr>
<td>Any concern about weight</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Yes</td>
<td>61</td>
<td>.43</td>
<td>87</td>
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<tr>
<td>No</td>
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<td></td>
<td>91</td>
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<tr>
<td>Recently told child's weight</td>
<td></td>
<td></td>
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<tr>
<td>Too high</td>
<td>56</td>
<td>.51</td>
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<tr>
<td>Too low</td>
<td>75</td>
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<td>88</td>
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<td>Neither</td>
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<td>92</td>
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<td>BMI has been calculated</td>
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<td>Yes</td>
<td>58</td>
<td>.70</td>
<td>75</td>
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<tr>
<td>No</td>
<td>52</td>
<td></td>
<td>91</td>
</tr>
<tr>
<td>Don't know</td>
<td>61</td>
<td></td>
<td>94</td>
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Parents also thought that they should be told if their child was found to be overweight while hospitalized (90%) and that the physician should address this concern with the family (69%) (Figs 2 and 3). Parents of overweight children were more likely to prefer parents to be told about weight status “only if they ask.” In addition, all parents who hospitalized. The remaining 28% of parents could not decide or reported that they did not know what BMI was. There were no differences in whether a parent thought BMI should be recorded, based on demographic characteristics, health, or weight perceptions (Table 3).
Parents perceived their child as overweight but believed that only a physician should be the person to discuss weight with parents, compared with 68% of parents who perceived their child as healthy weight or underweight.

Parents had variable responses regarding the action that a physician should take when their child was found to be overweight while hospitalized including (1) discussing it with them (75%), (2) giving written information (51%), (3) referring to a dietitian (44%), (4) informing the PCP (39%), and (5) telling them but not discussing it with them (11%). Only 3% of parents believed a physician should not take any action or communicate weight status to parents (data not shown).

DISCUSSION

With the high prevalence of childhood overweight and obesity and the high percentage of parents who do not recognize their children's obesity, creative solutions may be needed to identify children who are overweight and address this with parents.2,10 Our study demonstrates that an inpatient admission may be such an opportunity.

We show that parents of hospitalized children are receptive to having their child’s BMI screened and communicated to them while their child is an inpatient, with only 17% indicating they would not want this done. These results support the idea of using this window of time to communicate screening results and dispel fears that the stressfulness of the time would deter parents’ desire for receiving the information. In fact, the overwhelming majority of parents thought health care personnel (primarily the physicians alone) should communicate their child’s weight status to them. We did not differentiate resident and attending physicians, so we cannot determine if parents have a preference for which physician. Less clear from parental opinion is what else to do, although many support the idea of providing written information, referral to a dietitian, and/or report back to the PCP because pediatricians are considered highly valued weight advisors.15

An important note of caution is that parents who may already be receiving information about their child’s weight are less likely to want even more information during the inpatient stay. Parents who knew their child’s BMI had recently been measured, who had been previously told their child’s weight was too high, or who perceived their children as overweight wanted to receive information...
only if they asked. That these families also felt more strongly about having a physician, rather than another health professional, initiate weight discussions, additionally supported the idea that weight discussions must be sensitive, appropriate, and not redundant.

Another key finding in the study was that few parents reported previously being told their children’s weight status. Our study corroborates other outpatient literature on parental underestimation of their child’s weight status and reports of provider notification. Given that we excluded 12 children because height was not recorded upon inpatient admission, improvements in measuring height may help promote this as an opportunity for weight counseling.

One limitation of our study is that it was conducted at a single location. However, the site serves children from all over the state of North Carolina, and the prevalence of overweight and obesity parallels state and national prevalence. In addition, we relied on a convenience sample, recruited on weekdays only. We have no reason to believe the measures we studied would differ between weekdays and weekends. Second, we queried by using the same protocol regardless of the age of the child. Expert committee suggests that for adolescents, parent perceptions and desires regarding obesity screening may be less important than that of the adolescents themselves. Third, parent reports of whether BMI should be screened may be impeded by lack of knowledge about BMI. This is highlighted by the discrepancy between the percentage who believed every child should have a BMI calculated and parental desire for disclosure if the child is overweight. In practice, scripts explaining BMI and the use of color-coded BMI charts facilitating understanding could be used. Finally, we did not include parents who spoke a language other than English or Spanish, although this is a small proportion of patients admitted to our hospital. Despite these limitations, the study provides new data to support screening and counseling about weight status for many children who are admitted to the hospital with an acute general medical or surgical condition.

Additional research is necessary to confirm the efficacy of such screening and to determine the acceptability to physicians and other personnel, what parents would do with the information, and how to best deliver screening based on the developmental stage of the child or adolescent. Our study is 1 of the first to demonstrate parent acceptability of using the inpatient setting for BMI screening and communication in a US population. Despite the potential stress of the inpatient time for parents, this study underscores parents’ recognition of this time together with providers as a valuable screening and counseling window.

APPENDIX HEALTH QUESTIONNAIRE
Please circle your answer to the following questions.

1. In general, would you say your child’s health is:
   (a) excellent?
   (b) good?
   (c) fair?
   (d) poor?
2. Do you consider your child to be
   (a) Obese or very overweight?
   (b) Overweight?
   (c) Healthy weight?
   (d) Underweight?
3. How concerned are you about your child’s weight?
   (a) Not concerned
   (b) A little concerned
   (c) Very concerned
4. Has any medical professional recently (within the last year) told you that your child’s weight is too high or too low?
   (a) Yes – too high
   (b) Yes – too low
   (c) No
5. Has your child ever had his or her BMI calculated?
   (a) Yes
   (b) No
   (c) Don’t know
6. Have you recently taken any action to address your child’s weight?
   (a) Yes – to try to get him or her to gain weight (skip question 7)
   (b) Yes – to try to get him or her to lose weight (skip question 7)
   (c) No
7. If you answered no to the last question, are you planning to take any action to address your child’s weight in the future?
   (a) Yes
   (b) No (if no, skip questions 8, 9, and 10)
8. Would you seek help from a health professional if you wanted to change your child’s weight?
   (a) Yes
   (b) No (if no, skip question 9)
9. Who would be your first choice for help?
   (a) Dietitian or nutritionist
   (b) Pediatrician or family doctor
10. Do you think all children admitted to the hospital should be weighed?
(a) Yes
(b) No

11. Do you think all children admitted to the hospital should have their height measured?
(a) Yes
(b) No

12. Do you think all children admitted to the hospital should have their BMI calculated?
(a) Yes
(b) No
(c) I don’t know because I don’t know what BMI is
(d) I can’t decide

13. Do you think parents should be told if their children are found to be overweight during their hospital stay?
(a) Yes
(b) Only if they ask
(c) No (if no, skip question 14)

14. If yes, who should be the one to address the fact that the child is overweight?
(a) Doctor
(b) Nurse
(c) Dietitian
(d) Tell the parents that the child is overweight but do not discuss unless parents wish.
(b) Tell the parents that the child is overweight and discuss possible ways to get to a healthier weight.
(c) Tell the parents and refer the child to a dietitian/nutritionist.
(d) Tell the parents and give them written information or brochures about how to achieve a healthier weight.
(e) Tell the parents and let the regular pediatrician or family physician know that the child or teenager was found to be overweight.
(f) Do not tell the parents or take any action.
(g) Other – please list __________________

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REFERENCES