



Original article

Barriers to metabolic bariatric surgery in adolescents: results of a qualitative study

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Abstract

Background: It is estimated that 4.5 million youth in the United States have severe obesity (SO). Metabolic and bariatric surgery (MBS) is the most effective and longitudinally durable treatment for adolescents with SO, but only an estimated 1600 adolescents undergo the procedure annually.

Objective: To understand patients' perceptions and experiences with the barriers to MBS as an adolescent.

Setting: This research was conducted at Children's Hospital Colorado, an urban academic medical center, and the University of Colorado Anschutz School of Medicine and Sanford Research, a rural medical center.

Methods: We conducted 14 qualitative interviews with individuals who received MBS between the ages of 19 and 25 years in the last 5 years regarding the barriers to MBS they experienced as an adolescent. A formal qualitative analysis was conducted using the constant comparative techniques of grounded theory generally guided by Anderson's behavioral model of health service use.

Results: We identified 3 principal groups of barriers related to (1) a lack of information that MBS was an option and the absence of discussions about MBS with medical providers while an adolescent, (2) a lack of access to MBS primarily related to insurance coverage, costs, and family-related issues, and (3) a general stigma around MBS as a treatment for obesity.

Conclusion: This study suggests that the primary barriers to MBS for adolescents with SO are related to a general lack of information about MBS, social stigma, and access issues related to costs that decrease or limit access. (Surg Obes Relat Dis 2022; ■:1–9.) © 2022 American Society for Bariatric Surgery. Published by Elsevier Inc. All rights reserved.

Key words:

Bariatric surgery; Adolescent; Qualitative research; Access to information; Health services accessibility; Social stigma

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Based on estimates from the American Academy of Pediatrics, the prevalence of youth with severe obesity (SO) is 7.9%, representing approximately 4.5 million individuals [1]. Severe obesity is defined as a body mass index that is 120% of the 95th percentile [2]. Severe obesity is associated with decreased life expectancy for adolescents [3] and poor overall quality of life due in part to the effects of comorbidities [4], social isolation [4], and stigma [5].

Obesity in adolescence is strongly predictive of obesity in adulthood. A recent analysis of 5 longitudinal studies concluded that 57% of children were predicted to be obese by age 35, and in 50% of these children, obesity will begin before adulthood [6]. Intensive medical, behavioral, and lifestyle interventions achieve minimal improvements in weight and co-morbidities with limited long-term durability [7]. Regardless of the weight loss efforts employed, 77% of children aged 9–11 years with obesity will remain obese as adults [8].

Research shows that metabolic and bariatric surgery (MBS) is the most effective and longitudinally durable treatment for adolescents with SO [9]. MBS decreases long-term mortality overall [10]; however, in populations younger than 35 years of age, this may be counteracted by an increase in external mortality [11]. Multiple medical societies include MBS among the interventions recommended for treatment of SO [1,12].

Only a small number of adolescents with SO who are eligible for MBS undergo the procedure. Of the estimated 4.5 million adolescents in the United States with SO, only 1600 undergo MBS in a given year [1,13]. Research at Children's Hospital Colorado, which has a robust and growing adolescent MBS program, found that only 12% of adolescents with SO were referred for MBS evaluation, and of that group, only 22% actually underwent MBS [14].

Barriers to MBS among adults are well characterized and have been summarized in a review article using the Andersen model of health service use [15]. Ultimately, decisions to undergo MBS are complex [16]. Contextual factors including health policy, financing, and organizational policies/practices can create barriers to MBS when individuals have public insurance, have limited access to an MBS facility, or receive uncoordinated care [15]. Provider characteristics also can act as a barrier to MBS, for example, when physicians hold negative beliefs about obesity or are unfamiliar with MBS [15]. Individual barriers for adults include patients perceiving themselves as not having SO, worries about the risk of MBS [16], a lower socioeconomic status, living in a rural area, perceptions of MBS as extreme, reservations about the postoperative restrictions, inability to participate in preoperative programs, perceptions of MBS as a last resort, or simply preference for another treatment option [15].

Barriers to MBS for adolescents are less well characterized and may differ from barriers experienced by adults. For example, while the majority of pediatricians believe that

MBS is effective, more than half report that they would never consider referring a pediatric patient for MBS, and some prefer to delay MBS for patients until their patients reach adulthood [17]. Other concerns include worries that many adolescents lack the maturity to adhere to lifestyle requirements after MBS, concerns of coercion, and the general invasiveness of the procedure [18]. In addition, the medicalization of obesity and obesity bias necessitates caution [19]. Finally, patients and providers can disagree on what constitutes SO and when treatment is warranted [19].

The extent to which the barriers that exist for adolescents are similar to those found in adults remains a critical knowledge gap. To address this, we conducted a 2-site qualitative study of individuals who received MBS between the ages of 19 and 25 years about what led them to receive MBS as adults and their perspectives and experiences with MBS as an adolescent.

Methods

The protocol was reviewed and deemed exempt by the institutional review boards at the University of Colorado and Sanford Research.

Research participants

The research participants were young adults (18–25 years of age) who received MBS between 2015 and 2020 at University of Colorado and Sanford Health.

Interview protocol

A single open-ended interview protocol, which is included in the Appendix, was developed in an iterative fashion. All the interviewers were trained by M.D., an experienced qualitative researcher, on how to follow the protocol, ask probing follow-up questions, and reframe questions as needed.

Data collection

The interviews were conducted on Zoom between February 2021 and July 2021. The interviews lasted between 45 and 60 minutes and were led by Investigator 2 R.L. (n = 4), M.K.B. (n = 5), and E.G.C. (n = 5). The interviews were recorded and transcribed. All the participants completed an approved verbal and written consent prior to participation.

Data coding and analyses

Interview transcripts were stored in Atlas.ti (version 9.1.4.0; ATLAS.ti Scientific Software Development GmbH, Berlin, Germany) to assist data management. Coding and analysis were performed using the constant comparative techniques of grounded theory [20]. Coding proceeded as follows: First, to create a code book, open coding was performed

on the first 5 interviews. This draft code book was reviewed by the study team and edited for conceptual consistency, and each code was given a short description as well as an example quote. As open coding continued, every third interview was double-coded to ensure interrater reliability/consistency. In the second stage, data and codes from this process were rearranged and grouped into similar themes and categories; for instance, different codes related to informational barriers were grouped into a larger thematic category, “Informational Barriers.” In the final analytic stage, our findings were compared primarily to Anderson’s behavioral model of health service use [21], which emphasizes individual and contextual (1) predispositions to use a health service, (2) factors that serve as barriers or enablers to doing so, and (3) the need for the service, both real and perceived.

Preinterview survey

Thirteen of the 14 participants completed a questionnaire prior to their interview. This survey, which is included in the Appendix, was pretested using expert review to assess face validity of the survey questions. The survey collected basic demographic data; insurance status as an adolescent; data on participants’ height, weight, and co-morbid conditions at

various times throughout adolescence; and information on what the participants perceived as the barriers to MBS as an adolescent.

Results

Table 1 provides demographic information on the 14 participants. Of the participants, 13 were female, 11 identified as White, and 13 were non-Hispanic. Five participants reported having public insurance as an adolescent and 7 private insurance. We were unable to ascertain insurance status for 2 individuals. The average body mass index of participants at age 12 was 30.6 kg/m² (range: 21.9–41.6 kg/m²), 34.3 kg/m² (range: 22.0–46.8 kg/m²) at age 15, and 40.1 kg/m² (range: 26.6–54.5 kg/m²) at age 18. The obesity-related co-morbidities reported at age 18 were gastroesophageal reflux disease (n = 5), obstructive sleep apnea (n = 5), and polycystic ovarian disease (n = 3). Using these data, 2 physicians independently made a judgment if they believed that each participant was likely eligible to receive MBS as an adolescent. Using the Pratt et al. 2009 guidelines [22], the guidelines that were in place when the participants were adolescents, there was agreement between the 2 physicians that 5 participants were likely eligible for

Table 1
Participant characteristics

Characteristic	n		
Sex			
Male	1		
Female	13		
Race			
Black	2		
White	11		
Unknown/not ascertained	1		
Ethnicity			
Hispanic	0		
Non-Hispanic	13		
Unknown/not ascertained	1		
Insurance			
Public	5		
Private	7		
Unknown/not ascertained	2		
Physical characteristics by age (y)			
Characteristic	Age 12	Age 15	Age 18
BMI (kg/m ²), mean (range)	30.6 (21.9–41.6)	34.3 (22.0–46.8)	40.1 (26.6–54.5)
Number of participants who reported having			
Gastroesophageal reflux disease	2	3	5
Polycystic ovarian disease	1	2	3
Obstructive sleep apnea	1	3	5
Hypertension	0	1	1
Diabetes	0	1	1
Nonalcoholic fatty liver disease	0	1	1
Dyslipidemia	0	1	1
Number eligible for MBS (Pratt et al., 2009 [22])	0	3	5
Number eligible for MBS (Armstrong et al., 2019 [1])	3	5	8

BMI = body mass index; MBS = metabolic bariatric surgery.

Table 2
Major barriers associated with key quotes

Informational barriers to MBS
Lack of knowledge of MBS
as an option

- “It was never offered to me under the age of 18, and I would have never known about it until my mom did it. I mean, I knew weight loss surgery was a thing, but I never would have known it was an option for me until my mom did it, so I think it’s just being part of the conversation. Like I said, I think as a society we’re shaming it and it’s not OK, we just, it needs to be normalized.”
- “No . . . even when I used to talk to my doctor, they never really mentioned, like, medications or they don’t even really bring up bariatric surgery.”
Interviewer: “Why didn’t you get bariatric surgery as an adolescent?”
- Participant: “I think the biggest factor was I didn’t even know it was an option. It was never brought up to me; it was never talked about with my mother from the doctors. I just didn’t even know that it was an option for anything.”
Interviewer: “So was the biggest reason you didn’t get it earlier because you didn’t know about it or was there something else?”
- Participant: “And it was primarily because I just didn’t have any knowledge of it. Nobody ever brought it up to me and, you know, occasionally bring it up to me. And nobody in my friend group was going to know what that was because they weren’t dealing with anything like that.”

Source of information on MBS

- “Yeah, so I was, I think 16 or maybe 17. I’m not quite sure when we learned about it, but I remember my mom came home one day and she went immediately to my dad and was like, ‘Hey, I learned about this new thing that they’re kind of doing and I kind of want to get it done.’ And she told him about the surgery that way, and that was the first ever knowledge that I had of it. She had heard about it from a coworker of hers that had had it done, and she found out later that a couple of other people in her office had had it done as well. And so she had known them to be in kind of a similar situation that we were in. So she wanted that. She wanted that done for her—for her, not necessarily for me, specifically for her just at the time.”
- “I want to say I was, like, 10 years old. My aunt had it done. That experience . . . it was a lot to process at 10 years old and how . . . how to understand it.”
- “I first learned about it maybe when I was about 18 or so, and I learned about it by just, um my, I think my mom’s friend had mentioned it. Not directly to me, but that she was going to get it. So I think I looked it up online because I had never heard anybody talk about it before. I had never heard any doctors mention that. So I have looked it up online and I kind of like researched it and that was basically how I was introduced.”
- “But my auntie actually got bariatric surgery around when I was 19. . . . And I just saw the way she looked when we first saw her after a lot of her weight gain was about like a year and a half later. And she looked like it’s a completely different person. She was doing good. She was so good doing things that she hadn’t been able to do since I’d known her. And that’s when it first crossed my mind.”
- “It wasn’t actually me, to be honest with you; my mom was the one who initially brought it up to me as a possibility of getting it with her because she noticed as I got closer and closer to 18 that I just could not breathe. . . . I hadn’t even honestly thought about it, I had thought that, you know, I probably wouldn’t be considered because of my age.”

Lack of discussions of weight
loss in general

- “I felt like I was overweight. I don’t know why she [the doctor] didn’t tell me, like, hey, like you’re way overweight. I just felt like it was like a super touchy subject. Like I would go in, like my knees hurt or something [audio cuts out], and they were like, just kind of glaze over it. I don’t think they ever kind of like said in depth with me and kind of talked about, like, different resolutions for me, losing weight the size of me already trying to diet. It just wasn’t working. And I never got options for my things like that, like even the medication. I found that on my own that that was an option. But yeah, it kind of seemed like they kind of bypassed my concerns with my weight.”
- “I honestly don’t remember ever hearing, like a family doctor ever say anything about weight.”
- “No, I kind of tried everything that I think people around me knew without, like, talking to a doctor; even when I used to talk to my doctor, they never really mention, like, medications or they don’t even really bring up bariatric surgery. I kind of found that on my own. It’s usually just diet. And I’ve tried that, and it never works.”
- “Like I mentioned before, like anything that my primary care physician was always focused on was trying to get the asthma under control, not necessarily the weight. . . . I think it would have been helpful to me, at least if somebody had pointed out the path that I was going down a little bit sooner because I didn’t really understand the ramifications of knowing.”
- “Yeah. I . . . I didn’t . . . like I said, I didn’t go to the doctor all that often. The few times that I did go, it was for my birth control, and it seemed like the . . . when I went in for the birth control, the doctors were saying . . . you know, essentially just in and out type thing. They . . . they were just getting . . . getting me my birth control and getting me out the door.”

MBS attitudes and stigmata about MBS

Belief that MBS is a “last-ditch effort”

- “Yeah, so I was probably 17. So in my senior year I remember my mom came to me and she said, ‘I’m probably going to have bariatric surgery,’ and she looked into it. She works for [a hospital], so she had a lot of information. So she said she was going to get it done, and I said, ‘You know, that’s great for you.’ And she said, ‘I don’t know if they do people your age, but that’s something we can try to look into.’ And I said, ‘OK.’ And at that point I did get excited because I felt like I tried everything else and surgery was my last option. So I learned about it my senior year.”
- “And there’s a lot of people I talk to about weight loss surgery who just don’t get it. They think it’s something that’s like a last resort when you’re 30 or when you’re 40. And I don’t understand why that is because you deserve to be healthy, happy, and your best self your whole life. You don’t have to wait until you’re so out of control that you’re now going to be on *My 600-lb Life*. Like, I don’t understand. I feel like for a lot of people, including doctors, it’s just not—to people it’s just that you’re too young. Even my—I’m sure we’ll get into this—but even my insurance at first said age was a factor. And that’s why I got denied surgery twice before I finally got approved because of my age.”

Social stigma around MBS

- “Yeah, there was a lot of stigma around how young I was. I’m getting the surgery, but it was definitely like a big thing. But there was also like the talking point about this is like the easy way out. Like, that’s just the easy way out. It definitely was not easy. I also—people, you know, are very excited and therefore before you have the interview, right after the surgery, but then like when life actually starts interacting and life circumstances are interacting with the surgery, people are more hesitant to be supportive.”
- “There is kind of a stigma about it. I’ve even gotten it from family members, and then after I’ve mentioned that I was getting bariatric surgery, I . . . a lot of them kind of scoff and tell me I don’t need it, that I’m . . . you know, I’m not that big. They . . . they seem to think that I’m either not as big as I say I am . . . you know? Like, I’ll . . . I’ll tell them I’m 260 pounds, and they’ll say ‘No you’re not, you’re definitely not 260 pounds.’ They’ll . . . though that’s nice, that’s not the reality of it. I . . . you know, there was lots of comments like, ‘You’re too young for it.’ You know, maybe if you lived with it for so long, you know, then you can have it, like, later in life. You know? You still have tons of time to work it off, type of thing, than not kind of believing that I have other health concerns that were causing it that weren’t gonna get better with time, type things. So, I mean, it . . . I was getting that from friends, strangers, whatever, if they ever questioned, like, what I was doing with that sort of thing. So yeah, there . . . there’s definitely a stigma in regards to bariatric surgery, especially with younger people.”
- “I would just like to say that, like, a lot of people have the mindset that bariatric surgery is an easy way out and that it’s . . . it’s a weight loss itself, but I don’t think a lot of people understand what it takes and entails to go through this and that the surgery is a helping step for weight loss, but it’s not the only factor. There is so much to it that . . . that goes into it to be able to lose the weight and not just, like, physically but mentally and emotionally. And then, long term, making sure you keep up with it and working out and having a healthy mindset with food. I don’t know, I just think there’s a stigma behind it, and I definitely followed it up until the last year or 2.”

Costs and issues of access

Insurance and costs

- “I had went through the process for a year and a half. It was doctor’s visit every 2 weeks, every month, like weight check-in food diaries. It was a very involved process. So to get to the point where we are ready to schedule surgery and then just not have insurance cover it, it’s kind of devastating because you put so much work and hope into the fact that you could lead a normal life, and then just it’s not going to happen.”
- “The nurse practitioner I had as a doctor never mentioned anything like that, and I think even if it was a treatment option, my family probably couldn’t have afforded it because we had health insurance from my mom’s work and it had, like, a \$5000 deductible.”
- “Well, insurance coverage was. It was a big factor. I knew I wanted the surgery, and I would have done whatever it took, but I knew at that point in my life that if we’re financially at that point in my life, if insurance didn’t cover it, there was no way that I would be able to afford it. But I also told myself, because I was denied by insurance twice. So after the second time, I started thinking to myself, well, what can I do? And I thought about, you know, make a savings account for your surgery. There was nothing else you needed to save for but that surgery. But with what I was making at the time versus my bills and all that stuff, it was going to be that like I was going to be 30 by the time I was able to have my surgery if insurance didn’t cover it.”
- Interviewer: “So do you remember why they didn’t cover it? What did they say?”
- Participant: “Yeah. Yeah. So my primary care provider apparently didn’t document that well through my adolescent years into even being a young adult. She didn’t document well enough that either there was things I was doing to lose weight. And so insurance would say that I didn’t try losing weight for long enough, which didn’t make sense to me because I was trying the majority of my life. But it wasn’t documented properly, which was really frustrating, and then they also said that my age was a factor because I was young enough, I should have a fast enough metabolism and stuff like that. And that was not the case.”
- “We actually, when we pursued it, when I was about 15 years old, we did go through everything, like I had the sleep study done. I had, like, the heart echo. I had everything done. We were just waiting for the actual surgery to go through. . . . And for some reason, I don’t know if Medicaid didn’t approve it or something, but there was—my mom was just told that we no longer could participate in the surgery. And then I think about it until I actually got the surgery.”

- “I just asked my doctor about it [4 years before surgery] and started the process [3 years before surgery]. And I just couldn’t keep up with going to school and working and trying to fit in all my 6-month appointments. And then I ended up just . . . I quit work to try and focus on classes because I was falling behind in classes trying to fit everything in. And then I was homeless from [2 years before surgery to the year of surgery], but my parents had me come stay with them so that way I had a place to be. . . . I could go to all my appointments, and I could just focus on getting healthy and getting the surgery that would forever change my life.”
- “I was very nervous and scared that I would mess it up afterwards. I . . . I was scared because I . . . like, I binge it and so that was really nerve wracking, like, how I was gonna stop that. And then also my grandparents and my mom were both alcoholics, and I know that’s a big risk because, you know, if you can’t obsess over food, you’re gonna obsess over something else. So I was very nervous about that, but, you know, I don’t drink . . . or [do] any of that stuff, and I’m actually doing really good without, you know, overeating or drinking or gambling. I don’t do any of that.”
- Interviewer: “OK. Did the fear . . . play a role in waiting until young adulthood to receive surgery?”
- Participant: “Yes. Yeah. And, thinking about it, when I was younger I just was kind of ashamed of it, and my mom said, you know, you should just wait a little longer so you truly understand what you’re doing to your body and yourself.”
- “Yeah, I think like when I think of it, I guess it would have been nice to actually lose weight as an adolescent, but me as a person and with my mentality being so vulnerable when it was with all the stuff that I was going through as an adolescent, I don’t think I would have adapted as well to the surgery as I did as an adult.”
- “I would not have wanted to be any younger because you are going through so many physical changes, but also the biggest things that I struggled with were not physical. They were mental. And you have to have the mental maturity and the mental capability to process and deal with those things and know when to ask for help. And I feel like if I would have done it any younger, I wouldn’t have had that kind of sense to do that. So I think it depends on the person. . . . But there’s so much that you have—like how the surgery impacted my life and set things off into different directions that would not have otherwise happened is insane, and I cannot imagine like dealing with that as like a 16-year-old or a 15-year-old.”

MBS = metabolic bariatric surgery; PCP = Primary Care Provider.

MBS as an adolescent. Of these, 3 were eligible at age 15 and 2 at age 18. Using the 2019 American Academy of Pediatrics guidelines, 3 were eligible at age 12, 5 at age 15, and 8 at age 18 [1].

Informational barriers to MBS

Our interviews yielded 3 general types of informational barriers to MBS among adolescents (see Table 2). First, many of our respondents did not know that MBS was an option for them as adolescents. As one participant said, “It was never offered to me under the age of 18. . . . I never would have known it was an option for me.” Another reported, “[E]ven when I used to talk to my doctors, they never really mentioned, like medications or they don’t even really bring up bariatric surgery.”

The second informational barrier was related to the source(s) of information for MBS. Of the 14 participants, 12 indicated that they had learned about MBS from family or friends rather than a healthcare provider. As one participant said, “Yeah, so I was, I think 16 or maybe 17. . . . I remember my mom came home one day . . . and was like ‘Hey, I learned about this new thing that they’re kind of doing, and I kind of want to get it done.’ And she told [my dad] about the surgery that way, and that was the first even knowledge that I had of it.”

A third informational barrier was a general lack of discussion around weight loss. One participant reported not discussing weight with a doctor: “I felt like I was overweight. I don’t know why [the doctor] didn’t tell me, like, hey, like you’re way overweight. . . . [I]t kind of seemed like they kind of bypassed my concerns with my weight.” According to another, “I honestly don’t remember ever hearing, like a family doctor ever say anything about weight.”

MBS stigma

Our interviews yielded 2 general subthemes related to negative attitudes and stigma surrounding MBS. The first was the belief that MBS is a “last-ditch effort” to be considered only after all other possible interventions have been tried and failed. Every participant reported trying multiple diets including but not limited to Jenny Craig, Weight Watchers, and SlimGenix. All participants also reported trying formal or informal exercise programs. As one participant said, “I felt like I tried everything else, and surgery was my last option.” Another participant said, “Me and my mom . . . tried multiple diets. We signed up for different gyms. We tried fad diets. . . . [N]o matter what I did, I just I couldn’t lose the weight.”

A second subtheme was stigma surrounding MBS. As one participant said, “[A] lot of people have the mindset that bariatric surgery is an easy way out. . . . I don’t know; I just think there’s a stigma behind it.” Another participant reported keeping the fact that she had received MBS a secret

because of this stigma by saying, “I decided to keep it a secret; nobody but my mother knows how I lost the weight.”

Costs and issues of access

The third major theme related to access (see [Table 2](#)). One participant who had been preparing for MBS as an adolescent said, “So I was . . . ready to do it, and insurance just wouldn’t cover it at the time. . . . [T]o get to the point where we are ready to schedule surgery and then just not have insurance cover it, it’s kind of devastating.” One participant who had commercial insurance said, “The nurse practitioner . . . never mentioned anything like that, and I think even if it was a treatment option, my family probably couldn’t have afforded it because we had health insurance from my mom’s work, and it had, like, a \$5000 deductible.” Several participants reported that the costs of MBS were a primary consideration in why they did not get MBS as an adolescent.

Participants also cited issues in their home life as barriers to MBS. As one participant reported, “I just asked my doctor about it . . . and started the process [3 years before surgery]. And I just couldn’t keep up with going to school and working and trying to fit in all my 6-month appointments. And then . . . I quit work to try and focus on classes because I was falling behind in classes trying to fit everything in. And then I was homeless.” Several other participants reported moving frequently, parental divorce, and financial instability in their homes that made accessing MBS challenging.

Discussion

The purpose of this qualitative study was to understand young adults’ perceptions and experiences with the principal barriers to MBS they experienced as adolescents. Our findings suggest that barriers for adolescents largely parallel those seen for adults.

Our study identified stigma as a key part of the individual and social context affecting the predisposition to pursue bariatric surgery. This mirrors prior models [1,15,16]. MBS appears to carry an “easy way out” stigma [16]. Several participants reported feeling stigma from family and friends regarding MBS. Studies of teenagers’ experiences with MBS similarly found that many chose to hide their surgery because it was viewed as an easy solution by others, for cosmetic reasons as a quick fix for weight loss [23]. Also, there is pervasive social stigma that persons who are overweight lack the necessary willpower or discipline to lose weight [24]. Moreover, the public lacks a basic understanding of the pre- and postoperative requirements of MBS [16]. Regardless of the etiology, this perception likely reduces the willingness of adolescents, their parents, and perhaps even some physicians to consider MBS. Similar social stigmata surrounding substance use, mental health, and gender identity have been shown to reduce individuals’ willingness to seek care and can result in reduced hope, self-esteem, and feelings of

self-efficacy and increased feelings of isolation. These facts taken together suggest that addressing the social stigma around MBS for adolescents is essential.

Second, we found knowledge and information about MBS—a necessary first step to enable shared decision-making about MBS [16]—to be lacking. Three of the 5 interviewees who were eligible for MBS as adolescents never discussed MBS with a physician. Although lack of provider knowledge has been identified as a key barrier for adult MBS [25], that patients perceive physicians to know about MBS but do not bring it up is a distinct and troubling insight. Arguably, given the robust evidence base behind MBS and recommendations supporting MBS by professional societies [1,12], physicians have a basic ethical obligation to inform patients and families of this option. It is worth noting that we did not interview physicians; future studies should explore further why discussions of MBS are not occurring.

Not only did we identify knowledge as a barrier to receiving MBS as an adolescent, but also participants reported feeling as though they should have been told about MBS. Participants felt that it was important for physicians to be willing to discuss MBS regardless of whether they felt it was appropriate for adolescents to receive MBS. In fact, while most participants stated that they wished their physicians would have talked to them about MBS as adolescents, only 2 participants wished they would have received MBS as an adolescent. Most others cited lacking the maturity to be successful at the surgery as the primary reason why they would not have wanted to receive MBS as an adolescent. Physicians being willing to discuss MBS with adolescents for whom it may be an option not only removes knowledge as a barrier to receiving MBS as an adolescent but also offers respect for patients and their autonomy.

We also found access barriers to MBS for adolescents. Many commercial insurance plans often have blanket policies that they will only cover MBS in persons older than age 18 [26]. It is possible that many healthcare providers take such policies at face value and use this as a justification to not discuss MBS with adolescents with commercial insurance. Unlike commercial insurance, it is believed that Medicaid more readily covers MBS for adolescents. Evidence shows that only 47% of adolescents with clinical indications received insurance approval on their first MBS request, but 80% of those denied received approval on appeal [27]. Some participants were denied by Medicaid for MBS as an adolescent, and others reported waiting to get MBS until early adulthood so that Medicaid would cover the surgery. Insurance coverage, costs, and an inability to pay are by no means unique to MBS in the U.S. healthcare system. However, failing to address cost barriers given the physical and mental health effects of delaying MBS until adulthood is highly problematic.

Another MBS barrier participants perceived was related to their life circumstances. One participant said she delayed surgery because she was homeless, and several participants

also cited moving or unstable home lives as a reason they didn't consider MBS as an adolescent. The surgery requires consistency and a large time commitment, making it challenging for adolescents with tumultuous lives to have MBS [23]. Life transitions also pose a challenge to consistency pre- and postoperatively [23].

Many of our participants perceived MBS as a last-ditch effort to address SO. Many believed that the risks and incidence of adverse outcomes associated with MBS are substantial and thus that MBS should only be considered after all other lower-risk interventions have been tried. This being said, risk is a relative term, and research shows MBS to be a safe surgical procedure [9], and MBS in adolescents is comparably safe to MBS performed in adults [28]. While some forms of MBS, such as gastric bypass, are surgically reversible, doing so would require an operation of the same or greater magnitude and risk as the original procedure. One qualitative study of adolescents who had received MBS linked viewing MBS as a last resort to the uncertainty surrounding the surgery—if they were ready, what the future would hold, and uncertain social outcome due to stigma [29]. Adolescents who had undergone the surgery did not focus on the risks of the procedure because they felt that it was their only option [29]. However, we cannot conclude from our data whether or not MBS should be the last treatment option and only considered after all other therapeutic options have been tried and failed.

Our study has several limitations that must be considered. First, because we interviewed 14 adults who had received MBS as an adult, we do not know how these barriers differed among individuals who received MBS as an adolescent. Second, healthcare providers may have very different perceptions of these barriers than do patients. Third, approximately half of those we interviewed likely did not qualify for MBS as adolescents, 13 were female, and 78% were White non-Hispanic. Finally, this study is limited in that we interviewed individuals who received MBS in the last 5 years as an adult. The experiences and perspectives of these individuals may not be the same as those of adolescents with SO today.

This study suggests that the barriers to MBS for adolescents are a general lack of information about MBS, social stigma, and issues with costs that decrease or limit access. Further research should be conducted to explore these issues. In the end, gaining a more complete empirical understanding of these barriers will assist in developing interventions to increase the access to MBS of adolescents for whom this surgical intervention is appropriate.

Disclosures

E.G. Campbell serves as a paid expert witness for the Office of the Attorney General of Arizona on a case related to financial conflicts of interest in medical practice. No other authors have any conflicts to report.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at <https://doi.org/10.1016/j.soard.2022.03.010>.

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