
Article:
Carroll, C. orcid.org/0000-0002-6361-6182, Booth, A. and Cuevas, D.C. orcid.org/0000-0002-6517-3047 (2024) What matters to adolescents with obesity, and their caregivers, when considering bariatric surgery or weight loss devices? A qualitative evidence synthesis. Obesity Reviews, 25 (2). e13654. ISSN 1467-7881

https://doi.org/10.1111/obr.13654

Received: 7 March 2023 | Revised: 12 September 2023 | Accepted: 29 September 2023

DOI: 10.1111/obr.13654

REVIEW

OBESITY Reviews WILEY

What matters to adolescents with obesity, and their caregivers, when considering bariatric surgery or weight loss devices? A qualitative evidence synthesis

Christopher Carroll | Andrew Booth | Diana Castelblanco Cuevas

School of Health and Related Research, University of Sheffield, Sheffield, UK

Correspondence
Christopher Carroll, School of Health and Related Research, University of Sheffield, Regent Court, Regent Street, Sheffield, S1 4DA, UK.
Email: c.carroll@sheffield.ac.uk

Funding information
The Department of Nutrition and Food Safety at the World Health Organization (WHO) commissioned and provided financial support to the University of Sheffield for this work. WHO acknowledges the financial support from the Norwegian Agency for Development Cooperation (NORAD), The Swedish International Development Cooperation Agency (SIDA), The Government of the Grand Duchy of Luxembourg, and the Government of Germany (BMG) to the Department of Nutrition and Food Safety.

Summary

Background: Bariatric surgery and weight loss devices have been considered as a therapeutic option in some settings for adolescents with severe obesity. We conducted a systematic review and qualitative evidence synthesis of factors affecting adolescent and caregiver decision-making processes around such interventions, as well as post-surgery demands and challenges, so that their experiences might be better understood and improved support given. No previous qualitative evidence synthesis has been published on this topic.

Methods and findings: We searched 10 bibliographic databases and followed-up gray literature and citations sources. We performed a qualitative evidence synthesis on 19 primary qualitative research studies in adolescents aged 13 years or older. They reported diverse motivations and incentives for considering these interventions, including the physical and social problems resulting from living with obesity, and an awareness of the benefits and limitations of interventions. They reported that they need: information, physical and emotional support and, in some cases, financial assistance. There was high confidence in a majority of these findings (GRADE CERQual).

Conclusions: We found that supportive interventions accompanying bariatric surgery should be in place to offer: practical help; address anxieties and uncertainties; and facilitate both appropriate decision-making and the achievement of young people's desired outcomes.

KEYWORDS
bariatric surgery, qualitative research, systematic review, weight loss devices

1 | BACKGROUND

Bariatric surgery or weight loss devices are an option to facilitate weight management in adolescents and young adults with severe obesity.[1] This option tends to be presented late in the intervention pathway, being delivered via secondary or tertiary health services rather than via primary care. When considered against the complexity of multi-faceted combinations of diet therapy, physical activity, and behavior-change interventions, the mechanisms of bariatric interventions appear relatively straightforward. Typically, they suppress the desire to eat or provide the sensation of satiety.[2]

Adolescents with severe obesity, including those who do not respond to pharmaceutical interventions or who cannot tolerate side effects, may be referred for bariatric surgery or weight loss devices. However, long-term data exploring the safety and effectiveness of such approaches in adolescents is particularly scarce.[3–5] While bariatric surgery and weight loss devices are considered to be an effective obesity treatment, seen in such procedures as the Roux-en-Y gastric bypass and the vertical sleeve gastrectomy (SG),[3] adolescents may encounter difficulties gaining access or insurance coverage for the procedures. Procedures for bariatric surgery place stringent requirements in terms of eligibility criteria, important risks, and special considerations.[4] Device interventions for obesity in adolescents commonly involve an intragastric balloon (IGB), either placed endoscopically or swallowed by the patient, designed to occupy space in the stomach to reduce hunger and the desire to eat. IGB interventions can be complicated by gastric pain and cramping. However, coverage of surgical procedures is selective, even at a country level. Effectiveness data remains a research priority, often privileged ahead of further qualitative research.

Qualitative evidence syntheses occupy a pivotal role in supporting guidance and guideline development by the World Health Organization (WHO).[6] The WHO commissioned a series of reviews of qualitative evidence from a single review team in support of international guidelines for health services for children and adolescents with obesity. Preliminary exploration revealed that, in contrast to those aspects of obesity in children and adolescents that are populated by multiple qualitative evidence syntheses (diet, physical activity, and pharmaceutical and behavioral interventions, and interaction between health workers and children, adolescents and their caregivers), no published qualitative synthesis explored the perspectives of either adolescents with obesity or of their parents or caregivers, when anticipating or experiencing surgical interventions delivered by obesity services. The objective therefore was to conduct a systematic review and qualitative evidence synthesis to explore the values and preferences of adolescents with obesity and their caregivers concerning bariatric surgery and weight loss devices.

2 | METHODS

We conducted a qualitative evidence synthesis using the best fit framework synthesis approach.[7] When preparing this review, we used EPOC's Protocol and Review Template for Qualitative Evidence Synthesis[8] and reported the synthesis following the Enhancing Transparency in REporting the synthesis of Qualitative research (ENTREQ) guidelines.

2.1 | Selection criteria

To be included in the synthesis, studies had to satisfy the following criteria: Qualitative studies reporting perceptions of adolescents with obesity, and/or their parents or caregivers, concerning surgical interventions and weight loss devices for weight management. The term "adolescent" is defined by the WHO as a person aged 10–19 years old, and "youth" as one between ages 15 and 24 years old.[9] The focus of the review was the adolescent age-group, but, given the overlap of age range, both terms/definitions were included for selection of studies, so that evidence from "youth" studies was not missed. Surgical interventions specifically relate to the provision of selected and/or structured surgical options or devices for individuals and groups with obesity. In the context of this review, this relates to weight management and management of obesity. The outcomes of interest were participants' desires, fears, beliefs, preferences, experiences, coping strategies, and so on. We included both published and unpublished qualitative primary studies in any language. We aimed to include relevant mixed methods studies where it was possible to extract data that were collected and analyzed using qualitative methods. The focus on qualitative studies means that the data describes the values and preferences of adolescents, and of their parents/family/caregivers, rather than focusing on the actual type of surgical procedure involved. The views of other adults involved in such interventions, for example, clinicians and other staff, although acknowledged as important, are excluded from the scope of this review.

In following published Cochrane guidance on assessing methodological limitations,[10] we did not apply any "quality threshold" for including studies in this review; studies were included regardless of quality but all were assessed in the analysis of findings using the GRADE CERQual approach,[11] including not just the methodological limitations of the included reviews but also the domains of coherence, relevance, and adequacy.

2.2 | Search methods

An experienced, professionally-qualified Information Specialist (AB) developed the search strategies for each database using keywords and subject terms. Ten bibliographic databases were interrogated: African Journals Online (AJOL); ASSIA; CINAHL (Ovid); EMBASE (Ovid); Google Scholar; LILACS; MEDLINE (Ovid); PsycINFO (Ovid); Scopus; Web of Science (WoS). See Supporting Information for the Ovid MEDLINE search strategy, which was adapted for other databases. Additional strategies were used to harness technologies for citation chasing (Publish or Perish and Citation Chaser). No limits were applied for language but date coverage was limited from January 2010 to December 2021. A "parsimonious" methodological filter was used to identify qualitative studies.[12,13] A gray literature search was also conducted in the following sources to identify studies not indexed in the databases listed above: OpenGrey (www.opengrey.eu; to 08/03/2021); Grey Literature Report (New York Academy of Medicine; www.greylit.org; to 08/03/2021); Agency for Healthcare Research and Quality (AHRQ; www.ahrq.gov; to 08/03/2021); National Institute for Health and Clinical Excellence (NICE; www.nice.org.uk; to 08/03/2021); Eldis (www.eldis.org). Backwards citation chasing (reference checking) and Forwards citation chasing (Google Scholar citation searching using Publish or Perish) was conducted on included studies. We checked the reference lists of reviews previously included in mega-aggregations conducted for the WHO (in press) in order to identify any potentially includable studies referenced in any of the associated set of five reviews. Active pursuit of related studies, identified through shared

authorship, citation networks or related articles features, was also conducted.[14] All citations were downloaded into an Endnote reference management package and duplicates deleted.

2.3 | Selection of studies

Once acceptable agreement was reached on the application of the eligibility criteria, following use of a test set of 100 references, two reviewers (CC, AB) divided the remaining references between themselves for screening. A second reviewer checked 10% of the Excludes for each reviewer and any discrepancies were discussed and resolved within the entire review team (CC, AB, DC). Where the same study, using the same sample and methods, has been presented in different reports, we collated these reports so that each study (rather than each report) became the unit of interest in our review.

2.4 | Data extraction

We extracted data using a form designed for this synthesis. The following data relating to study characteristics were extracted: author; year; population; data collection method; setting; sample size, including time since procedure; procedure; method of analysis; potential additional relevant references. This was completed by two reviewers (CC, DC), with 20% of the sample being double-checked for accuracy. A second form, based on the domains of a selected a priori framework, was also created to conduct the first stage of the synthesis. Details of the selection of the framework, and its domains, are provided under the section "Synthesis." The following data were coded against the domains from this framework (or new domains created where necessary): relevant themes identified by the authors of the primary studies; relevant data (including illustrative verbatim text extracts) selected and reported by the authors of the primary studies.

2.5 | Assessing the methodological limitations of included studies

We assessed methodological limitations of included primary qualitative studies using the Critical Appraisal Skills Programme (CASP) tool for Qualitative Study designs.[15] This was completed by two reviewers (CC, DC), with 20% of the sample being double-checked for accuracy. Our assessments are reported in the corresponding Methodological Limitations table. Data richness is an important consideration within qualitative research, but there is currently no accepted scale of data richness. One possible scale had been developed within the Cochrane EPOC review group and this was used for this review.[16] This rating system considers the amount and depth of qualitative data and its relevance to the research question. The 5-point score is based on the amount of qualitative data contributing to and presented within a qualitative primary study. The scale ranges from "5" (the highest score of data richness) when a study includes large quantities of qualitative data to "1" when very little or no qualitative data are presented. A richness assessment was conducted by one reviewer (CC) and all were checked by a second (AB).

2.6 | Synthesis

Synthesis was performed using a "best fit" framework synthesis approach.[17] A relevant framework was identified using published methods of framework identification.[18] The most relevant result related to bariatric surgery in the context of Andersen's model of health services use.[19] The chosen a priori framework included three relevant domains of predisposing factors affecting take-up of bariatric surgery (all age groups): (1) perceived needs; (2) beliefs; and (3) enabling: financing, each with subthemes (see Table 1).

Following the published "best fit" framework synthesis approach, data were extracted from each included study by one reviewer (CC) and coded against the most relevant domain and subtheme of this a priori framework (a framework analysis, deductive approach); if data did not fit under any of these themes, then new themes were created (a thematic analysis, inductive approach). The final framework amalgamated any themes from the a priori framework that were supported by data, with new themes, substantiated by data that were not accommodated by that original framework. In this way, the a priori framework was tested, challenged, refined, developed, and extended with the specific question of this review in mind.

The extracted data were checked by the second reviewer (AB) and any inconsistencies resolved by discussion. The data were then revisited to establish how the themes from the final framework related to one another, to create a conceptual model, explaining the phenomenon of interest. In this case, the phenomenon could be defined as the views and preferences of adolescents with obesity and their caregivers regarding bariatric surgery. This process was conducted by one reviewer (CC), checked by a second (AB), and subjected to critical analysis by members of the WHO project team. Equity

TABLE 1 Relevant a priori framework domains and themes.[19]

Domains	Subthemes
Perceived needs	Barriers: perception of self as not living with severe obesity; non awareness of bariatric surgery treatment; perception that bariatric surgery is a last resort; facilitators: perceiving self as living with obesity; worsening health status; low energy levels limiting activity; knowing someone who had successful bariatric surgery; higher BMI; higher number of co-morbidities.
Beliefs	Barriers: fear of surgery and postoperative complications; perception of surgery as "extreme"; concerns regarding postoperative restrictions; weight regain; and lack of control over amount of weight loss.
Enabling: financing	Barriers: cost of bariatric surgery; patient uninsured status.

Abbreviation: BMI, body mass index.

considerations were identified and considered using the PROGRESS-Plus components.[20,21]

2.7 | Summary of qualitative findings table(s) and evidence profile(s)

Summaries of the findings, and assessments of confidence in these findings, are presented in Tables 3 and S2–S4. The GRADE-CERQual (Confidence in the Evidence from Reviews of Qualitative research) approach was applied to assess confidence in each finding.[11] This process takes into account the following factors: methodological limitations of the included studies; the coherence of the review finding; the adequacy of the contributing data, including richness; and the relevance of the included studies to the review question. After assessing each of the four components, we made a judgment about the overall confidence in the evidence supporting the review finding. Confidence is judged as high, moderate, low, or very low. All findings start as high confidence and are downgraded where there are important concerns regarding any of the GRADE-CERQual components. Judgment of only minor concerns across three or more of the components (e.g., methodological limitations, relevance) would likely see a high confidence in the finding; if one or more components was judged to have moderate or serious concerns, then this would lead to the incremental downgrading of confidence (to moderate, low, or very low). The final assessment was based on consensus between the review authors.

2.8 | Review author reflexivity

The author team represents diverse professional backgrounds with varied research experiences and expertise. A key feature of a qualitative evidence synthesis is for the authors, individually and collectively to consider their own positionality and the extent to which this could have influenced their input in conducting this review. The full author reflexivity statement is available in Supporting Information.

3 | RESULTS

3.1 | Results of the search

Reviewers screened 5821 titles and abstracts and selected 102 for full-paper screening. Twenty-one reports (19 studies) were identified that satisfied the criteria for this review. The process is detailed in the PRISMA flow diagram (Figure 1).

3.2 | Description of the included studies

Details of the 19 included studies are presented in Table 2. This review and synthesis included primary qualitative research studies published in English between 2008 and 2022. One study was represented by two reports, with an overlap of evidence[33,42] and one study was presented as two published reports covering participant views from before[28] and after surgery.[29]

The age at procedure (or the age at interview for participants who had not had a procedure) ranged from 13 to 18 years in 12 studies,[32,39] from 14 to 21 years in one study,[25] from 16 to 24 years in one study,[35] and from 18 up to 28 years in three studies.[24,37,41] Therefore, no study included children under 13 years. Nine studies included populations from North America (Canada $n = 4$, USA $n = 5$), eight from Europe (Sweden $n = 3$, UK $n = 3$, France $n = 1$, Netherlands $n = 1$), and one each from Australia and Israel. The evidence therefore derived exclusively from high-income countries.

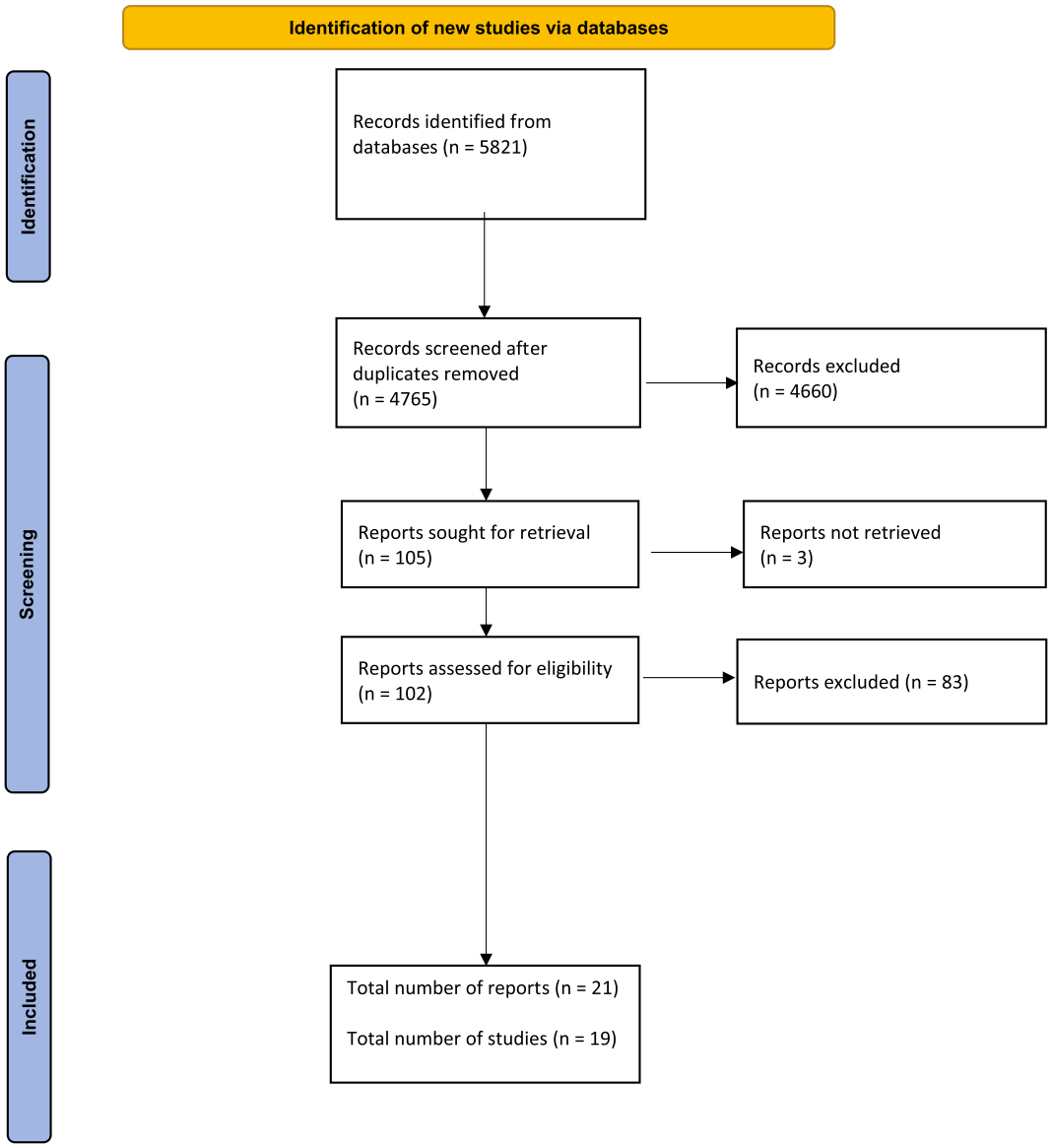
The number of adolescents and young adults interviewed in 18 of the 19 included studies ranged from 7 to 20, with one study having 31 adolescent and young adult participants[35]; four studies also elicited the views of caregivers/parents.[33,35,39,40,42] Four studies explored views about bariatric surgery from adolescents' who had not undergone a procedure,[22,27,28,39] while the majority of studies recorded views and experiences of participants from before and/or after procedures. The type of surgery undertaken or proposed was often unspecified in these studies. However, where a procedure or device was specified, three studies considered only SG,[25,32,36] two studies both Laparoscopic Roux-en-Y Gastric bypass (LRYGB or RYBG) and SG procedures,[26,29,35] two studies LRYGB or RYGB only,[35,40] and three studies gastric band.[38–40] In terms of weight loss devices, one study considered experiences of an Endobarrier[38] and one study IGB.[33,42]

3.3 | Methodological limitations and richness of the studies

Details of the quality assessments are presented in Table S1. The methodological assessment judged nine studies (11 reports) to have been conducted with only a low risk to rigor; for eight studies the risk to rigor was deemed to be moderate, and for two studies the risk to rigor was assessed as moderate-to-high.[35,38] Details of the richness assessments are also presented in the final column of Table S1. Eight of the 19 studies were considered to be supported by rich data scoring 4 or 5 on the richness scale, and five were deemed to be supported by moderately rich data scoring 3.[31,32,34,40,41] Data were assessed as meager for the surgery evidence in the remaining six studies.[22,23,30,35,36,38] Overall, therefore, the quality of the evidence base was good or very good, with 17/19 judged to be at either low or moderate risk to rigor, and 13/19 having very rich, rich, or moderately rich data.

3.4 | Review and synthesis findings

The findings of the review and synthesis processes are presented below. The a priori framework and its themes accommodated much of the data. No data were found for two subthemes from this framework: no adolescents in the included studies made mention of "worsening health status" or an "ever higher BMI" as motivating factors for seeking surgery. New themes were also created to accommodate relevant data, some of which were reflective of the specific age group for



From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71

For more information, visit: http://www.prisma-statement.org/

FIGURE 1 PRISMA 2020 flow diagram for qualitative evidence synthesis of surgical interventions for adolescents with obesity.

this review, but all reflected the user perspective, rather than the service perspective of the original framework. These new themes represented factors affecting the likelihood that this group would choose to have surgery or a weight loss device (but absent from the a priori framework): negative social experiences (including weight stigma); personality and maturity helping to determine the "right age" for surgery; the need for the decision to be made by the adolescent themselves (not a caregiver); the perceived stigma of bariatric surgery itself; the support of professionals and the support (and criticism) of family and peers; and the hoped-for benefits of surgery. The following new themes also captured evidence from adolescents and their caregivers concerning adolescent experiences of having bariatric surgery, its feasibility and acceptability: what they wish they'd known; the challenges presented by the short- and long-term dietary and lifestyle changes required after this surgery, including due to nutritional deficiencies and the impact of surgery on the body; the support of professionals and the support (and criticism) of family and peers; the benefits and unexpected negative outcomes of surgery.

Following the GRADE-CERQual process, an assessment was made of the confidence in each finding: there was high or moderate-to-high confidence in 14 of the 18 findings, reflecting the low risk to rigor in most studies, the richness of the data in many, and their focus on the question. Only two findings were judged to demonstrate moderate confidence and two were judged to have low-to-moderate confidence. The full GRADE-CERQual evidence profiles and assessment table is

TABLE 2 Characteristics of included studies.

Study	Population [age at procedure or interview]	Data collection method	Setting (country)	Sample size (gender) [time post-procedure]	Procedure	Method of analysis
Alm (2008)[22]	Adolescents [14.9–15.6 years, at interview, no procedure]	Semi-structured interviews with open-ended questions	Inner-city WMP, New York (USA)	$n = 18$ (12 female, 6 male) [No procedure] Ethnicity: 11 Hispanic, 6 African American, 1 White	None Behavioral WMP	Constant comparative method
Brorsson (2020)[23]	Adolescents [14.9–18.3 years at interview]	Semi-structured interviews with open-ended questions (mixed methods study)	Adolescent Morbid Obesity Surgery (AMOS) study, greater Stockholm area (Sweden)	$n = 20$ in qualitative element (unclear, 31 females, 9 males in full mixed methods study sample, $n = 40$) [5.75 to 9.75 years after BS] Ethnicity: not reported	Unspecified	Qualitative content analysis
Campbell (2022)[24]	Young adults) [19 and 25 years at interview)	Open-ended interviews	Urban and rural child medical centers (USA)	$n = 14$ (13 females, 1 male) [<5 years after BS] Ethnicity: 2 Black, 11 White, 1 unknown	Unspecified	Grounded theory constant comparison
Childerhose (2018)[25]	Adolescents [Not reported, range 16 to 21 years at interview]	Semi-structured interviews with open-ended questions	Pediatric WMP at adolescent obesity center at tertiary hospital (USA)	$n = 7$ (6 female, 1 male) [range 2 weeks to 41 months post-surgery] Ethnicity: 3 African American, 4 White	Sleeve gastrectomy (SG)	Thematic analysis
Doyle (2018)[26]	Adolescents [range 16–18 years]	Semi-structured interviews with open-ended questions	NHS tertiary weight management center (UK)	$n = 9$ (5 female, 4 male) [n = 5 are 1–3 years post-surgery; $n = 4$ pre-surgery] Ethnicity: Not reported	Laparoscopic Roux-en-Y Gastric bypass (LRYGB) or SG	Phenomenological Analysis (IPA)
Farnesi (2020)[27]	Adolescents contemplating surgery [range 14–17 years, no procedure]	Semi-structured interviews with open-ended questions	Tertiary care clinic for adolescents with severe obesity (Canada)	$n = 7$ (not reported) [N/A] Ethnicity: not reported	Unspecified	Inductive thematic analysis
Li (2021a)[28]	Adolescents contemplating surgery [range 16–18 years, no procedure]	Semi-structured interviews with open-ended questions	Hospital for Sick Children Sick-Kids Obesity Management Program (STOMP) (Canada)	$n = 14$ out of 23 when saturation was reached (10 female, 4 male) [2–4 months pre-BS] Ethnicity: 2 Black, 1 Mixed race, 1 South Asian, 10 White	Unspecified	Theoretical thematic analysis
Li (2021b)[29]	Adolescents [range 16 to 18 years]	Semi-structured interviews	Hospital for Sick Children Sick-Kids Obesity Management Program (STOMP (Canada)	$n = 18$ when saturation was reached (13 female, 5 male) [15 interviews each at 6, 12 and 24 months post-surgery] Ethnicity: 2 Black, 2 South Asian, 1 Mixed, 8 White, 8 Not reported.	RYGB or SG	Framework analysis

TABLE 2 (Continued)

Study	Population [age at procedure or interview]	Data collection method	Setting (country)	Sample size (gender) [time post-procedure]	Procedure	Method of analysis
Morinder (2011)[30]	Adolescents [range 14–16 years, procedure not specified]	Semi-structured interviews	Pediatric obesity clinic (Sweden)	$n = 18$ (12 female, 6 male) [Not reported] Ethnicity: Not reported	BS (unspecified) within a broader treatment program	Phenomenographic research approach
Nordin (2017)[31]	Adolescents [14.9 to 18.3 years]	Semi-structured interviews with open-ended questions	Pediatric WMP in Hospital from the Adolescents Morbid Obesity Surgery study (AMOS) (Sweden)	$n = 20$ (NR) post-surgery [5.75 to 9.75 years post-surgery] Ethnicity: Not reported	Unspecified	Systematic text condensation
Parks (2020)[32]	Adolescents/young adults [mean age 16 years, range 14–20 years]	Social media comments/posts	Two urban tertiary care centers for adolescent obesity (USA)	$n = 13$ (9 female, 4 male[a]) [$n = 11$ pre-surgery, $n = 2$ immediately post-BS] Ethnicity: 6 African American, 7 not reported	SG	Thematic analysis
Reece (2021)[33]	Adolescents and their families [range 13–16 years]	Semi-structured interviews (and focus groups) with open-ended questions	Community WMP (UK)	$n = 12$ (7 female, 5 male[b]) [3 months n = 11; 12 months $n = 9$] Ethnicity: 1 Black, 11 White	Intragastric balloon	Framework analysis
Rigal (2021)[34]	Adolescents [<18 years]	Semi-structured interview	Pediatric WMP in Hospital (France)	$n = 14$ (10 female, 4 male) post-surgery [6 to 43 months post-surgery] Ethnicity: 5 European, 3 North African, 6 Antillean.	Unspecified	Qualitative textual analysis
Schneider (2016)[35]	Adolescent/young adult [16 to 24 years at interview]	Questionnaire with multiple choice and open-ended questions	Pediatric tertiary care academic medical center with a BS program (USA)	$n = 31$ (24 female, 7 males) $n = 17$ caregivers [3–76 months] Ethnicity: Not reported	RYGB	Thematic analysis
Tashlizky Madar (2021)[36]	Adolescents [range 12–18 years]	Semi-structured interviews with open-ended questions	Medical Center/Institute (Israel)	$n = 17$ (unclear) ["a few weeks" – 2 years] Ethnicity: Not reported	SG	Grounded theory
Taube-Schiff[d] (2017)[37]	Young adults [range 18–24 years]	Semi-structured interviews with open-ended questions	Hospital Bariatric Surgery program, adult care setting (Canada)	$n = 13$ (12 female, 1 male) [Not reported] Ethnicity: Not reported	Unspecified	Constant comparative analysis
Turner (2014)[38]	Adolescents with Type 2 diabetes [range 13–18 years, no procedure]	Semi-structured interviews with open-ended questions	Nationwide cohort study (UK)	$n = 12$ (6 female, 6 male) [Not reported $n = 2$ post-surgery; no surgery $n = 10$] Ethnicity: 1 Black, 3 Asian, 8 White	Gastric-band ($n = 1$), Endobarrier ($n = 1$) Otherwise unspecified	Thematic analysis
Van Geelen (2013)[39]	Adolescents and relevant parents who might be eligible for surgery [range 13–20 years, no procedure]	Semi-structured interviews with open-ended questions	Multidisciplinary treatment program at specialized obesity center (Netherlands)	$n = 9$ (adolescents, not reported) $n = 9$ (parents, not reported) [Not applicable] Ethnicity: Not reported	Gastric banding	Thematic analysis

(Continues)

TABLE 2 (Continued)

Study	Population [age at procedure or interview]	Data collection method	Setting (country)	Sample size (gender) [time post-procedure]	Procedure	Method of analysis
Willcox (2016)[40]	Adolescents and parents [range 14.2 to 17.4 years]	Semi-structured interview	Specialist bariatric surgical clinics (Australia)	$n = 8$ adolescents[c] (6 female, 2 male) $n = 5$ parents (4 female, 1 male) when "informational redundancy" achieved [83 to 513 weeks follow up] Ethnicity: NR	Laparoscopic Adjustable Gastric Band (LAGB)	Thematic analysis
Yufe[d] (2017)[41]	Young adults [range 18–28 years]	Semi-structured interviews with open-ended questions	Hospital Bariatric Surgery program, adult care setting (Canada)	$n = 13$ (12 female, 1 male) [Not reported] Ethnicity: Not reported	Unspecified	Thematic analysis

Abbreviations: BS: Bariatric Surgery; WMP: Weight-management program; NR: Not reported.
[a]Abstract: male $n = 3$, Table 1: male $n = 4$.
[b]Chapter 2 $n = 8$ female, Chapter 3 $n = 9$ female.
[c]Four of the eight adolescent participants had at least one parent or step-parent who had previously undergone Adjustable Gastric Band.
[d]Same study/study sample.

available as a supplement: Table S2. The final thematic framework listing the summary of qualitative findings of the review and synthesis, and the level of confidence assigned to each finding following the GRADE-CERQual process, is presented in Table 3. The subsequent narrative describes and provides supporting evidence for each of the 18 findings. The GRADE-CERQual assessment for each finding is also reported alongside the finding below. A full list of extracted quotations to illustrate the findings can be found in the supplements: Tables S3 and S4.

3.5 | Pre-surgery

3.5.1 | Although adolescents might perceive themselves as living with overweight or obesity, neither themselves nor others could identify the level of obesity that would make them a candidate for surgery or a weight loss device (moderate confidence)

Adolescents in three studies reported that they accepted that they were living with overweight or obesity.[24,25,38] However, this recognition was qualified by some adolescents in two of the studies: in one study, it was reported that while some adolescents might perceive themselves as living with overweight or obesity, other people, including health professionals and family, did not consider this condition to be "severe."[24] In another study, the participants themselves reported a distinction between living with obesity and being "super obese" and therefore a candidate for surgery.[38] This distinction was further reflected in another study, in which adolescents considered themselves to be living with obesity but not having "severe" obesity.[27]

3.5.2 | Surgery or a weight loss device can often be perceived as a last resort, when alternative approaches have proved unsuccessful (moderate-to-high confidence)

Adolescents and family members in six studies reported that they perceived surgery as a last resort; the only option left when all of the alternatives had been tried, without success.[24,25–27,33,38,42] In one study, lack of time to be able to adhere fully to alternatives was cited as one of the problems,[25] while in another adolescents noted that parents should have supported all the alternatives first too, before surgery was considered as an option.[27]

3.5.3 | Physical and medical problems experienced by adolescents with obesity can incentivize bariatric surgery as a treatment choice (moderate confidence)

Adolescents in four studies reported that the physical challenges of living with obesity acted as an incentive for considering surgery. These included low energy levels, which limited their ability to do physical activity [27–29,37] and, in some instances, comorbidities that

TABLE 3 Summary of qualitative findings and CERQual assessments.

Finding	Level of confidence in finding (CERQual)
Pre-surgery	
Although adolescents might perceive themselves as living with overweight or obesity, neither themselves nor others could identify the level of obesity that would make them a candidate for surgery or a weight loss device	Moderate
Surgery can often be perceived as a last resort, when alternative approaches have proved unsuccessful	Moderate-to-high
Physical and medical problems experienced by adolescents with obesity can incentivize bariatric surgery as a treatment choice	Moderate
Negative social experiences, such as social isolation, bullying, and a negative self-image, can incentivize bariatric surgery as a treatment choice	Moderate-to-high
It is important that the adolescent or young adult be supported to make their own decision whether or not to have surgery, but opinions differed on the "right" age to have bariatric surgery	Moderate-to-high
It was deemed important to be as informed as possible when making the decision whether or not to have surgery or a weight loss device (including expected levels of weight loss)	Moderate-to-high
Awareness of surgery or a weight loss device as an option often depends on information from family members and health professionals	High
Family, peers and professionals could be a source of important support, but also criticism (especially from family and peers), when surgery or a device was being considered	High
Knowing someone who has successfully had surgery can incentivize bariatric surgery as a treatment choice	Moderate-to-high
Adolescents and caregivers express fears and concerns about the surgical procedure itself and the complications that can follow this surgery	High
Adolescents express fears and concerns about the known or perceived short- and long-term dietary and lifestyle changes required after this surgery	Moderate-to-high
Adolescents expressed their hopes that the surgery or device would deliver weight loss and physical and mental health benefits, but were also concerned about weight regain and the level of weight loss that they could expect	High
There is a perceived stigma to bariatric surgery or weight loss devices; it is seen as an "easy" and "lazy" way out, as well as being viewed as a "drastic" intervention	High
Pre- and post-surgery	
The costs of bariatric surgery can act as a barrier in some contexts	Low-to-moderate
Post-surgery	
Adolescents and caregivers expressed their concerns about experiences of complications following the procedure	Low-to-moderate
Adolescents and caregivers described the many challenges demanded by both the short- and long-term dietary and lifestyle changes required after the procedure	High
Adolescents expressed happiness that the surgery or device delivered weight loss and social, physical and mental health benefits, but they could also experience unexpected negative consequences, such as continued weight-based bullying	Moderate-to-high
Family, peers and professionals could be a source of important support, but also criticism (especially from family and peers), after the procedure	High

made living with obesity difficult, particularly joint pain and breathlessness, including asthma.[25,27,29,37]

3.5.4 | Negative social experiences, such as social isolation, bullying, and a negative self-image, can incentivize bariatric surgery as a treatment choice (moderate-to-high confidence)

Adolescents in five studies reported how being unhappy with their limited social life and negative self-image acted as an incentive to consider surgery. In four studies, adolescents reported how their physical and social limitations, because of living with obesity, meant that they felt unable to do things with friends, such as keeping-up with them in physical games.[25,27,28,41]

They also reported having a negative self-image and experiencing weight-based stigma, not only in the form of bullying, leading to social isolation and withdrawal, but also in an expressed desire for social acceptance and the removal of unwanted attention.[25,28,32,41]

3.5.5 | It is important that the adolescent or young adult be supported to make their own decision whether or not to have surgery, but opinions differed on the "right" age to have bariatric surgery (moderate-to-high confidence)

Adolescents in five studies reported that the choice to have surgery should rest entirely with the child/young adult[26,28,29,32,35,39] and specifically should not be the decision only of a parent.[39] Adolescents also

reported acceptance of the recommendations of health professionals when making the decision.[32] However, there was no consensus on the "right age" for surgery, with different opinions being expressed both within and across studies. A participant in one study clarified this challenge: "I feel that older teens, like end of high school is probably ok to have surgery because you are older and can understand what you need to do. But maybe if you are eight years old and already 300lbs then their might be a real medical need. It's not obvious"[27]; that is, the most appropriate age for surgery is not always obvious because it can depend on various factors, such as need and maturity. However, in two studies, adolescents reported that it was better to have it younger so as to enjoy the benefits more quickly.[26,31] In two other studies, adolescents reported that it was better to have surgery when older, when greater maturity facilitated an individual's ability to cope with the demands of the procedure.[24,27] In one further study, participants expressed a similar hesitancy about having surgery too young.[23] Finally, in three additional studies, participants reported that they originally thought surgery offered a "quick solution" but were made to wait and ultimately agreed with that decision.[24,32,39] The consensus was that the personality and maturity of the individual was very important in making the decision for, and the timing of any surgery.[23,24,26,27,32]

3.5.6 | It was deemed very important to be as informed as possible when making the decision whether or not to have surgery or a weight loss device (including expected levels of weight loss) (moderate-to-high confidence)

Adolescents in seven studies stressed the importance of being "informed," including needing to make every effort themselves to find out information.[25,29,33–35,38,40,42] This included the need to seek clarification and understanding of likely levels of weight loss,[25,29,38,40] and possible weight regain.[33,40,42]

3.5.7 | Awareness of surgery or a weight loss device as an option often depends on information from family members and health professionals (high confidence)

Adolescents in 11 studies detailed how they became aware of bariatric surgery. In only two studies, adolescents reported that they were made aware of surgery as an option by health professionals.[26,28] The most common source of awareness of surgery as an option, mentioned in seven studies, was family members, in particular mothers.[22,24–26,32,33,42,39] In two studies, adolescents also noted that they knew surgery existed as an option but they felt that it was not applicable to them.[27,38] Finally, in another two studies, some participants reported that they were not aware of bariatric surgery and nor was it presented to them as an option by health professionals.[24,30]

3.5.8 | Family, peers, and professionals could be a source of important support but also criticism (especially from family and peers), when surgery or a device was being considered (high confidence)

Adolescents in eight studies detailed how support from family members and peers could facilitate the decision to have surgery, but its absence could also act a barrier to making this choice. The importance of positive support was noted by adolescents in four studies, including the role of parents and professionals in helping them to make decisions.[25,28,34,37,40] This role was also reportedly performed for adolescents in one study by a support group of peers.[25] However, it was also reported in three of the same studies, as well as three other studies, that family members and peers could be unsupportive and critical of the idea of surgery, suggesting it was unnecessary or "lazy", and thus making the decision more difficult.[24,25,32–34,37,42]

3.5.9 | Knowing someone who has successfully had surgery can incentivize bariatric surgery as a treatment choice (moderate-to-high confidence)

Adolescents in seven studies detailed how knowing someone who had had the surgery, with good outcomes, made the option much more acceptable to them. These people came from two principal groups: family members (exclusively mothers and aunts were mentioned)[24,26,27,40] and others, often other adolescents, who had had surgery and related their experiences via support groups and/or social media.[26,29,32,37]

3.5.10 | Adolescents and caregivers express fears and concerns about the surgical procedure itself and the complications that can follow this surgery (high confidence)

Adolescents and caregivers in nine studies reported how they were fearful or at least nervous about idea of surgery.[24,26,27,28,33,37–40,42] In one study, adolescents noted that they were "excited but nervous" about surgery,[28] but in three studies that they were "nervous about dying."[26,33,42] In another study, adolescents explained their fears by pointing out that less was known about this surgery in adolescents than in older age groups.[37] Caregivers reported similar concerns and fears about the idea of surgery.[40] However, other adolescents reported readily accepting the idea of surgery.[39]

Adolescents also clarified their fears and concerns in five studies around post-surgery complications. Concerns related to excess skin,[25–28] complications such as nausea, pain and discomfort,[25] and the disruption to their life that such complications might occasion.[41] In two studies, adolescents talked about managing the idea of the risks, benefits, and uncertainties of surgery[27]; this included some adolescents who accepted the risks.[26]

3.5.11 | Adolescents express fears and concerns about the known or perceived short- and long-term dietary and lifestyle changes required after this surgery (moderate-to-high confidence)

Taking supplements is required as part of the post-surgery regime in order to reduce risks of nutritional deficiency, while avoiding substances such as alcohol is related to the impact of the surgery on alcohol handling. Adolescents in four studies reported on their fears and concerns around their life post-surgery: the requirements to adhere to post-surgery supplement, nutrition and medication guidelines and restrictions[27,28]; and in general, the physical and emotional demands of life post-surgery, which includes dietary and lifestyle changes[24,28,39]; and the likely need to avoid certain "risky behaviors," principally alcohol and drug use.[28,29]

3.5.12 | Adolescents expressed their hopes that the surgery or device would deliver weight loss and physical and mental health benefits but were also concerned about weight regain and the level of weight loss that they could expect (high confidence)

Adolescents in eight studies reported on the benefits they hoped to gain from having surgery, and their concerns about whether certain weight loss benefits might or might not be achieved.[25,26,27,28,33,37,38,40,42] Principal benefits that adolescents hoped to gain from surgery were: weight loss[28]; improved health[27,28], wellbeing, and confidence[26,37]; greater social acceptance from others[28]; and an enhanced ability to engage in physical activity.[28] In one study, they also expressed uncertainty and concern about possible levels of weight regain.[25] In five studies, adolescents also expressed concerns about the possible levels of weight loss they could expect, might achieve or be able to control.[25,27,29,38,40]

3.5.13 | There is a perceived stigma to bariatric surgery or weight loss devices; it is seen as an "easy" and "lazy" way out, as well as being viewed as a "drastic" intervention (high confidence)

Adolescents in 10 studies, covering both before and after surgery, reported on perceptions surrounding the stigma associated with bariatric surgery: that it was seen as an "easy way out," taken by people who were "lazy" and/or "vain." As a result of this, adolescents often reported "selective sharing," by choosing not to share the decision to have surgery with many people, including some family or friends.[24,26–29,33,37,39,40,42] Adolescents in three studies also reported that some family members, especially grandparents, had expressed views regarding putting in more effort for a less "drastic" approach.[25,28,39] In three studies, adolescents also reported that, given this view of surgery, they themselves thought that they should have made more effort with alternative approaches first.[38,39,40] This view was also shared by caregivers in two studies.[39,40] However, in one of the same studies, other caregivers reported perceiving the intervention not as drastic but as important and helpful.[39]

3.6 | Pre- and post-surgery

3.6.1 | The costs of bariatric surgery can act as a barrier in some contexts (low-to-moderate confidence)

Adolescents in two studies detailed issues relating to insurance and its importance in being able to access the intervention, and the age at which it became an option.[24,25] Caregivers in a third study raised the issue of the cost of the supplements required as part of the post-surgery regimens.[23]

3.7 | Post-surgery

3.7.1 | Adolescents and caregivers expressed their concerns about experiences of complications following the procedure (low-to-moderate confidence)

Adolescents and caregivers in six studies reported on their actual experiences of complications following bariatric surgery. Adolescents in three studies reported complications arising from excess skin.[29,31,33,42] Another complication—largely unexpected—was the level of hair loss and its long-lasting impact at 12 and 24 months.[29] In four studies, adolescents reported their experiences of pain, discomfort, and other complications, but most of these complications occurred principally during immediate post-surgery care.[33,36,38,42] In the longer-term, adolescents in one study noted how the surgery occasioned disruption to their life and affected their intimate relationships.[41] Finally, caregivers in one study reported on the logistical challenges and demands of service attendance for complications post-surgery.[33,42]

3.7.2 | Adolescents and caregivers described the many challenges demanded by both the short- and long-term dietary and lifestyle changes required after the procedure (high confidence)

Adolescents and caregivers in 13 studies reported on their actual experiences of the demands of life following surgery. Adolescents frequently reported that surgery was only a "tool" for achieving weight loss, and the intervention also required a great deal of effort from them if it was to be successful. These efforts were both demanding and varied. First, adolescents faced the challenge of needing to adhere to post-surgery supplement, nutrition, and eating guidelines given potential nutritional deficiencies (including adhering to their necessary routines, planning, and tracking), as reported in nine studies.[23,25,27–29,31,32,34,37,40]

Eating the required, limited amounts was also a frequently reported problem.[34] The need to create strong routines was reported as important for maintaining the required regimens,[32] but establishing such routines for tracking food intake or for taking supplements and medications was frequently reported as challenging and problematic.[32,23] However, one participant advised that health professionals should point-out the adverse impact on hair and nails of failing to take the supplements, especially for girls, as that knowledge might provide an extra incentive.[23]

Adhering to post-surgery diet and lifestyle requirements also made physical and emotional demands on adolescents (e.g., staying motivated and working hard), which were reported by adolescents in eight studies.[24–26,29,31,33,35,37,42] Respondents stressed that surgery was not an easy way out but a long process that required a great deal of effort. This included the need to avoid alcohol as part of this regimen due to the body's ability to handle this substance post-surgery.[29] Factors reported as affecting an adolescent's ability to meet all of these demands included: the need for their families to adjust to and support these demands, not just the adolescent or young adult themselves[23,26,29,37]; the financial demands (to parents needing to pay for supplements and adolescents to buy certain foods at school or college)[23,29]; the time demands of the post-surgery requirements, and how other commitments from school, work, and family could "get in the way" of adherence.[23,25,33,42] Adolescents also reported the need for ongoing support from services, if adherence was to be maintained[33,42]; and the additional challenges created for accessing such support if there was a transition from child to adult services.[31]

3.7.3 | Adolescents expressed happiness that the surgery or device delivered weight loss and social, physical, and mental health benefits, but they could also experience unexpected negative consequences, such as continued weight-based bullying (moderate-to-high confidence)

Adolescents in seven studies reported on their actual experiences of the benefits they felt that they did achieve from the surgery, and a view that "it was worth it."[25,29,31,33–35,40,42] The reported experiences included weight loss[33]; improved health[34,40]; improved wellbeing and confidence (body image)[29,32,33]; greater social acceptance[29]; and the ability to engage more in physical activity.[29,33] Some of these benefits were also echoed by caregivers in one study.[40] However, adolescents in three of these particular studies,[29,31,40] plus a fourth study,[41] also reported unexpected negative consequences of surgery and weight loss. These included: food addiction being replaced with other addictions[31]; adolescents themselves becoming judgmental of others with obesity[40]; a wariness of "new" friends, people who had previously not been friendly pre-surgery[29,40]; unwanted personal attention from prospective partners[41]; and continued weight-based bullying, despite weight loss.[41]

3.7.4 | Family, peers, and professionals can be a source of important support, but also criticism (especially from family and peers), after the procedure (high confidence)

Adolescents in 11 studies detailed how support from family members, peers, and professionals could facilitate the process of having surgery and dealing with the demands and challenges of the post-surgery regimens, but its absence also made dealing with post-surgery complications and demands much more difficult. The importance of positive support was noted by participants in five studies, including the role of family and professionals, in helping adolescents remain motivated and achieve outcomes.[25,28,29,32–34,37,42]

The support of peers, friends and actual dedicated support groups was also identified as important by adolescents in six studies.[25,32–34,40–42] The value of support from health professionals—in terms of knowledge and strategy—during and following surgery was also reported by adolescents in three studies.[28,29,31,40] Participants in one study also expressed how they desired greater and longer-term support from peers and professionals because of the challenges of maintaining new lifestyles.[31]

However, participants in many of the same studies also reported that family members, partners, and peers could be unsupportive, and even critical, of the results and demands of surgery, and after surgery, making adherence to the post-surgery requirements challenging,[24,25,33,34,37,40,42] such as the challenges of everyone in the family eating what is required by the person who had had surgery.[33]

3.8 | An emerging conceptual model

The following conceptual model (Figure 2) was created to capture the phenomenon of interest based on the findings and their supporting data. It was reported that adolescents with obesity needed support from family, peers, and health professionals, in coming to their own decision concerning whether or not to have surgery or a weight loss device, and they expressed a desire to be fully informed about the procedures. This was all influenced by multiple values that emerged from the evidence: In terms of "Perceived Needs":

- Whether they felt the obesity was "severe" enough;
- Whether they were mature enough or the "right" age;
- Whether they experienced sufficient physical problems as a result of living with obesity;
- Whether they considered it the "last resort" for achieving weight loss.

In terms of "Incentives":

- Whether they knew someone who had had successful bariatric surgery;

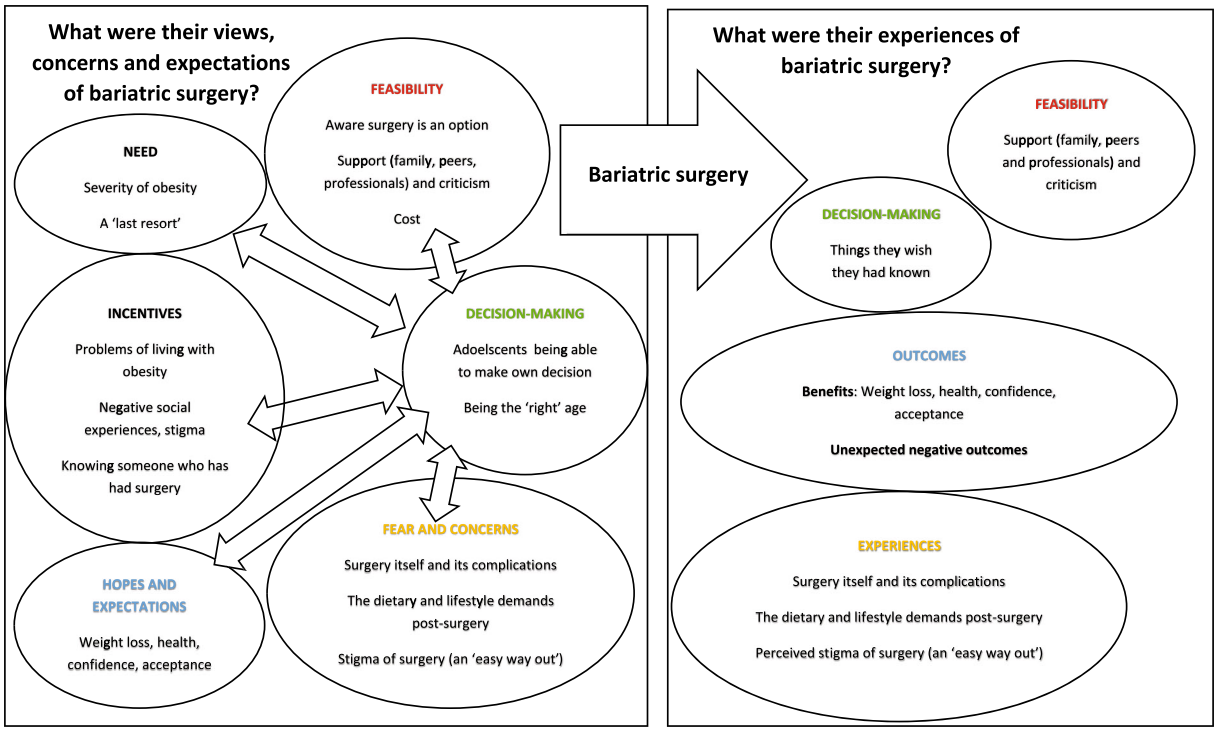


FIGURE 2 The views and experiences of adolescents with obesity and their caregivers concerning bariatric surgery to manage weight loss.

- The extent to which they had had negative social experiences/ have experienced weight-based stigma while living with obesity.

For surgery or a weight loss device to represent a feasible intervention for adolescents with obesity, they had to be aware that the procedure was an option and had to have the funding (in certain contexts). The possibility of surgery being an option was also shaped by the levels of support (or criticism) that adolescents experienced from key people, especially family and peers.

The acceptability of risks and benefits can also shape the decisions by adolescents and young adults about whether or not to have surgery. The decision is also influenced by the fears and concerns of adolescents (and caregivers) regarding:

- The "stigma" of having bariatric surgery, and the perception among adolescents with obesity, and others, that it represented an "easy way out";
- The idea of surgery itself;
- The complications of and from surgery;
- The dietary and lifestyle demands after having had the procedure, such as adhering to nutritional and medication guidelines, and avoiding alcohol.

Expectations also played a part in the acceptability of this option:

- The hoped-for benefits, which included weight loss, increased confidence, social acceptance, and higher levels of physical activity;
- The uncertainties, including potential levels of weight loss and weight regain.

Bariatric surgery also makes demands on adolescents and their families following the procedure. Adolescents and their caregivers detailed the need to take responsibility for and cope with the demands of:

- The surgery itself and any complications;
- The dietary and lifestyle demands after having had the procedure, such as adhering to supplement, nutrition and medication guidelines, and avoiding alcohol;
- The stigma of having had bariatric surgery.

Successful performance of the post-surgery requirements was also dependent on:

- Support from family members and peers;
- Available financial resources;
- Remaining informed;
- Achieving the hoped-for benefits;
- Managing any unexpected negative outcomes, for example, amount of weight loss, unwanted attention, continued weight-based bullying.

4 | DISCUSSION

This is the only review and synthesis to explore the perspectives of adolescents with obesity, as well as their caregivers, regarding

anticipation and actual experience of bariatric surgery delivered by obesity health services. By synthesizing the evidence on bariatric surgery from all relevant qualitative studies, this review is able to reach beyond the more limited findings of an individual primary study to create a broader and deeper understanding of the phenomenon of interest. We found 19 studies that matched our research question, either in whole or in part. In terms of the applicability of the evidence and findings geographically and by age groups, all of the studies were from high-income countries. Seventeen studies were conducted on the continents of Europe and North America, with one study each from Australia and Israel. It is unclear whether this limited perspective is due to surgery only being an option in such contexts, but the applicability of the evidence is currently very limited as a result. No study focused on people from specific ethnic or language groups or other protected characteristic. In two studies, the participants were all living with Type 2 diabetes.[37,38] Most studies focused only on adolescents up to 19 years, but a moderate number also considered adolescent and young adult groups, up to 28 years of age. Data on population characteristics such as gender, age, and race were very limited, while other characteristics, such as ethnicity, disability, and socio-economic status were wholly absent. It should also be noted that the PROGRESS-Plus framework, which highlights the presence or absence of these characteristics in the evidence, does not include stigma surrounding weight as a potential equity consideration. The potential for implicit weight bias might also be present within the included studies, with reflexivity statements often being absent or not explicitly addressing this risk. More diverse research data would facilitate a granular analysis and a deeper understanding of factors that might apply to particular groups of young people.

5 | CONCLUSION

Adolescents and caregivers report numerous motivations and incentives for considering bariatric surgery, including the physical and social problems that can result from living with obesity, and an awareness of the benefits and limitations of surgery. When making the decision whether or not to have bariatric surgery, adolescents and caregivers report that they need information, support and, in some cases, financial help. If the surgery is to be successful, then adolescents and caregivers also need physical and emotional support post-surgery to enable them to meet the emotional and physical demands and challenges that follow such procedures. We applied the GRADE CERQual approach to assess our confidence in each resulting evidence statement. There was high or moderate-to-high confidence in the large majority of the findings. This is the first published qualitative evidence synthesis seeking to understand the experiences of adolescents and their caregivers surrounding the choices and decisions that need to be made before and after bariatric surgery or procedures. The findings of this synthesis should be used to inform improved support for these young people and their caregivers.

ACKNOWLEDGEMENTS

We would like to thank project team members at the WHO Department of Nutrition and Food Safety for their comments on the manuscript.

CONFLICT OF INTEREST STATEMENT

No conflict of interest statement' in the first proofs.

ORCID

Christopher Carroll https://orcid.org/0000-0002-6361-6182
Diana Castelblanco Cuevas https://orcid.org/0000-0002-6517-3047

REFERENCES

1. Cardel M, Atkinson M, Taveras E, Holm J, Kelly A. Obesity treatment among adolescents: a review of current evidence and future directions. *JAMA Pediatr*. 2020;174(6):609-617. doi:10.1001/jamapediatrics.2020.0085
2. El Ansari W, Elhag W. Weight regain and insufficient weight loss after bariatric surgery: definitions, prevalence, mechanisms, predictors, prevention and management strategies, and knowledge gaps-a scoping review. *Obes Surg*. 2021;31(4):1755-1766. doi:10.1007/s11695-020-05160-5
3. de la Cruz-Muñoz N, Xie L, Quiroz H, et al. Long-term outcomes after adolescent bariatric surgery. *J am Coll Surg*. 2022;235(4):592-602. doi:10.1097/XCS.0000000000000325
4. Beamish A, Rheinehr T. Should bariatric surgery be performed in adolescents? *Eur J Endocrinol*. 2017;176:D1-D15.
5. Durkin N, Desai A. What is the evidence for Paediatric/adolescent bariatric surgery? *Curr Obs Rep*. 2017;6(3):278-285. doi:10.1007/s13679-017-0277-4
6. Lewin S, Glenton C. Are we entering a new era for qualitative research? Using qualitative evidence to support guidance and guideline development by the World Health Organization. *Int J Equity Health*. 2018;17(1):126. doi:10.1186/s12939-018-0841-x
7. Carroll C, Booth A, Leaviss J, al. e. "Best fit" framework synthesis: refining the method. *BMC Med Res Methodol*. 2013;13(1):37. doi:10.1186/1471-2288-13-37
8. Glenton C, Lewin S, Downe S, et al. Qualitative evidence syntheses within Cochrane effective practice and organisation of care: developing a template and guidance. *Int J Qual Methods*. 2021;20:16094069211041959. doi:10.1177/16094069211041959
9. World H, Organization, (WHO). *Adolescent and young adult health* https://www.who.int/news-room/fact-sheets/detail/adolescents-health-risks-and-solutions. 2022. Accessed 17th February 2023.
10. Noyes J, Booth A, Flemming K, et al. Cochrane qualitative and implementation methods group guidance series—paper 3: methods for assessing methodological limitations, data extraction and synthesis, and confidence in synthesized qualitative findings. *J Clin Epidemiol*. 2018;97:49-58. doi:10.1016/j.jclinepi.2017.06.020
11. Lewin S, Booth A, Glenton C, et al. Applying GRADE-CERQual to qualitative evidence synthesis findings: introduction to the series. *Implement Sci*. 2018;25(S1):2. doi:10.1186/s13012-017-0688-3
12. Flemming K, Briggs M. Electronic searching to locate qualitative research: evaluation of three strategies. *J Adv Nurs*. 2007;57(1):95-100. doi:10.1111/j.1365-2648.2006.04083.x
13. Booth A. Searching for qualitative research for inclusion in systematic reviews: a structured methodological review. *Syst Rev*. 2016;5(1):74. doi:10.1186/s13643-016-0249-x

14. Booth A, Harris J, Croot E, Springett J, Campbell F, Wilkins E. Towards a methodology for cluster searching to provide conceptual and contextual "richness" for systematic reviews of complex interventions: case study (CLUSTER). *BMC Med Res Methodol*. 2013;13(1):118. doi:10.1186/1471-2288-13-118
15. CASP. (2022). *CASP checklist: 10 questionsto help you make sense of a qualitative research. 2022*.
16. Ames H, Glenton C, Lewin S. Purposive sampling in a qualitative evidence synthesis: a worked example from a synthesis on parental perceptions of vaccination communication. *BMC Med Res Methodol*. 2019;19(1):26. doi:10.1186/s12874-019-0665-4
17. Booth A, Carroll C. How to build up the actionable knowledge base: the role of 'best fit' framework synthesis for studies of improvement in healthcare. *BMJ Qual Saf*. 2015;24(11):700-708. doi:10.1136/bmjqs-2014-003642
18. Booth A, Carroll C. Systematic searching for theory to inform systematic reviews: is it feasible? Is it desirable? *Health Info Libr J*. 2015;32(3):220-235. doi:10.1111/hir.12108
19. Imbus JR, Voils CI, Funk LM. Bariatric surgery barriers: a review using Andersen's model of health services use. *Surg Obes Relat Dis*. 2018;14(3):404-412. doi:10.1016/j.soard.2017.11.012
20. Welch V, Dewidar O, Tanjong Ghogomu E, et al. How effects on health equity are assessed in systematic reviews of interventions. *Cochrane Database Syst Rev*. 2022;1(1):MR000028. doi:10.1002/14651858.MR000028.pub3
21. Oliver S, Kavanagh J, Caird J, et al. *Health promotion, inequalities and young people's health: a systematic review of research*. 2008.
22. Alm M, Soroudi N, Wylie-Rosett J, et al. A qualitative assessment of barriers and facilitators to achieving behavior goals among obese inner-city adolescents in a weight management program. *Diabetes Educ*. 2008;34(2):277-284. doi:10.1177/0145721708314182
23. Brorsson AL, Nordin K, Ekbom K. Adherence to vitamin supplementation recommendations in youth who have undergone bariatric surgery as teenagers: a mixed methods study. *Obes Surg*. 2020;30(12):4911-4918. doi:10.1007/s11695-020-04880-y
24. Campbell EG, Alasmar A, Lawrence R, et al. Barriers to metabolic bariatric surgery in adolescents: results of a qualitative study. *Surg Obes Relat Dis*. 2022;18(6):794-802. doi:10.1016/j.soard.2022.03.010
25. Childerhose JE, Eneli I, Steele KE. Adolescent bariatric surgery: a qualitative exploratory study of US patient perspectives. *Clin Obes*. 2018;8(5):345-354. doi:10.1111/cob.12272
26. Doyle J, Colville S, Brown P, Christie D. How adolescents decide on bariatric surgery: an interpretative phenomenological analysis. *Clin Obes*. 2018;8(2):114-121. doi:10.1111/cob.12236
27. Farnesi BC, Perez A, Holt NL, et al. Continued attendance for paediatric weight management: a multicentre, qualitative study of parents' reasons and facilitators. *Clin Obes*. 2019;9(3):e12304. doi:10.1111/cob.12304
28. Li MK, Regina A, Strom M, Kim MS, Philipp-Muller N, Hamilton JK. "It'sa tool, not a cure": the preoperative teen perspective on bariatric surgery. *Surg Obes Relat Dis*. 2021;17(6):1190-1197. doi:10.1016/j.soard.2021.02.004
29. Li MK, Sathiyamoorthy T, Regina A, Strom M, Toulany A, Hamilton J. "Your own pace, your own path": perspectives of adolescents navigating life after bariatric surgery. *Int J Obes (Lond)*. 2021;45(12):2546-2553. doi:10.1038/s41366-021-00928-w
30. Morinder G, Biguet G, Mattsson E, Marcus C, Larsson UE. Adolescents' perceptions of obesity treatment – an interview study. *Disabil Rehabil*. 2011;33(12):999-1009. doi:10.3109/09638288.2010.520800
31. Nordin K, Brorsson A-L, Ekbom K. Adolescents' experiences of obesity surgery: a qualitative study. *Surg Obes Relat Dis*. 2018;14(8):1157-1162. doi:10.1016/j.soard.2018.04.003
32. Parks EP. Perspectives of adolescents with severe obesity on social Media in Preparation for weight-loss surgery: a qualitative study. *BMC Pediatr*. 2020;20(1):96. doi:10.1186/s12887-020-1992-7
33. Reece L. *Treatment of severe obesity in adolescents: a mixed method approach*. Sheffield Hallam University; 2016.
34. Rigal N, Bouvet C, Oderda L, Tounian P, Urdapilleta I. Mental health of adolescents after bariatric surgery: a textual analysis. *Clin Obes*. 2021;11(6):e12480. doi:10.1111/cob.12480
35. Schneider NM, Tully CB, Washington GA, Price KL. Information needs among adolescent bariatric surgery patients and their caregivers. *Surg Obes Relat Dis*. 2016;12(4):876-881. doi:10.1016/j.soard.2015.10.071
36. Madar RT, Yohay NZ, Grinstein Cohen O, Cohen L, Newman-Heiman N, Dvori Y. *Post*-bariatric surgery Care in Israeli Adolescents: a qualitative study. *Clin Nurs Res*. 2021;8(8):1281-1289. doi:10.1177/10547738211000064
37. Taube-Schiff M, Yufe S, Kastanias P, Weiland M, Sockalingam S. A qualitative study of young adult experiences in the bariatric healthcare system: psychosocial challenges and developmental difficulties. *Can J Diabetes*. 2017;41(4):344-350. doi:10.1016/j.jcjd.2017.01.002
38. Turner K, Percival J, Dunger D, Olbers T, et al. Adolescents' views and experiences of treatments for type 2 diabetes: a qualitative study. *Diabet Med*. 2015;32(2):250-256. doi:10.1111/dme.12577
39. van Geelen SM, Bolt I, van der Baan-Slootweg OH, van Summeren M. The controversy over pediatric bariatric surgery: an explorative study on attitudes and normative beliefs of specialists, parents, and adolescents with obesity. *J Bioethical Inq*. 2013;10(2):227-237. doi:10.1007/s11673-013-9440-0
40. Willcox K, Warren N, O'Brien P, et al. Patient and parent perspectives of adolescent laparoscopic adjustable gastric banding (LAGB). *Obes Surg*. 2016;26(11):2667-2674. doi:10.1007/s11695-016-2156-6
41. Yufe SJ, Taube-Schiff M, Fergus KD, Sockalingam S. Weight-based bullying and compromised peer relationships in young adult bariatric patients. *J Health Psychol*. 2017;22(8):1046-1055. doi:10.1177/1359105315622559
42. Reece LJ, Bissell P, Sachdev P, Wright N, Mihrshahi S, Copeland RJ. "The balloon was just the kick start, I had to do the rest myself": adolescents living with severe obesity experiences of an intra-gastric balloon alongside a lifestyle support programme. *BMC Pediatr*. 2021;21(1):1-9, 431. doi:10.1186/s12887-021-02902-x

SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

How to cite this article: Carroll C, Booth A, Cuevas DC. What matters to adolescents with obesity, and their caregivers, when considering bariatric surgery or weight loss devices? A qualitative evidence synthesis. *Obesity Reviews*. 2023;e13654. doi:10.1111/obr.13654