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Original article

Parental attitudes toward bariatric surgery in adolescents with obesity

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Abstract

Background: Parental underestimation of the severity and risks of their child's obesity and parents' potential implicit weight bias contribute to the reluctance to consider bariatric surgery for their adolescent children with obesity. Despite evidence for safety and efficacy of bariatric surgery in adolescents, pediatric providers may be hesitant or uncomfortable to discuss the benefits and refer patients for surgical evaluation. Understanding these barriers is an essential step toward effective long-term care in this patient population.

Objectives: We hypothesized that parental views on bariatric surgery are primarily influenced by personal experiences with bariatric surgery, their implicit bias, understanding of health risks of obesity, and counseling by pediatric providers.

Setting: Data were collected and analyzed at an academic medical center in the United States.

Methods: After a retrospective chart review of 192 adolescents with obesity, a telephone survey of patients' parents was conducted.

Results: Parents of 71.4% of patients who received outpatient weight loss counseling had accurate recollection of that event. Only 12.8% of parents who were referred to lifestyle programs successfully enrolled. Neither prior personal exposure to bariatric surgery nor enrollment of the child in a lifestyle program increased parents' likelihood to consider bariatric surgery for their child ($P = .10$ and .70, respectively). Most parents (84.6%) who were counseled by their pediatric provider about bariatric surgery would consider it, compared with only 34.5% of the parents who did not receive counseling ($P < .001$).

Conclusions: Counseling by pediatric providers, not involvement in lifestyle programs or exposure to bariatric surgery, increased parents' willingness to consider bariatric surgery for their child. Given the current recommendations to incorporate bariatric surgery as a treatment modality in severe adolescent obesity, earlier counseling about the role of surgery by pediatric providers is essential. More detailed provider education on the current state of bariatric surgery in the treatment of severe adolescent obesity is also necessary. (Surg Obes Relat Dis 2019;■:1–8.) © 2019 American Society for Bariatric Surgery. Published by Elsevier Inc. All rights reserved.

Key words: Adolescent; Pediatric; Obesity; Parental; Bariatric surgery

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Obesity in the pediatric population is a growing problem and the urgency to address it earlier in life is becoming more recognized by pediatric providers [1,2]. Traditional approaches in adolescence are similar to those in the pediatric population and mainly focus on lifestyle modification. Although earlier findings suggested that the involvement of parents in lifestyle programs contributes to program success [3,4], more recent data point to the long-term challenges associated with the behavioral approach [5,6]. Lifestyle changes can be challenging given neural determinants of behavior outside of patients' awareness; the abnormal body composition of obesity can be maintained by strong homeostatic mechanisms that resist the patient's efforts to make lifestyle modifications [7]. The use of pharmacotherapy in the pediatric obese population continues to be limited due to the modest benefit of approved medications [8] at the cost of their potential adverse effects [9]. While promising, newer medications targeting severe obesity in adolescents are currently under research and are generally not considered a first-line therapy. Nevertheless, treatment algorithms that include approved medications have been described [10].

Given the limitations of nonoperative interventions in adolescents, metabolic bariatric surgery (MBS) is receiving more attention. Bariatric surgery in adolescents has gained popularity as the safety and sustained efficacy of this approach have become more recognized in recent years [11]. MBS in adults has long been proven to result in long-term weight control and improvement in cardiovascular disease risk factors (e.g., type 2 diabetes, hypertension) [12,13]. Emerging longitudinal data lend further support to the long-term benefits of MBS in adolescence: Bariatric surgery in adolescents can result in the loss of 58% to 73% of excess weight, along with resolution or improvement of significant associated morbidities [14–17]. Despite increasingly positive physician attitudes toward MBS as a viable treatment option [18], reflected in recent provider guidelines [19], little consensus exists among physicians regarding referral practices [20]. Many physicians continue to be reluctant to refer adolescents for surgery due to concerns for adverse effects, postoperative complications, long-term outcomes, and the complicated ethics of surgery in adolescence [21,22]. Accordingly, a 2018 study found $<$.04% of pediatric patients with severe obesity are treated with MBS yearly in the United States [23].

Along with physicians' conflicting opinions regarding the proper management of adolescents struggling with obesity, parental attitudes toward their children's weight status can also pose substantial barriers to their consideration of all effective treatment options. Parental underestimation of their children's weight is well established; parents are, paradoxically, more likely to exhibit this behavior if their children are classified as overweight or obese [24]. There is also a strong history of conflicting parental attitudes and controversy surrounding pediatric bariatric surgery, stemming in part from their perceived role in the development of obesity in their children. Notably, parents' favorability toward MBS can depend on their personal beliefs about the etiology of obesity; parents who believe that obesity is outside of their (or their child's) control (e.g., genetic) are more likely to view bariatric surgery as an appropriate option for their child [25]. It is also important to note that parental views of their child's obesity can be influenced by their own implicit weight bias [26].

Such parental misconceptions and bias may represent a significant barrier toward sustained compliance with weight loss programs and consideration of surgical treatment, especially given the importance of the parental role in managing pediatric obesity. Treatment of obesity in childhood has been shown to be more effective with a family-based approach, when both parents and children are targets of behavioral modification [4,27]. In light of the important role parents play in treating pediatric obesity, understanding parental views of their children's obesity is essential to promote more effective treatment strategies. We aimed to examine parents' views of their child's weight status, ability to identify a need for intervention, and perception of access to lifestyle modification programs and surgical intervention. We hypothesized that parental views on bariatric surgery are primarily affected by personal experiences with bariatric surgery, implicit bias, understanding of the health risks of obesity, and counseling by pediatric providers.

Methods

Retrospective medical record review

With approval from the institutional review board (IRB #13036), we conducted a retrospective medical record review of all patients between the ages of 14 and 17 years seen in our primary pediatric and subspecialty (gastroenterology, endocrine, pulmonary, and surgery) clinics from January 1, 2017 to April 1, 2018 and identified as having "severe obesity" by their body mass index (BMI). All patients included in the review were identified from the institutional database by BMI and age. Severe obesity was defined by BMI $>$35 kg/m^2 [20] and age of 14 to 17 years. Patients whose BMI was noted to be recorded incorrectly on manual chart review due to clerical error were excluded. Demographic and clinical data were collected from institutional electronic medical records. Medical and psychiatric co-morbidities, sexual maturity rating (Tanner stage), discussion of obesity during clinic visits, and attempted enrollment in a lifestyle modification program, as well as actual program participation, were reviewed. Attempted enrollment was defined as involvement in a program intake process without subsequent enrollment, and program participation was defined as actual participation in program activities. Experiences with the lifestyle program offered at the examined medical center, which was advertised on the

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hospital website and known to pediatric providers within the institution, and similar programs at other institutions in the city were noted. Patients' BMI and medical and psychiatric co-morbidities, as defined by the specifically assigned diagnoses in the contemporary active problem list, were used to assess their eligibility for bariatric surgery according to the criteria established by the American Society for Metabolic and Bariatric Surgery [20].

Telephone survey

After reviewing medical records, patients' parents were asked to participate in a telephone survey designed to assess experiences with and attitudes toward bariatric surgery, understanding of the risks of obesity, and counseling received from pediatric providers. For detailed survey questionnaire administered to parents, see the Appendix. The survey was based on questionnaire items described in relevant literature and modified for content and brevity [19,26]. The questionnaire items were piloted on test responders with no healthcare experience, reviewed by the institutional review board, and revised by the research team for timing and sensitivity. The survey was conducted by the research team members and introduced to the parents using a standardized greeting. A similar (less detailed) introduction was created for the voicemail messages. A certified telephone interpreter service was used when the preferred language stated by the respondent was other than English. Parents were asked to provide binary responses to all questions (excluding 9 and 13, which requested numerical answers). The respondents were encouraged to omit questions they found confusing, but a specific protocol of limited clarification was used. All protected health information was removed from the database after completion of surveys.

Data analysis

Correlation analysis was performed using STATA 13 (2013, Stata Statistical Software; StataCorp LP, College Station, TX, USA). Associations between nominal variables were examined using Pearson's X^2 tests. Continuous variables were assessed using Student *t* test. Statistically significant correlations were determined by $P < .05$.

Results

One hundred ninety-two patients aged 14 to 17 years were identified and included in the study. The majority of patients (61.9%) were female. Average BMI of the patients was 40.5 kg/m^2 and was similar between survey responders (40.6 kg/m^2) and nonresponders (40.3 kg/m^2) (Table 1). The overall response rate of the telephone survey was 37.5% (72/192). Of 192 parents, 53.6% (103) were unable to be reached after 3 attempts in a 2-week period and 8.9% (17) refused to participate. Most parents who participated in the survey (88.9%; 64/72) reported being concerned about their child's weight. Despite that concern, only 69.4% (50/72) of parents believed their child's weight was a current health hazard. In fact, almost a quarter of the parents surveyed (23.6%; 17/72) did not consider their child's weight status to be dangerous for their future health. When asked about the amount of weight loss that would be considered a success, the mean was 63 ± 47.5 lbs and was significantly higher among the parents of adolescents eligible for surgery at the time of the survey (80.1 ± 53.2 lbs) than those who were not (39.9 ± 24.4 lbs; $P = .01$; Table 2).

According to available documentation, 60.9% (117/192) of patients' families received counseling regarding the patients' obese status in their clinic visit(s) (i.e., any documented mention of the patient's excessive weight and the

Table 1
Demographic data gathered from review of 192 adolescents' medical records (72 survey responders and 120 nonresponders)

Characteristic		All (192)	Responders (72)	Nonresponders (120)	*P*
Body mass index (mean ± standard deviation)		40.5 ± 5.3	40.6 ± 5.7	40.3 ± 5.0	.71
Body mass index >40		42.7 (82)	40.2 (33)	59.8 (49)	.55
Co-morbidities	Obstructive sleep apnea	8.9 (17)	8.3 (6)	9.2 (11)	>.999
	Type 2 diabetes	6.8 (13)	5.5 (4)	7.5 (9)	.77
	Prediabetes	9.9 (19)	9.7 (7)	10 (12)	>.999
	Nonalcoholic fatty liver disease	2.6 (5)	2.8 (2)	2.5 (3)	>.999
	Hypertension	12.5 (24)	6.9 (5)	15.8 (19)	.08
	Gastroesophageal reflux disease	9.4 (18)	16.7 (12)	5 (6)	>.999
	Depression	12 (23)	11.1 (8)	12.5 (15)	.82
	Anxiety	15.1 (29)	15.3 (11)	15 (18)	>.999
Counseling	Counseled on child's obesity	60.9 (117)	65.3 (47)	58.3 (70)	.36
	Counseled on lifestyle programs	24.5 (47)	30.6 (22)	20.8 (25)	.17
	Enrolled child in lifestyle program	3.1 (6)	5.6 (4)	1.7 (2)	.20
	Child eligible for bariatric surgery	59.4 (114)	58.3 (42)	60 (72)	.88

Data are presented as % (n), unless otherwise indicated.

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Table 2
Responses of 72 parents (42 with a child eligible for surgery and 30 with a child ineligible for surgery) to telephone surveys

Response	All (72)	Child eligible (42)	Child ineligible (30)	*P*
Body mass index (mean ± SD)	40.6 ± 5.7	43.5 ± 6.1	36.8 ± 1.2	<.01*
Consider child's weight a health hazard	69.4 (50)	69.0 (29)	70.0 (21)	1
Consider child's weight a future health hazard	76.3 (55)	76.2 (32)	76.7 (23)	1
Counseled on pharmacologic therapy	8.3 (6)	9.5 (4)	6.7 (2)	1
Would consider bariatric surgery for their child	41.7 (30)	45.2 (19)	36.7 (11)	.63
Appropriate age to consider surgery for child (mean ± SD)	19.9 ± 5.9	19.3 ± 6.6	20.9 ± 4.5	.37
Amount of weight loss that would mean success, lbs	63 ± 47.5	80.1 ± 53.2	39.9 ± 24.4	<.01*
Had prior personal exposure to surgery	72.2 (52)	73.8 (31)	70 (21)	.79

SD = standard deviation.
Data are presented as % (n), unless otherwise indicated.
* Statistical significance ($P < .05$).

need for weight loss). The chart review indicated that only 24.5% (47/192) of eligible families received counseling on lifestyle programs during their visit(s) (Table 1). Parents of only 71.4% of patients who received outpatient weight loss program counseling had an accurate recollection of that event. Interestingly, of those parents whose children's charts did not include such counseling, 44% stated they had received counseling (Fig. 1). Overall, a small minority of all parents successfully enrolled their children in a program (3.1%) (Table 1), including those who stated that they have not received education about such a program (1/6, 16.7%). Even after being approached about it by the pediatric providers, that number was only 12.8%. In fact, most (84.6%) of the parents who correctly remembered receiving counseling on lifestyle programs did not enter their child in a program.

Slightly more than half of patients (59.4%; 114/192) were eligible for consideration for bariatric surgery based on their BMI and co-morbidities [20]. Only 3 of 114 eligible patients (2.6%) had explicit documentation of counseling on surgical options in any of the clinic notes examined. Parents who identified their child's weight as a future health problem were more likely to consider MBS as a viable option, but only 51.9% (27/55) of parents fell into this category (Fig. 2A).

When asked to consider the minimum age to undergo surgery, a majority of responders (84.4%) believed it was inappropriate to consider surgical options at <18

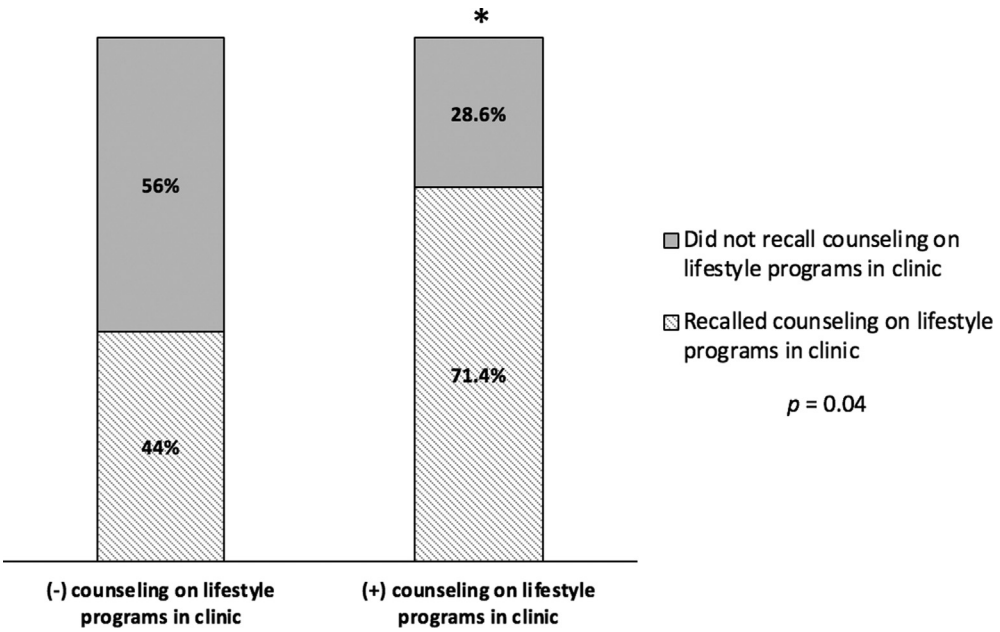

Fig. 1. Parents' perceptions of counseling compared with the actual counseling received, as documented. *Statistical significance (P < .05).

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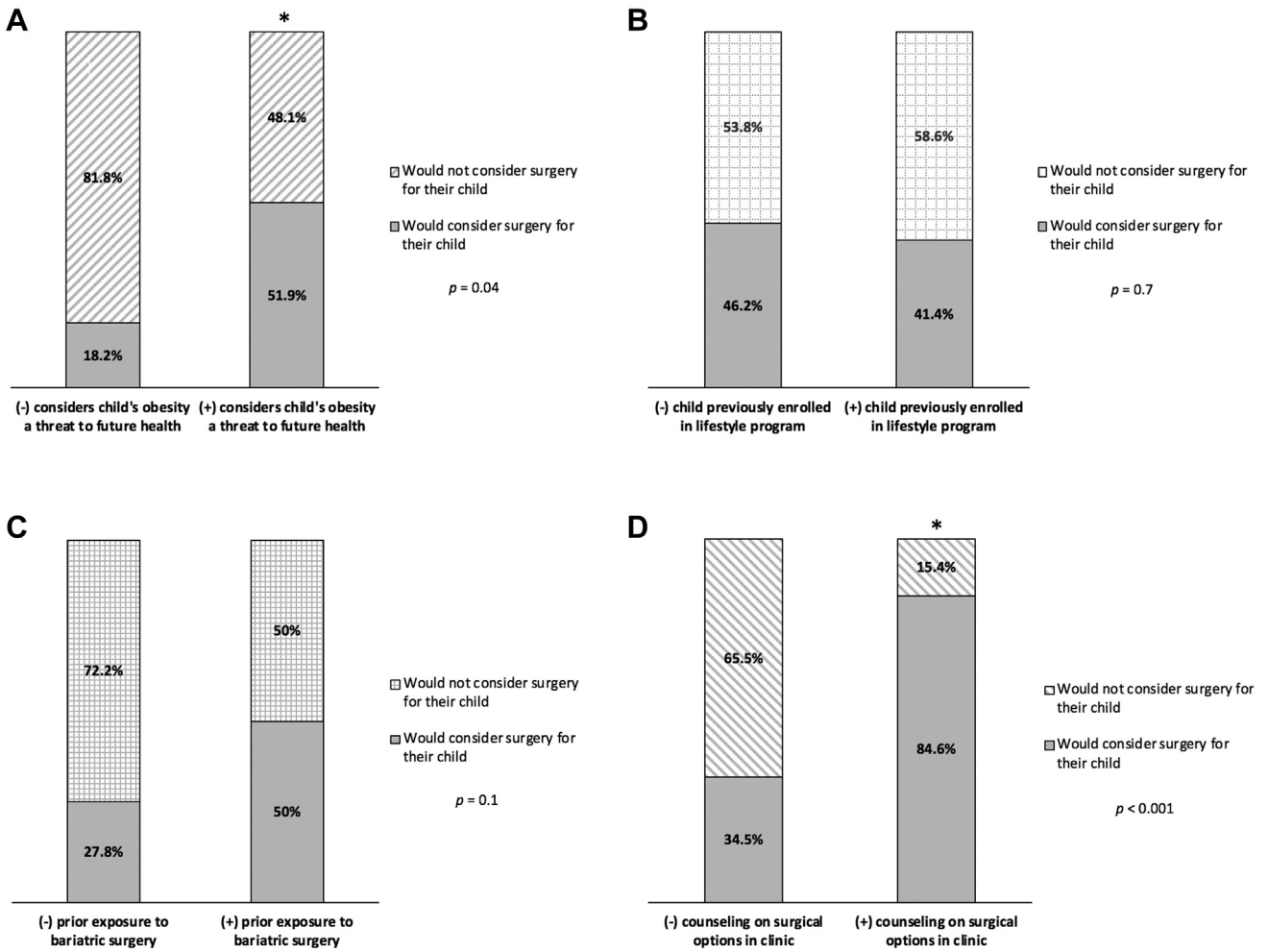

Fig. 2. Factors influencing parents' willingness to consider bariatric surgery for their child with severe obesity. *Statistical significance ($P < .05$).

years of age. The response did not differ between parents who correctly remembered counseling (mean ± SD: 19.1 ± 6.8) and those who did not receive counseling (20.2 ± 5.8) ($P = .64$).

Neither prior personal exposure to weight loss surgery nor previous enrollment of their child in a lifestyle program made parents more likely to consider MBS for their child ($P = .10$ and .70, respectively) (Figs. 2B–C). However, most of the parents (84.6%) who explicitly reported that they were counseled by their pediatric providers about bariatric surgery would consider it as an option, compared with only 34.5% of the parents who did not receive counseling ($P < .001$) (Fig. 2D).

Discussion

Provider referrals to lifestyle programs

Only a minority of providers (24.5%) approached eligible patients and parents about the adolescent weight loss program offered at our institution. The program involved a 10-week intensive curriculum of exercise and nutritional counseling, followed by a scheduled series of reassessments and reinforcements by the trained providers. A dedicated adolescent bariatric program was not present at our institution at the time of this data collection. However, bariatric surgical centers for adolescents are available in close proximity in this metropolitan area. It is possible that the knowledge of our institution's program was not as widespread as we assumed, which could contribute to our finding. However, several patients in our sample attended programs at other institutions, but their parents reported similar results to the patients who participated in the institutional program. Similar trends indicating pediatric providers' reticence to refer patients to weight loss programs have previously been reported in the literature, suggesting a need for both better physician awareness of the positives of lifestyle programs and improvement of these programs [28,29]. Such trends also indicate that better understanding of the disease itself and realistic expectations of nonoperative management are needed.

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Bariatric surgery: parental opinions versus reality

The short-term benefits of bariatric surgery in pediatric patients with severe obesity have been well established, and emerging long-term data appear encouraging [16]. Adolescents with severe obesity who undergo weight loss surgery demonstrate long-term, sustained weight control along with resolution of major co-morbidities [14]. Indeed, several studies have reported better bariatric surgery outcomes in adolescents than in adults—the positive health and psychosocial effects of MBS diminish after adolescence, when patients' obesity and co-morbidities have progressed [16,30,31]. Based on these findings, MBS should be seriously considered as a therapeutic option in younger patients struggling with severe obesity.

We assessed parental perceptions of the need for earlier surgical intervention. Only 65.3% of parents provided an opinion on the minimum age for consideration of bariatric surgery, with the median being 18 years old. However, the wide range of responses ("now" to 50 yr old) suggest an arbitrary approach. It stands to reason that parents may subconsciously consider the legal age of consent for the procedure a fitting cut-off, as that would shift some of the burden of the decision from the parents to the patients themselves. Earlier and more thorough counseling regarding patients' lifestyle and surgical therapeutic options could result in a shift in parents' mindsets regarding the appropriateness of and proper timing for pursuing surgical options for their children. Likewise, while statistically significant, the wide range of answers provided for the perceived "successful" weight loss by the parents (8–224 lbs) also suggests an arbitrary approach. While this may be related to higher BMI in the group eligible for surgery, it is difficult to assign a definitive explanation for these findings without additional data.

Influence of providers on parents' decisions

The main factor influencing parents' willingness to consider surgery for their child was whether they received counseling by their pediatric provider. Only a third of parents (34.5%) who did not receive provider counseling would consider bariatric surgery for their child, compared with 84.6% of parents who were counseled. This finding emphasizes the significant role provider counseling plays in parents' decisions regarding their children's healthcare and in the treatment of obesity in particular. Interestingly, such counseling did not significantly affect the perceived minimum age for consideration of bariatric surgery. It would be important to verify whether the pediatric providers themselves suggested a minimum age. The concept of pediatric provider counseling as a major force behind parental adherence is also evident in other major health issues in the United States, such as parents' decisions on vaccinations. Studies demonstrate that communicating with the child's physician is the most important factor in parents' decision-making on vaccinations. A strong recommendation by the provider has been shown to successfully encourage parents to vaccinate their children [32]; conversely, "absent or weak recommendations from health care providers are primary drivers of poor vaccine uptake" [33]. Recently, a provider recommendation was reported to be the strongest variable influencing the rise of human papillomavirus vaccination series in adolescent boys [33].

Given the substantial influence that provider counseling can have on how parents handle major decisions about their children's healthcare, it is essential to consider earlier provider recommendations in the treatment of childhood obesity. To encourage parents to approve vaccinations for their children, the Center for Disease Control routinely publishes guidelines to aid physicians in having these important conversations [34,35]. Similar recommendations for providers published by the Center for Disease Control and American Academy of Pediatrics would aid physicians in initiating early, thorough discussions about the range of therapeutic options for their children, including lifestyle programs and bariatric surgery.

Limitations

The primary limitations of our study are the retrospective nature of chart review, limited sample size due to the specific age range included in the study design, the recall bias inherent to surveys, and the relatively low response rate of our survey. In addition, some patients included in our study were only seen in a subspecialty clinic at our medical center. Given the lack of reliable access to these patients' external medical records, it is possible that they received counseling by their primary providers not accounted for in our study. We recognize that using the research team members to administer interviews holds a potential for bias; thus, we constrained the team to a specific greeting, content, and order of questions. In addition, the survey was designed to direct the responses in a binary fashion, further minimizing the potential for interpretation bias. This is a small-scale exploratory study meant to assess the parental willingness to participate and provide a glimpse into their attitudes toward surgical treatment of obesity in adolescent. Despite a lack of formal validation process, we were encouraged by our high-correlation findings indicating that our results are, indeed, objective. We recognize that a formal validation of a more expanded and granular survey would be required to better understand the parental motivations and juxtapose them with pediatric provider perceptions and attitudes. The follow-up study design would involve a validated, funneled questionnaire, administered by uninvolved operators with an assessment of interrater reliability.

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Conclusions

Given the well-established importance of parental involvement in the process of addressing obesity in adolescents, our study suggests that pediatric providers (1) counsel patients regarding available weight loss programs earlier to maximize the benefits of early intervention and more frequently and (2) specifically introduce counseling about bariatric surgery earlier in their conversations with parents. While our exploratory study is not meant to be fully generalizable, we propose a consideration of earlier involvement of pediatric surgeons in these discussions, allowing the surgeons to work as a part of the counseling team. This modification could help ensure that patients and their families take full advantage of multidisciplinary weight management programs, in which primary providers, lifestyle program specialists, and surgeons participate in coordinated discussions with patients and their parents. Finally, more up-to-date education for primary providers on surgical management of severe obesity in adolescence could be accomplished through continuing medical education lecture materials at conferences and grand rounds.

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Disclosures

The authors have no commercial associations that might be a conflict of interest in relation to this article.

Supplementary materials

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