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Primary care physician decision-making regarding severe obesity treatment and bariatric surgery: A qualitative study

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Abstract

Background: Less than 1% of severely obese U.S. adults undergo bariatric surgery annually. It is critical to understand the factors that contribute to its utilization.

Objectives: To understand how primary care physicians (PCPs) make decisions regarding severe obesity treatment and bariatric surgery referral.

Setting: Focus groups with PCPs practicing in a small, medium, and large city in Wisconsin.

Methods: PCPs were asked to discuss prioritization of treatment for a severely obese patient with multiple comorbidities and considerations regarding bariatric surgery referral. Focus group

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- Collecting and analyzing the data (all co-authors)
- Drafting the manuscript (LMF, SAF, CIV)
- Editing the manuscript (all co-authors)

Conflict of Interest

The authors report no proprietary or commercial interest in any product mentioned or concept discussed in this article.

We realize that the SOARD journal instructions specify that 6 or less co-authors are preferred. I spoke with one of the SOARD managing editors to see if an exception could be made, and he suggested I include the request in the manuscript submission.

Of note, we would typically submit to a different journal if we could not meet the co-author requirements. In this case, we are required to submit to SOARD given that this research was made possible by a 2014 ASMBS research grant. We think SOARD would be a great fit for the manuscript if this co-author request could be met. We appreciate your consideration of this issue.

sessions were analyzed using a directed approach to content analysis. A taxonomy of consensus codes was developed. Code summaries were created and representative quotes identified.

Results: 16 PCPs participated in three focus groups. Four treatment prioritization approaches were identified: 1) treat the disease that is easiest to address; 2) treat the disease that is perceived as the most dangerous; 3) let the patient set the agenda; and 4) address obesity first because it is the common denominator underlying other comorbid conditions. Only the latter approach placed emphasis on obesity treatment. Five factors made PCPs hesitant to refer patients for bariatric surgery: 1) wanting to “do no harm”; 2) questioning the long-term effectiveness of bariatric surgery; 3) limited knowledge about bariatric surgery; 4) not wanting to recommend bariatric surgery too early; and 5) not knowing if insurance would cover bariatric surgery.

Conclusions: PCP decision-making regarding severely obese patients seems to under-prioritize obesity treatment and overestimate bariatric surgery risks. This could be addressed with PCP education and improvements in communication between PCPs and bariatric surgeons.

Keywords

Primary care physicians; obesity treatment attitudes; bariatric surgery

Introduction

While overall rates of obesity have stabilized in the U.S. in recent years, the prevalence of severe obesity (body mass index [BMI] of 35 kg/m² or greater) has increased by 70%, to 18 million, over the past decade.⁽¹⁾ This increase has resulted in significant costs to the U.S. health care system. Although they comprise only 37% of the employed obese population (BMI ≥ 30), individuals with a BMI ≥ 35 generate nearly two-thirds of the annual excess costs attributable to obesity among employers, which amounts to more than \$40 billion per year.⁽²⁾ Bariatric surgery is the most effective treatment for severe obesity. It achieves substantial and sustained weight loss, comorbidity resolution, quality of life improvements, and is associated with extended lifespan.^(3–5) A systematic review indicates that it is cost-effective.^(6,7) Every professional society that represents physicians who manage severely obese patients – the American College of Cardiology/American Heart Association,⁽⁸⁾ American Association of Clinical Endocrinologists,⁽⁹⁾ The Obesity Society,⁽⁹⁾ American Society for Metabolic and Bariatric Surgery,⁽⁹⁾ and the American Academy of Family Physicians (AAFP)⁽¹⁰⁾ – recommends bariatric surgery referral and evaluation for morbidly obese patients who are felt to be appropriate surgical candidates. Despite these data, less than 1% of severely obese U.S. adults undergo bariatric surgery annually.⁽¹¹⁾

Given that a relatively small proportion of eligible patients receive bariatric surgery, it is critical to understand barriers and facilitators to bariatric surgery utilization. A recently published systematic review found that both patients and referring practitioners had significant concerns about the outcomes and safety of bariatric surgery, although they admitted they had limited knowledge about obesity treatment options in general.⁽¹²⁾ Only one study included practitioners as participants and did not assess how the providers made severe obesity treatment decisions. Rather, it focused on barriers to referral for primary care physicians (PCPs).⁽¹³⁾ Another study included in the systematic review found that

PCP recommendations were identified as an important predictor of whether a patient would consider bariatric surgery.^(12,14)

To better understand how PCPs make treatment recommendations for their severely obese patients, we conducted focus groups with PCPs in Wisconsin. We sought to better understand how PCPs prioritize the recommendations made to severely obese patients. We also investigated how PCPs approach bariatric surgery as a treatment option and the challenges they encounter during the referral process.

Materials and Methods

Study Design and Recruitment

We conducted three focus groups with PCPs who were members of the Wisconsin Research & Education Network (WREN), a statewide practice-based research network of 200 primary care clinicians and more than 200 researchers.^(15,16) Interested clinicians were asked to complete a short eligibility survey online. 26 of the 27 clinicians who completed the survey met our eligibility criteria: they were M.D.s or D.O.s, managed adult patients (>50% of their practice) and had evaluated at least five severely obese patients (BMI >35 or higher) in their clinic over the past 6 months. A member of the University of Wisconsin (UW-Madison) Survey Center team called all 26 eligible PCPs and invited them to attend upcoming focus groups scheduled in Mauston (population 4,423), Madison (population 233,209), and Milwaukee (population 594,833).⁽¹⁷⁾

Focus Group Procedures & Guide

After obtaining written informed consent from participants, a trained moderator facilitated discussion using a script with pre-specified questions and discussion topics (Appendix). The focus group script followed a questioning route⁽¹⁸⁾ that was guided by our study's primary objectives. Participants were given a clinical vignette describing a severely obese (BMI 46) 52 year-old male who was attending his first PCP visit. His comorbidities included type 2 diabetes, hypertension, obstructive sleep apnea, and anxiety. He smoked 1 pack of cigarettes per day. PCPs were asked how they would prioritize treatment of his multiple health conditions and when, if ever, they would include bariatric surgery referral as a treatment option. The moderator then asked participants to discuss their approach to treatment of severe obesity more generally, using open-ended probes to ensure key themes were addressed.

Each focus group was approximately 90 minutes. Upon completion of the focus group session, participants completed an anonymous questionnaire that included demographic questions. All sessions were audio-recorded and transcribed. Each focus group participant received \$150 upon completion of the focus group session.

Qualitative Data Analysis

Focus group sessions were analyzed using a directed approach to content analysis.⁽¹⁹⁾ Three research team members (LMF, SAJ, CIV) coded the first transcript independently for emergent themes. Then, they convened to discuss each coded phrase or idea. This procedure

was repeated for each subsequent transcript using the technique of constant comparison, ultimately developing a taxonomy of consensus codes.⁽²⁰⁾ Memos were created to further clarify code definitions. ATLAS.ti qualitative data analysis software was used to manage the data (ATLAS.ti7, Scientific Software Development; Berlin, Germany). Codes were exported and divided to create code summaries and identify representative quotes. Code summaries were then aggregated to higher order themes which were discussed and reviewed by LMF, SAJ, and CIV.

This study was approved by the UW-Madison Education and Social/Behavioral Science Institutional Review Board in March 2014.

Results

Of the 26 eligible PCPs, 17 reported that they were able to attend focus group sessions, of which 16 attended (3, 7, and 6 in Madison, Mauston and Milwaukee, respectively). Their average age was 45.7 years (+/- 11.3 years). Fifty percent were female, and 94% were white.

PCP approaches to prioritizing treatment for severely obese patients (Table 1)

Approach #1: Treat the disease that is easiest to address.—PCPs prioritized treatment of diseases that they were comfortable managing and that could be treated with specific medications. Treatment of hypertension and diabetes first was often justified with this approach. By addressing these conditions, PCPs felt that they were able to establish rapport with patients and have some initial treatment success that may set the stage for future treatment successes that would require lifestyle changes.

Approach #2: Treat the disease that is perceived as the most dangerous.—Some PCPs reported that they would initially address certain obesity-related comorbidities, such as diabetes or hypertension, because they either presented the most immediate health risk or the greatest health risk. Future development of life-threatening conditions such as coronary artery disease, heart failure and renal insufficiency were concerns for PCPs who used this approach.

Approach #3: Let the patient set the agenda.—Some PCPs let patients decide which comorbidity they would like to address first, which empowered patients to take an active role in their health. PCPs reported that if patients were not fully invested in the treatment plan, then it was unlikely to succeed. Patients rarely focused on obesity treatment initially given that the lifestyle and dietary changes needed to achieve sustained weight loss were hard to make.

Approach #4: Address obesity first because it is the “common denominator” underlying other comorbid conditions.—PCPs who used this approach felt that addressing the patient’s obesity would help treat many of the other comorbidities. Without obesity treatment, it would be much more difficult to achieve sustained resolution of other comorbidities.

Factors influencing the formation of PCP care plans for obesity (Table 2)

1. **Patient acceptance of the treatment plan:** PCPs were cognizant of how patients perceived and accepted a proposed treatment plan. PCPs felt that making strong recommendations for significant weight loss over a short period of time was unlikely to be successful and may harm their relationship with the patient. PCPs often recommended incremental lifestyle changes for obesity treatment which were positively reinforced during subsequent clinic visits. Behavior change strategies included self-monitoring of dietary habits and physical activity and making incremental dietary changes.
2. **Availability of nurse educators, dieticians, and educational materials:** Obesity treatment required significant support from additional staff. Nurses who specialized in diabetes education and nutritionists who could provide recommendations regarding healthy dietary habits were critical, but were not available at all clinics. When present, these staff members also followed patients between clinic visits, managed medications, and offered education. This helped PCPs overcome a lack of face-to-face time with patients. PCPs also used handouts or other educational materials to address limited face-to-face time.
3. **Considering the severity of obesity and comorbidities:** Several PCPs noted that reviewing patient BMI and having it listed prominently in the electronic health record was helpful in care planning. One PCP remarked that he treated BMI like a vital sign. PCPs were less likely to focus on obesity treatment for patients with class I obesity (BMI 30–34.9). Many PCPs became concerned about obesity treatment for patients with class III obesity (BMI ≥ 40) because they felt it was associated with poor long-term health outcomes.

Challenges to implementing PCP care plans (Table 2):

PCPs reported several patient, provider and health system challenges to implementing care plans for their obese patients.

1. Patient factors

A. Lower socioeconomic status: Severely obese patients often had limited flexibility with their jobs and fewer financial resources, which made it difficult to incorporate healthy eating and physical activity. Lack of family support, such as assistance with child care, limited the time for physical activity.

B. Eating as an addiction: PCPs felt that many obese patients were addicted to calories, and they felt the physiologic mechanism was similar to patients with drug or alcohol addictions in that eating caused “endorphin highs.” Making sustained dietary changes required significant changes in patients’ lives, including the people with whom they spent time.

C. Having prior weight loss failures: Prior weight loss failures undermined patients’ confidence in their ability to be successful with future weight loss attempts and, as such, were barriers to lifestyle change..

D. Being in denial or making excuses: PCPs reported that it was common for patients not to take responsibility for their behavior. Inaccurate reporting of food diaries and statements regarding lack of time, energy or desire to exercise were common.

E. Limited physical mobility: Although increased physical activity was often recommended by PCPs, severely obese patients had difficulty implementing activity plans due to obesity-related pain.

2. Practitioner factor

Feeling ineffective in their ability to help patients lose weight: Lack of patient success frustrated PCPs, which sometimes diminished their enthusiasm to motivate patients to lose weight. PCPs often felt uncomfortable making obesity medication recommendations which contributed to their feelings of ineffectiveness. Their discomfort with making medication recommendations was attributed to their lack of familiarity with obesity medications.

3. Systems factors

A. Poor reimbursement for services: PCPs were often unsure if they were going to be reimbursed for obesity-related counseling and services because weight loss counseling and referrals to dietitians were often not covered by insurance. When obesity was listed as a primary diagnosis in the progress note, it was harder to get reimbursed for the care provided (versus listed diabetes or hypertension as the primary diagnosis).

B. Culture promoting obesity: PCPs believed that American culture contributed to the obesity epidemic by promoting eating for comfort or pleasure. PCPs felt that the food industry played a large role in encouraging unhealthy food choices.

Factors influencing bariatric surgery referral (Table 3):

PCPs rarely, if ever, brought up the option of bariatric surgery with patients. One PCP remarked, “I don’t bring it up unless people talk to me about it first, because I think I need to have that kind of interface before I can even have a discussion about risk. I consider bariatric surgery to be risky.” Waiting for patients to broach bariatric surgery originated from five factors:

1. Wanting to “do no harm”: PCPs were concerned about the safety of bariatric surgery and the risk of complications including poor quality-of-life, re-operations, and mortality. They noted a mismatch between the published literature, which characterizes bariatric surgery as very safe and their professional experiences and observations. For patients with BMIs over 40 but no known obesity-related comorbidities, PCPs felt that not recommending bariatric surgery was consistent with “doing no harm.” Despite these concerns, there was general consensus that untreated class III obesity was also dangerous.

2. Questioning long-term effectiveness of bariatric surgery: Most PCPs believed bariatric surgery was effective in the short-term and cited improvements in quality of life and comorbidity resolution. However, they expressed concern that long-term failures were common, particularly weight regain or excessive weight loss.

3. Having limited knowledge about bariatric surgery: PCPs generally did not feel confident in their knowledge of bariatric surgery. Most were not sure, for instance, if it was routinely performed via an open or laparoscopic approach. There was limited familiarity with the most commonly performed bariatric operation in the U.S., laparoscopic vertical sleeve gastrectomy.

4. Not wanting to recommend bariatric surgery too early: PCPs wanted to recommend dietary (and sometimes medication) changes first to ensure patients were “engaged” prior to recommending bariatric surgery. PCPs felt that patients who were motivated had the best outcomes, while those who were looking for a “quick fix” or primarily cosmetic benefit were less likely to succeed.

5. Not knowing if insurance will cover bariatric surgery: PCPs stated that insurance was a major barrier for bariatric surgery referral. PCPs did not want to refer their patients for bariatric surgery if the request would ultimately be rejected by the insurance company.

Challenges to pursuing bariatric surgery (Table 3):

1. Patient factors

A. Meeting preoperative requirements: PCPs noted that bariatric programs had rigorous pre-operative requirements, including assessments from a health psychologist, nutritionist, bariatric surgeon and occasionally medical sub-specialists. Many insurers required several months of supervised medical weight loss attempts, and bariatric programs often had a weight loss requirement prior to surgery. Dietary changes and other lifestyle changes such as smoking cessation and improvements in blood glucose control for patients with diabetes were frequently required. While PCPs viewed these requirements as reasonable, they were difficult for some patients to meet.

B. Living far from a bariatric surgery program: Living far from a bariatric surgery program presented logistical difficulties due to the multiple visits to the bariatric clinic and hospital required to complete their pre-operative evaluations, surgery, and post-operative care.

2. Practitioner factor

PCP involvement in post-operative care: Although many bariatric programs counseled patients to follow-up with the bariatric program annually for the rest of their lives, PCPs were often involved in the postoperative care. This may include laboratory checks on vitamin levels, wound monitoring, and evaluation of abdominal pain. The requirement of PCPs to address these issues contributed to hesitancy to refer patients for bariatric surgery.

Discussion

Our PCP participants utilized several different approaches when prioritizing care for severely obese patients. Three of the four prioritization approaches placed the emphasis on obesity-related comorbidities, but not obesity itself. Obesity was rarely seen as the “most

dangerous” disease. Hypertension and diabetes were often perceived as “easier” to treat because effective medications could be prescribed.⁽²¹⁾ Patients were often not interested in addressing their obesity and would usually not “set the agenda” to prioritize obesity treatment.

If the PCP and patient decided to treat the patient’s obesity, there were numerous challenges from the PCP’s perspective including socioeconomic status challenges, prior weight loss failures and limited re-imburement. These could not be effectively addressed by PCPs in clinic, so PCPs frequently felt ineffective in helping their patients lose weight. This finding is consistent with a survey by Ferrante, who found that most PCPs felt that treating obesity was frustrating and often ineffective.⁽¹³⁾

Many of the concerns expressed by PCPs about bariatric surgery could be addressed through education and improved communication with bariatric surgeons and patients. Likewise, many of the barriers to bariatric surgery referral cited by our participants, including when patients should be referred for bariatric surgery, bariatric program approval criteria, and PCP involvement in post-operative care, could be mitigated by improved communication. Numerous studies have demonstrated that bariatric surgery is safe and effective.^(3,4,22,23) There is also strong observational data suggesting that bariatric surgery is beneficial for at least 10 to 20 years.^(5,24) Increased dissemination of this evidence to PCPs and medical trainees may lead to prioritization of obesity treatment. Further, discussions about medical and surgical weight management options are warranted early in the course of the patient’s disease. Such discussions not only inform patients about the health risks of ongoing obesity, but also provide knowledge about risks, benefits, and outcomes of treatments. Decision aids that facilitate shared decision-making could help providers optimize care for individuals with severe obesity.

Other PCP concerns, such as the long-term effectiveness of bariatric surgery, cannot be addressed solely with education and improved communication. Although bariatric surgery has been shown to provide a mortality benefit as far as 10 years following surgery,⁽⁵⁾ there are notable gaps in the literature. Weight loss and comorbidity resolution outcomes greater than 10 years after bariatric surgery are poorly reported. Weight regain is a legitimate concern, with one study reporting that 37% of patients regained at least 25% of their total lost weight at a mean of seven years after gastric bypass.⁽²⁵⁾ To address these issues, more long-term data are needed and our clinical approach to weight regain post-operatively should be closely examined.

Further, numerous professional societies such as the American Academy of Family Physicians do not endorse or explicitly support bariatric surgery. In their “Diagnosis and Management of Obesity” document published in 2013, the AAFP notes that bariatric surgery “may be considered in adults who have not achieved weight loss with dietary or other treatments.”⁽¹⁰⁾ Given this relatively neutral position, it is not surprising that PCPs may not strongly endorse bariatric surgery. However, it is unclear to what extent PCPs are aware of the AAFP’s position on bariatric surgery and how that impacts their treatment recommendations.

Establishment of standardized obesity management metrics would also be helpful because they would improve our understanding of how severely obese patients are being managed at the health system, state and national levels. Analogous to those developed for surveillance of surgical quality and safety on a global level, these metrics should be based on simplicity, wide applicability, relevance to public health, and minimizing negative consequences of measurement.⁽²⁶⁾ They could incorporate various structure (i.e. number of practitioners), process (i.e. number of patients with a BMI recorded; number referred to nutritionist or bariatric program) and outcome (i.e. number who underwent bariatric surgery; BMI changes over time) measures to assess the quality of medical care provided to a population.⁽²⁷⁾ Although groups such as the National Committee for Quality Assurance have incorporated components such as BMI measurement into their quality measures,⁽²⁸⁾ a more comprehensive set of measures that include obesity treatment outcomes that are readily available to providers, researchers, and policymakers seems warranted.

Our study has several limitations. Given that our approach was qualitative rather than quantitative, we cannot infer the prevalence of PCP attitudes about severe obesity care. Our results were also limited to areas of discussion that were generated from our interview guide. We attempted to minimize the likelihood of missing important topics by combining our clinical vignettes with open-ended questions for the providers. Further, although we selected PCPs from different practice locations and included equal numbers of men and women, more than 90% of our PCPs were white. Thus, our findings may not generalize to physicians with other characteristics or with different patient populations. Finally, given that obesity care occurs over multiple visits, PCPs may have identified with more than one prioritization approach. We did not attempt to quantify how many approaches were endorsed by each PCP.

Conclusions

The current practice environment makes it difficult and frustrating for PCPs to successfully medically manage severe obesity. Although PCPs believe that bariatric surgery is effective, they have concerns about its long term benefits. Severe obesity care could be substantially improved with improvements in communication, PCP and patient education, establishment of standardized metrics, and additional research. These are potentially high-impact areas from a public health perspective and should be prioritized.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Approaches PCPs use to prioritize treatment for severely obese patients and representative quotes

Table 1:

Approach	PCP Quote
1. Treat the disease that is easiest to address	<p>- "I'm kind of a low-hanging-fruit person. So, if I were going to go after something I thought I could probably make them - or I could, quote, 'fix,' maybe even before the next time I saw him face-to-face-- I'd go after his hypertension."</p> <p>- "And maybe one success might help us get to goal on some of his other diseases. He might feel more confident in our relationship and say, 'Hey, you helped me with one thing.'"</p>
2. Treat the disease that is perceived as the most dangerous	<p>- Regarding treating a patient with hypertension: "He's already at risk for heart failure because he's got sleep apnea and the obesity, which is putting a huge stress on his cardiovascular system. This is a guy who, next week, could be in the ER with pulmonary edema."</p>
3. Let the patient set the agenda	<p>- "So he's obviously got a number of issues to consider, and I think I would ask him what he would like to work on, together, first...I think a lot of times, actually, people think, 'I've been there, done that [discussed medical weight management options]. Don't talk to me about that today.' I think we lose them at 'Hello' a lot of times."</p>
4. Address obesity first because it is the common denominator underlying other comorbid conditions	<p>- "I don't think I could ignore the obesity on the first visit, as far as establishing the goals of treatment for him. You can sit there and explain to him: If he addresses his weight, his sleep apnea will improve, his diabetes will improve, his blood pressure will improve. It'll be the cheapest way to do it if he could do it because he won't have to buy as many blood pressure medicines. He won't have to buy any diabetes medicines."</p> <p>- "I think of this patient like somebody with pretty advanced metastatic cancer. A similar prognosis. With all those risk factors, as extreme as they are, he's very liable not to survive another five years, unless these risk factors are to some extent corrected. Even if you don't correct the obesity, you could probably get these other things in line with a huge amount of effort. But I would still say this is the type of patient that I would introduce the bariatric surgery concept to sooner rather than later. I wouldn't wait years to see what's going to happen, to be moving in on his weight, because you pretty much know what that outcome is going to be."</p>

Table 2: Factors influencing the formation and implementation of PCP plans for severely obese patients and representative quotes

Factors influencing formation of care plans	
1. Patient acceptance of treatment plan	- "If you never want to see them again, you know what you say to them? 'You're morbidly obese and you really need to lose 25 pounds before I see you next time.'"
2. Availability of nurse educators, support staff, and educational materials	- "If I know that we're already short on nursing staff, the last thing I want to do is add to their plate. You need to call this person every week, and you need to do blood pressure checks and weight checks, and I can't physically do that to our staff at the moment." - "Because, I know I've got a great one-page hand-out, front and back, that says, 'Here's a list of foods, all of which you're familiar with. Pick the list from top to bottom. The bottom ones are always the better choices.' I could easily, probably, spend two minutes on that, and it seems to be a fairly high-yield sort of improvement for many of these things."
3. Considering the severity of obesity and comorbidities	- "There are people with BMIs of 32 that don't have arthritis and diabetes, and they're active, and they're firefighters and, you know, maybe it's genetics or build or whatever... I have a real hard time [critiquing] them because they're over insurance companies' standards for weight. They're maybe the healthy overweight, per se, or they're big muscular builds or whatever. So, that's why I let some people get away without as much lecturing as others. But usually, I guess my line seems to be a BMI of 40." - "If I haven't looked at a BMI at the beginning of an encounter and then catching it at the end, and being like, 'Oh, we should've talked about that and that wasn't even at the top of my [list]. I wouldn't have known if I hadn't seen the [BMI], and I think that's my own normalization [because] so many of our patients are obese.'"
Challenges to implementing care plans	
1A. Lower socioeconomic status (patient level)	- "That single parent, sometimes they're just, they're strapped, they're exhausted, they've worked all day, they go back to their three kids. It's faster for them to hit the dollar menu at McDonald's than to prepare a healthy meal. And she can feed herself and her three kids cheaper off the dollar menu than she really can prepare a healthy meal for four."
1B. Eating as an addiction (patient level)	- "If certain types of foods were illegal, would it be all that much different from illicit substances? Probably not. A lot of people are addicted to certain types of calories." - "When I talk to patients, I liken it to other addictions, like tobacco or drugs. You know, except it's calories. You have to change who you hang out with, where you go...."
1C. Having prior weight loss failures (patient level)	- "Most of the morbidly obese patients we see have, at least once in their adult life, tried to lose weight or tried to manage their weight. Prior failures, I think, for a lot of my morbidly obese patients... is a big barrier to them feeling like they could be successful if they embarked again on an attempt to lose weight."
1D. Being in denial/making excuses (patient level)	- "If you talk to him, he swears he's under 2,000 calories a day. You talk to his wife, and she says he's eating bags of potato chips and boxes of food and, you know, a whole chicken at a time."
1E. Limited physical mobility (patient level)	- "It's hard to exercise when your [BMI is] 46. You're just creaky. It's hard to get moving and probably takes a lot of energy expended to actually move. But I find with these morbidly obese patients, it's very hard to find some kind of aerobic exercise that they can actually do."
2. Feeling ineffective in helping patients lose weight (practitioner level)	- "I have a panel of 1,500 patients at this point. I can think of one that has successfully lost fifty, sixty pounds. It was similar to this patient. But that's one out of probably a thousand morbidly obese patients." - "If it is a case like his wife made him come in, he's probably not going to be too interested in making a whole lot of changes in all these things. And that impacts how much I'm going to bang my head against the wall, as well as what I'm going to kind of expect."
3A. Poor reimbursement for services (system level)	- "I've had some roadblocks, where people are obese or morbidly obese and I've tried to refer them for dietary counseling, and [we were] denied because whatever insurance they had, they could get dietary counseling for diabetes only, not for obesity."
3B. Culture promoting obesity (system level)	- "In America, we don't eat because we're hungry. We eat for comfort. We eat for pleasure. We eat for socializing."

Table 3:

Factors influencing bariatric surgery referral and representative quotes

Factors influencing whether PCPs provide bariatric surgery referrals	
1. Wanting to “do no harm”	<ul style="list-style-type: none"> - “There are some times when I think, ‘Boy, I’d really like to have this patient have [bariatric surgery],’ but I am a little afraid that with all these other comorbidities, their risk of complications [is] very high.” - “You read these articles right out of the New England Journal of Medicine; incredibly well-tolerated, and then you see patients who are disasters, and you’re trying to put it altogether. Are we missing something here? Are they selecting their patients so carefully that when you’re played over broader population like we see you can get disasters that you didn’t see in the study?”
2. Questioning long-term effectiveness of bariatric surgery	<ul style="list-style-type: none"> - “I’ve had another patient...she lost a lot of weight with surgery about twenty years ago. Gained it all back.” - “I’d say about fifty percent of the patients I know who had [bariatric surgery] have either out-eaten it or gained back most of the weight, and they are well on their way to the same complications they had prior to surgery - “So, I actually have a patient, where she is so skinny [after bariatric surgery], at this point and can’t absorb any nutrients, that we admit her to our inpatient service every month. So I think it goes both ways.”
3. Having limited knowledge about bariatric surgery	<ul style="list-style-type: none"> - Regarding whether bariatric surgery is typically performed laparoscopically or open: “I think most of the [bariatric operations] I’ve seen have been open, but, to be honest, I don’t truly know that because I think people had to have revisions and multiple abdominal surgeries afterwards. So, I don’t truly know what the initial one would be.”
4. Not wanting to recommend bariatric surgery too early	<ul style="list-style-type: none"> - “Often I feel I want to get their medical problems like diabetes and blood pressure well-controlled before I make a referral because, certainly if they have an A1c of 10 or blood pressures of 160’s over 80’s, they’re not in the best control possible. They’re not going to be a good surgical candidate anyway. So again, if the patient would have asked [for a bariatric surgery referral] at his first visit, I’d say ‘No. [let’s] fix these things well before we consider that. You need to try and fail multiple options that could be effective for you. And remembering again, bariatric surgery may help you lose weight but you still have medical problems we need to address. Those still remain lifestyle changes, and medications need to be a part of that.’”
5. Not knowing if insurance will cover bariatric surgery	<ul style="list-style-type: none"> - “I can’t keep [the insurance] straight, so, therefore, I don’t know even if it’s covered. Under what circumstances is it covered? At what BMI threshold is it covered, even if it is covered? Therefore, I’m naive to, can I even offer this to him or should I not set him up for anticipation and excitement about possible treatment, that he then crashes and burns and loses all faith in me because I said something was going to be available, an opportunity for him that truly didn’t exist?” - “I never bring [bariatric surgery] up because, usually, I assume it’s not covered, and for a lot of my patients, it’s not financially an option for that out-of-pocket at all.”
Challenges to pursuing bariatric surgery	
1A. Meeting pre-operative requirements (patient)	<ul style="list-style-type: none"> - “He sees [the bariatric surgery team] every two weeks or at least every four weeks. He’s been doing this for a year. He’s getting very disappointed because they are telling him, ‘You have to make big lifestyle changes, dietary changes,’ and, of course, if he was successful, he wouldn’t need the bariatric surgery. But even with a year of intensive therapy, more than I can give my usual patient, his BMI remains 77. This is one year of a major bariatric center, throwing the kitchen sink at him, to try to prepare him for upcoming bariatric surgery, which they’re promising him. He’s getting very frustrated, because they have not cleared him for surgery yet, and he’s been in this process for a year, and he’s also not lost weight.”
1B. Living far from a bariatric surgery program (patient)	<ul style="list-style-type: none"> - “I’m in XXXX County, and, as far as I know, there’s not a bariatric program there. We generally refer to XXXX County, to their bariatric program. So, that is a barrier of location. Many of my patients in XXXX think Milwaukee is like Chicago. It’s twenty minutes away, but, to them, that’s very far out to go to have to go to Milwaukee and see physicians.”
2. Primary care practitioner involvement in post-operative care (practitioner)	<ul style="list-style-type: none"> - “And again, ignorance here, I don’t quite know exactly what the frequency of what should be tested and what exactly should be tested and if it’s my responsibility as the primary doctor to manage those potentially malabsorption issues. Or should it be, in my opinion, maybe the surgical team and the nutritionist associated with that team during the follow-up and verifying that all the T’s and I’s are dotted and crossed.”