



Perception of Bariatric Surgery and Endoscopic Bariatric Therapies Among Primary Care Physicians

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Abstract

Introduction In the USA, less than 1% of eligible patients who qualify for bariatric surgery ultimately undergo surgery. Perceptions of endoscopic bariatric therapies (EBTs) for weight management remain unknown.

Methods A 22-question survey was distributed to primary care physicians (PCPs) across the Mayo Clinic healthcare system. Survey invitations were sent via email, and all surveys were unanimously conducted electronically.

Results A total of 130 PCPs participated in the survey (40% response rate). Twenty-four PCPs were between 20 and 24 years out of training (18.5%), and 71 (54.6%) were female. Most providers had a body mass index (BMI) between 18.5 and 24.9 kg/m² ($n=62$, 47.7%). Among the weight loss options discussed during clinic visits, PCPs discussed lifestyle modification including diet and exercise ($n=129$; 99.2%), and 68 PCPs (52.3%) were not aware of EBTs as weight loss interventions. While 46.2% of the PCPs agreed that a bariatric endoscopy is an effective option for weight loss, only 24.6% of PCPs were familiar with the indications for EBTs. Most of the cohort ($n=69$, 53.1%) experienced barriers in referring their patients. Moreover, most of the patients referred to bariatric clinics were from PCPs who had a BMI between 18.5 and 24.9 kg/m² ($n=62$, 47.7%) as compared to PCPs with a BMI of 40 kg/m² and greater ($n=5$, 3.8%).

Conclusions Due to the rise of bariatric therapies in recent years, PCPs are increasingly involved in the referral and management of patients with obesity and obesity-related comorbidities. However, knowledge gaps regarding weight loss options, including EBTs, could limit optimal care to patients desiring medically monitored weight loss.

Keywords Bariatrics · EBT · Perception · Survey

Introduction

Obesity has reached a global pandemic prevalence. Its prevalence has been on the rise in the USA and worldwide, with 42.4% of the US population classified as obese in 2017 [1].

By 2026, half of the adult US population is expected to meet the criteria for obesity [1]. Bariatric surgery has emerged as an effective therapeutic option for treating obesity and associated comorbidities including hyperlipidemia, hypertension, and diabetes [2]. A growing body of evidence has demonstrated that bariatric surgery and endoscopic bariatric therapies (EBTs) are effective at not only reducing the patient's weight but also improving the metabolic profile which is associated with improved survival and decreased morbidity and mortality [3, 4].

While bariatric surgery is a beneficial therapeutic option for patients with obesity, less than 1% of the population that meet the criteria for severe obesity ultimately undergo bariatric surgery and EBTs [5]. Furthermore, lack of access and misperceptions about bariatric therapies are additional potential barriers to referral practices [6].

In this study, we aimed to understand the referral practices for bariatric centers by PCPs, ascertain obstacles faced

Key Points

- Information about the perception of PCPs regarding bariatric surgery and endoscopy.
- Identifying barriers to referral including knowledge gaps and lack of access.
- Highlighting the role of educational programs in improving knowledge regarding bariatric services.

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regarding referrals for bariatric therapies, and gauge the knowledge of PCPs concerning bariatric therapies.

Methods

We performed a questionnaire-based, cross-sectional study of primary care physicians at the Mayo Clinic healthcare system between July 2021 and August 2021. Institution of research ethics board (IRB) approval was obtained. The questionnaire was developed to ascertain PCP knowledge of weight loss therapies, perceptions on bariatric surgery and EBTs, and practice and referral patterns, and identify potential barriers faced by PCPs and patients that prohibit referrals for weight loss therapies and management. The survey was developed by bariatric endoscopists and reviewed by a panel of gastroenterologists for validity and content clarity. A pilot questionnaire was employed internally, followed by modifications and widespread implementation. In total, 22 questions were developed to address the topics highlighted above.

Survey invitations were randomly sent via emails to the appropriate department and clinical sites. All surveys were conducted electronically. Survey responses were recorded anonymously and managed using REDCap electronic data capture tools hosted at our institution, in compliance with IRB guidelines. No identifiable data was collected for the survey respondents. No incentives were provided at the time of survey initiation or completion.

Bariatric surgical options offered include laparoscopic sleeve gastrectomy (LSG), laparoscopic adjustable gastric band (LAGB), and Roux-en-Y gastric bypass (RYGB). EBTs are performed using a flexible endoscopic approach, and options available include primary weight loss procedures such as the endoscopic sleeve gastroplasty (ESG) and intragastric balloon (IG), and management of weight recidivism after Roux-en-Y gastric bypass with the endoscopic transoral outlet reduction (TORE).

Statistical Analysis

After completion of data collection, qualitative and quantitative analyses were performed on the survey responses. Qualitative variables included free text. Statistical analysis was performed using Stata software version 15 (Stata Corp., 2017, Stata statistical software: Release 15. College Station, Texas).

Results

One hundred thirty PCPs participated in the survey, for a response rate of 40%. The majority of participants were between 20 and 24 years out of medical training ($n = 24$,

18.5%), and 71 (54.6%) were female. The most common provider BMI was between 18.5 and 24.9 kg/m² ($n = 62$, 47.7%). All respondents reported discussing weight loss and management options for their obese (BMI > 30.0 kg/m²) and overweight (BMI 25.0–29.9 kg/m²) patients during clinic visits. Most of the PCPs ($n = 74$, 56.9%) reported that they discussed weight loss management in greater than 50% of visits, for this patient population.

In 2021, 72 (55.4%) PCPs referred between 0 and 9 patients to weight management centers, while 15 (11.5%) PCPs referred no patients in that time frame; among the options discussed by PCPs for weight loss, 129 (99.2%) discussed lifestyle modifications including dietary changes and exercise, 94 (72.3%) PCPs discussed weight loss pharmacotherapy, 99 (76.2%) PCPs discussed bariatric surgery, and only 22 (16.9%) PCPs discussed EBTs as a weight-loss option. Only 10 (7.7%) PCPs did not discuss weight loss options and instead referred the patients to weight loss management centers and bariatric clinics (Table 1).

Questions About Knowledge

PCPs were asked about familiarity with NIH (National Institute of Health) criteria for qualification for bariatric surgery. Only 41 (31.5%) PCPs were familiar with the criteria, and 59 (45.4%) PCPs were somewhat familiar, while 30 (23.1%) PCPs were unfamiliar with the NIH criteria for bariatric surgery. Interestingly, most PCPs ($n = 68$; 52.3%) were not aware of EBTs available for weight loss. Regarding indications for EBTs, 98 (75.4%) PCPs were unfamiliar and only 8 (6.2%) PCPs were familiar with the indications for EBTs (Table 2).

Perceptions on Bariatric Surgery and Bariatric Endoscopy

When asked about bariatric surgery as an effective treatment option for weight loss and improving metabolic disease in patients with obesity and obesity-related comorbidities, 66 PCPs (50.8%) agreed, 9 (6.9%) PCPs were neutral, and 55 (42.3%) PCPs strongly agreed with the statement. With regard to EBTs as an effective treatment option for patients with metabolic disease, 60 (46.2%) PCPs agreed, 15 (11.5%)

Table 1 Weight loss options discussed with the patient

Option	Number (%)
Lifestyle modification	129 (99.2%)
Pharmacotherapy	94 (72.3%)
Bariatric surgery	99 (76.2%)
EBT	22 (16.9%)
Referral to bariatric clinic	10 (7.7%)
Total	130 (100.0%)

Table 2 Questions about knowledge

	Familiarity with NIH criteria for bariatric surgery	Awareness of EBTs as a treatment option	Awareness of indications of EBTs
Familiarity	Number (%)	Number (%)	Number (%)
Not	30 (23.1%)	68 (52.3%)	98 (75.4%)
Somewhat	59 (45.4%)	35 (26.9%)	24 (18.5%)
Yes	41 (31.5%)	27 (20.8%)	8 (6.2%)
Total	130 (100%)	130 (100%)	130 (100%)

Table 3 Perceptions on treatment modalities

	Perceptions on bariatric surgery	Perceptions on EBTs
Response	Number (%)	Number (%)
Agree	66 (50.8%)	60 (46.2%)
Neutral	9 (6.9%)	52 (40.0%)
Strongly agree	55 (42.3%)	15 (11.5%)
Disagree	0 (0%)	3 (2.3%)
Total	130 (100%)	130 (100%)

PCPs strongly agreed, 52 (40%) PCPs were neutral, and 3 (2.3%) PCPs disagreed with this statement (Table 3). The majority of providers had a BMI between 30kg/m² and 34.9kg/m² (Fig. 1).

Practice and Referral Patterns

PCPs were asked questions to assess practice and referral patterns. The majority of PCPs surveyed ($n = 128$, 98.5%) stated that they take care of patients who have undergone bariatric surgery in their practice. When asked about how comfortable PCPs were in referring patients to their

institutions' weight loss management center, the majority ($n = 91$, 70%) were comfortable in referring their patients to bariatric centers, and only 9 (6.9%) PCPs did not know how to refer patients for weight management. Most PCPs surveyed ($n = 74$, 56.9%) referred patients to weight loss management centers or bariatric clinics who have experienced significant weight regain after bariatric surgery (recidivism). Among the most cited causes for lack of referral in patients with weight recidivism to bariatric centers included lack of awareness for treatment options for weight recidivism ($n = 40$, 30.8%), difficulties with access ($n = 4$, 3.1%), lack of insurance coverage for bariatric benefits ($n = 5$, 3.8%), and lack of patient interest in referral to the Bariatric Clinic ($n = 9$, 6.9%) (Fig. 2).

Barriers to Referrals

Interestingly, 69 (53.1%) PCPs have experienced barriers for referral to the Bariatric Clinic, which included issues with access ($n = 27$, 20.8%), lack of insurance coverage for bariatric benefits ($n = 58$, 44.6%), patient fears regarding bariatric surgery ($n = 41$, 31.5%), and patient perception that enrollment in weight loss management center commits them to bariatric surgery ($n = 22$, 16.9%) (Fig. 3).

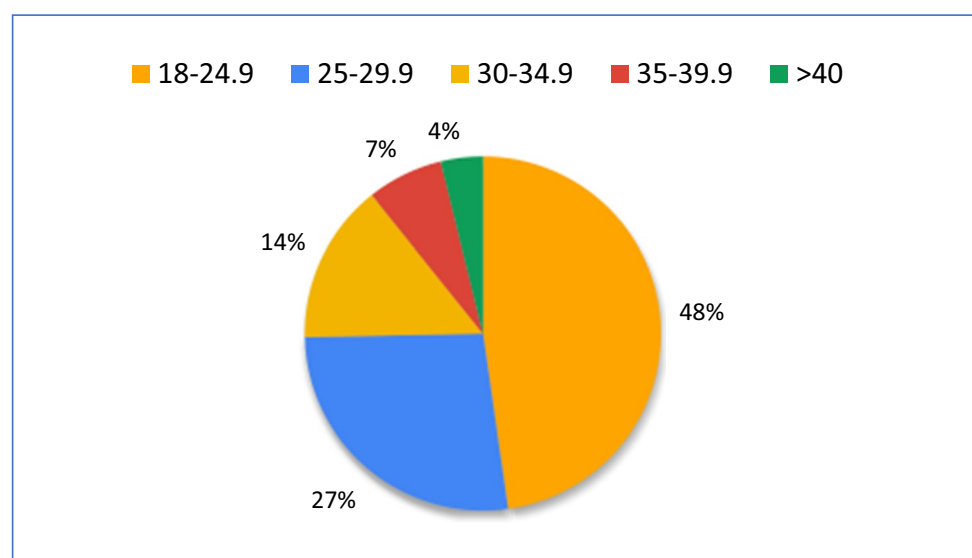
Fig. 1 Provider BMI and referrals

Fig. 2 Causes of lack of referral in patients with weight recidivism

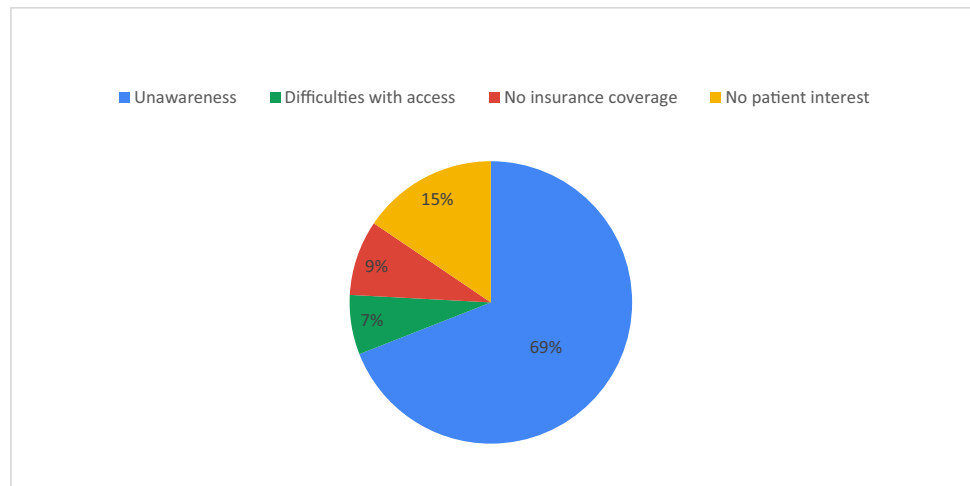
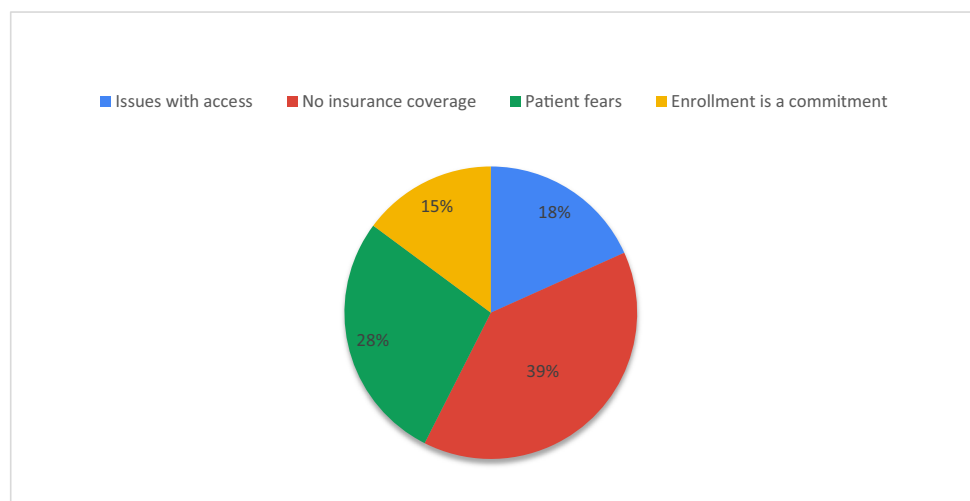


Fig. 3 Barriers to referrals to Bariatric Clinic



At the end of the survey, we inquired about interest in educational programs and webinars to increase awareness for weight management options for patients with obesity or obesity-related comorbidities, and the majority of PCPs ($n=110$, 84.6%) did express interest in educational programs.

Discussion

This study investigated the referral patterns and perceptions of primary care providers regarding bariatric therapies in patients with obesity at the Mayo Clinic healthcare system. We found that the majority of PCPs manage patients who have undergone bariatric surgery in their clinics. In our study, 70% of PCPs felt comfortable referring patients to the bariatric clinic while 53.1% experienced barriers to referring patients to weight management centers. Important barriers include patient fears regarding bariatric surgery and difficulty with access.

At our institution, we have a dedicated weight management center that includes medical bariatricians, dietitians, behavioral psychologists, bariatric surgeons, and bariatric endoscopists, and is accessible to all providers for referral regarding either medical or surgical management of weight gain. This is reflected in our data which showed that 98.5% of PCPs manage patients with a history of bariatric surgery in their practice. Furthermore, only 6.9% did not know how to refer patients to the bariatric center. The majority of PCPs surveyed expressed a largely positive attitude towards bariatric surgery, with 93.1% of PCPs agreeing that bariatric surgery is an effective treatment option for patients with obesity. This is in line with previously reported data [7]. In recent years, bariatric surgery has been shown to be effective in reversing metabolic disease; however, perceptions regarding the efficacy and safety of these procedures may play a role in the lack of referral [8–12]. Additionally, the 30-day mortality rate after bariatric surgery was cited as 0.3%, a much lower rate than that found after cholecystectomy [13, 14]. Despite the excellent safety profile of bariatric

surgery, only a minority of the respondents (11–13%) correctly identified the morbidity and mortality for Roux-en-Y gastric bypass surgery on a survey by Auspitz et al. [15]. Previous studies highlighted that PCPs often view bariatric surgery and bariatric center referral as a last resort after unsuccessful lifestyle and pharmacotherapy trials [16]. Perlman et al. found that only 6% of the respondents in their survey shared the view that obesity was best controlled surgically [17]. Despite evidence that sustained weight loss is often not accomplished by lifestyle modifications alone [18], 99.2% of the PCPs emphasized diet and exercise and only 76.2% discussed bariatric surgical options. While insurance coverage remains an issue for patients and providers alike, education and improved perception of bariatric procedures may help tilt policy towards widespread accessibility. Knowledge gaps regarding practice guidelines may contribute to lack of exposure to lack of discussion and referral regarding bariatric therapies.

Provider education remains a barrier for bariatric center referral [7]. In the study by Conaty et al., they highlighted that lack of familiarity with indications for bariatric surgery was the third most frequent identified barrier to referral among their cohort [7]. Only one-third of our sampled cohort were familiar with the NIH criteria for bariatric surgery. In our study, 84% of the PCPs expressed their interest in educational opportunities to improve their understanding of bariatric therapies, in line with data from prior studies [15, 19, 20]. It is noteworthy that educational programs have been shown to have a positive impact on referral patterns for bariatric surgery. Providers who completed education programs and were familiar with bariatric procedures were more likely to refer patients for bariatric surgery than those who have not completed these programs [20].

In recent years, EBTs have emerged as an option to bridge the gap in patients who fit the BMI criteria for surgery but fail to achieve weight loss through conservative medical therapies, who are not candidates for surgery, or in those were not willing to undergo surgery. While EBTs are becoming more widely available, knowledge of the wide spectrum of endoscopic therapies remains limited amount medical profession which has led to initiatives focused on improving education about EBTs among medical professionals in the bariatric community and beyond [21]. Furthermore, provider education may play a significant role in combatting weight recidivism. The 10-year weight recidivism rates have been shown to be as high as 40% [22, 23]. Despite these alarming rates, only about half of the respondents in our study referred patients to the bariatric clinic for management of weight recidivism mainly due to a lack of awareness for the treatment of weight recidivism. In the rapidly changing landscape of bariatric therapies and the improved safety profile of these procedures, educational programs are fundamental in reducing potential barriers to referral.

This is the first study studying the perception and referral patterns for EBTs in a large, multicenter, tertiary-care center

among PCPs. We found that only 16.9% of the providers discussed EBTs as a potential therapeutic option with their patients, and 57.7% had a favorable view of EBTs as a treatment option for metabolic disease. However, the majority of participants were not aware of EBTs, and a very small segment was familiar with the indications for EBTs. While EBTs have demonstrated promising results, widespread use and accessibility are limited to mainly large academic centers with available expertise [24–26]. Furthermore, EBTs have been associated with promising weight loss compared to bariatric surgery and decreased risk of procedural complications [27, 28], yet more studies are needed to conclusively assess the impact of EBTs on metabolic profiles and long-term weight loss outcomes. Not only will this new information help with reducing the cost barrier and lack of reimbursement [29, 30], we anticipate that this can increase awareness for EBTs among PCPs and other subspecialties, including bariatric surgeons, alike. Compounded with lack of knowledge regarding the availability of these procedures as we have shown in our study leads to lack of referral. With the alarming rise in obesity rates worldwide, additional bariatric therapeutic options will be needed to address patient needs. EBTs present a viable option to bridge the gap between noninvasive and surgical options for weight loss.

There are several strengths to our study. Despite not using incentives, we observed a high response rate of 40% possibly highlighting interest from PCPs in learning about bariatric therapies. Additionally, to our knowledge, this is the first study to investigate referral patterns and perceptions regarding EBTs in literature among PCPs. Limitations to our study, due to its inherent nature, include the chance of our results being subjected to recall bias. Moreover, our study was performed in a tertiary medical care center where weight management services are available for PCPs; therefore, generalizability may be limited to different healthcare settings and socioeconomic regions.

Conclusions

Due to the rise in obesity and simultaneous need for weight loss therapies, PCPs are increasingly involved in the referral and management of patients with obesity and obesity-related comorbidities [31]. However, knowledge gaps regarding EBTs and surgical options, perceptions on weight therapies, lack of financial coverage, and barriers to referral to dedicated bariatric centers could limit optimal care of this patient population. Targeted educational programs to educate PCPs on the most current guidelines and weight loss interventions may improve patient access to these resources.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s11695-022-06231-5>.

Declarations

Ethical Approval For this type of study, formal consent is not required.

Informed Consent Statement Does not apply.

Conflict of Interest The authors declare no competing interests.

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