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REVIEW

Pediatric Obesity

Stakeholder views of services for children and adolescents with obesity: Mega-ethnography of qualitative syntheses

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Abstract

Objective: The efficacy of services for children and adolescents with obesity is well researched, but this review describes what actually matters to stakeholders (children, caregivers, and professionals) in relation to such services.

Methods: A mega-ethnography, an innovative review-of-reviews approach that uses conceptual findings as primary data, was performed. Twelve bibliographic databases (2010–2020) were searched for reviews that considered the values and preferences of stakeholders concerning services or interventions (diet, exercise, lifestyle) that targeted children and adolescents with obesity.

Results: From 485 citations, 17 relevant reviews were identified. The synthesis found that the perceived need to address obesity is determined by subjective norms of weight and interactions with health professionals. Children's and caregivers' participation in obesity management services is shaped by their response to content, acceptability, and perceived benefits and demands. Whether they continue with and complete an intervention are determined by its perceived success, beyond just weight loss, including behavior change, enhanced self-esteem, and the provision of timely and relevant support.

Conclusions: Obesity management services must be promoted in a sensitive manner and must be tailored, be varied, and make positive use of family and schools if children and caregivers are to seek and actively engage with them.

INTRODUCTION

Worldwide, the prevalence of childhood obesity is high. In 2020, there were an estimated 39 million children with overweight or obesity under the age of 5 years worldwide [1], and in 2016, there were estimated to be 50 million girls and 74 million boys aged 5 to 19 worldwide living with obesity [2]. The prevalence of children and adolescents aged 5 to 19 with obesity has risen dramatically, from 0.8% in 1975 to 6.8% in 2016; the rise has occurred similarly among both boys and girls [3]. The prevalence of children and adolescents with obesity has therefore been recognized as a global public health issue.

As part of ongoing efforts to control the obesity pandemic, in 2017 the World Health Assembly reported [4] the following decisions: (1) welcoming the implementation plan to guide further action on the recommendations included in the report of the Commission on Ending Childhood Obesity; (2) urging member states to develop national responses, strategies, and plans to end infant, child, and adolescent obesity, taking into account the implementation plan; and (3) requesting that the director-general report to the Health Assembly periodically on progress made toward ending childhood obesity. The World Health Organization (WHO) recognized the need to supplement existing prevention-focused guidelines by means of normative guidance

focusing on people-centred integrated management and care of children and adolescents with obesity. This is to be done using a primary health care approach that focuses on services providing health and obesity management advice and guidance for children with obesity and their families [5]. It is therefore important to understand stakeholders' views and preferences concerning such services, if appropriate guidance surrounding this approach is to be produced.

In order to support these efforts, WHO commissioned two reviews of reviews, developed alongside and by the same team of researchers. The first review (currently unpublished) is a meta-aggregation [6] that aimed to answer the broader question of the values and preferences of (i.e., what matters to) children, caregivers, and professionals concerning obesity, body size, shape, and weight in populations of children (aged less than 9 years) and adolescents (aged 10–19 years), from the perspective of the individual, the community, the multiple sectors involved, and the health systems.

The second review, reported here, a mega-ethnography, aimed (1) to contextualize approaches to obesity management within a wider understanding of what matters to children, their caregivers, and professionals in relation to the child or adolescent with obesity and (2) to gain a detailed and nuanced understanding of what matters to children, their caregivers, and professionals in relation to engagement with obesity management services. The review question of the present work therefore was as follows: What matters to stakeholders as they contemplate, initiate, and continue engagement with obesity management services?

Study Importance

What is already known?

- Obesity management services can have some success in achieving weight loss in children and adolescents with obesity.
- However, the findings for such interventions are inconsistent, and the many potential reasons for this are not well understood.
- Qualitative research on children's, caregivers', and professionals' views of such services is extensive, but this specific evidence has not yet been the focus of a dedicated synthesis.

What does this study add?

- Obesity management services must be tailored (appropriate to ages, genders, and cultures) and varied, and they must be promoted in a sensitive manner.
- Children and adolescents with obesity, their caregivers, and relevant professionals all report that family and school environments play a crucial role in initiating, supporting, and sustaining behavior change.
- Obesity management services involve costs to families and schools for food, resources, support, and travel to activities.

How might these results change the direction of research or the focus of clinical practice?

- Policy makers commissioned this review to understand how and why management services for children and adolescents with obesity might and might not work for these population groups.
- This work highlights that, if real-world service provision is to make a difference and be successful, it needs to offer a variety of appropriate activities, be well resourced, and be available in multiple environments.

METHODS

This review of reviews was completed alongside the mega-synthesis (a mega-aggregation) on the aforementioned values and preferences. The protocol of both reviews was registered with the PROSPERO database: CRD42021236546. This review followed a mega-ethnography design, which is a novel approach to reviewing published reviews of qualitative research that offers depth, albeit at a review findings level. Only two published examples of this method are known to exist, both conducted by the same research group [7, 8]. This approach was selected because scoping had revealed that many published qualitative evidence syntheses (QESs) and mixed-method syntheses exist on children and adolescents with obesity and, consequently, represented a prohibitive number of published primary qualitative research studies to be reviewed within a time-constrained project. Mega-ethnography applies the same principles and processes as meta-ethnography [9] but involves the synthesis of multiple relevant qualitative and mixed-method syntheses by treating these reviews in the same way as meta-ethnography treats "primary research data." This approach enables the efficient analysis of a large evidence base and offers a potential new understanding of a topic based on a novel, high-level synthesis. A single literature search was performed to identify the literature for both commissioned reviews; the two reviews had slightly different inclusion criteria. The criteria for this mega-ethnography were more restrictive and are given below.

Inclusion criteria

To be included in this mega-ethnography, a publication had to satisfy the following inclusion criteria:

- Be identifiable as a review/QES/mixed-method review
- Include qualitative data from at least one qualitative or mixed-method study
- Focus on the topic of obesity
- Include a population aged 19 years or younger
- Be in any language

- Be published in 2010 to 2020
- Consider the values and preferences of stakeholders (i.e., children, adolescents, their caregivers [e.g., parents and other family and guardians], and related health and education professionals) specifically in relation to obesity management services (i.e., obesity health services, weight management services, or other types of interventions that might be implemented or made available for children and adolescents with obesity)—such services might include programs to advise, guide, or support children and caregivers with weight loss, implementing diet or exercise/physical activity, or more general behavioral or lifestyle changes
- Be from any perspective: children, adolescents, caregivers, or professionals

Search strategy

Twelve bibliographic databases were searched for the period January 1, 2010, to December 9th 2020, to identify contemporary evidence syntheses with qualitative or mixed-methods studies that explore the experiences of children and adolescents with obesity: African Journals Online (AJOL), Applied Social Sciences Index and Abstracts, Cumulative Index to Nursing and Allied Health Literature, Embase (Ovid), Epistemonikos, Google Scholar, Latin American and Caribbean Health Sciences Literature, MEDLINE (Ovid), POPLINE, PsycInfo (Ovid), Scopus, and Web of Science. Full text and thesaurus terms were combined to represent both "Obesity" concepts and the concepts of "Child/Adolescent/Caregivers." Search results were then limited by combining these topic terms with a purpose-designed search strategy for qualitative reviews developed by one of the authors (AB), a qualified information professional, for the Cochrane Qualitative and Implementation Methods Group. The full search strategy is available in online Supporting Information. Backward citation chasing (reference checking) and forward citation chasing (Google Scholar citation searching using Publish or Perish) were also conducted on included studies.

Study selection

Using the inclusion criteria, preliminary study screening of all titles and abstracts (eliminating non-review articles) was conducted by one reviewer (AB) to identify potentially relevant papers. Full text screening of the results was then conducted independently by at least two reviewers (KS, AB, or CC).

Data extraction

A data extraction form was developed and piloted by two reviewers (CC, AB). Mega-ethnography requires the extraction of diverse findings from included reviews: first-order constructs (any relevant participant verbatim comments from the original primary research studies), second-order constructs (primary research authors' statements of findings), and third-order constructs (the review authors' own statements of findings emerging from their synthesis). Constructs were extracted independently by two reviewers (CC, KS) using a pilot sample of two reviews as a quality test to check a shared understanding of the process. The remaining reviews were then distributed equally between two reviewers (CC, KS), and relevant data were extracted by a single reviewer. Extracted data were then checked by the second reviewer, and inconsistencies were resolved by discussion and, if necessary, consultation with a third reviewer (AB). This did not prove necessary. Synthesis for a mega-ethnography involves the interpretation of the first-, second-, and third-order constructs to develop new fourth-order constructs [7, 8].

Quality assessment and data richness

The Cochrane Qualitative and Implementation Methods Group has identified only one published tool that can be specifically used for quality assessment of QESs: the Swedish Agency for Health Technology Assessment and Assessment of Social Services (SBU) tool [10]. This tool comprises 13 questions concerning the reporting and conduct of QESs. The answers to these questions inform a final judgment about the overall risk to rigor in the QESs. Quality assessment of all included studies was performed by a single reviewer and independently checked by the second (CC, KS).

Data richness is an important consideration within qualitative research [11, 12], but there is currently no accepted scale of data richness. One possible scale, developed to be applied when primary qualitative research is included in QESs, has been proposed [13]. This rating system considers the amount and depth of qualitative data and the relevance to the research question. We have adapted this 5-point score to the specific purposes of this review and mega-ethnography, creating a 3-point score based on the number of qualitative studies and the amount of qualitative data contributing to and presented within QESs. QESs are scored a 3 (the highest score of data richness) when they include large quantities of qualitative studies (>20) or qualitative data (illustrative quotations from primary supporting studies); they are scored a 2 for a substantive quantity of qualitative studies (10–20) or qualitative data; and they are scored a 1 (lowest data richness score) if there are few qualitative studies (<10) or no or very little qualitative data.

Analytic process

The analytic process for the mega-ethnography follows the principles of the seven-stage method of meta-ethnography by Noblit and Hare as derived from the constant comparison method [9]. These stages are as follows:

1. Getting started (review question defined);
2. Deciding what is relevant (review criteria defined, searches and study selection conducted);
3. Reading the reviews: data on the first-, second-, and third-order constructs independently extracted from all reviews by two reviewers (CC, KS);
4. Determining how the reviews are related to one another (with reference to the extracted data);

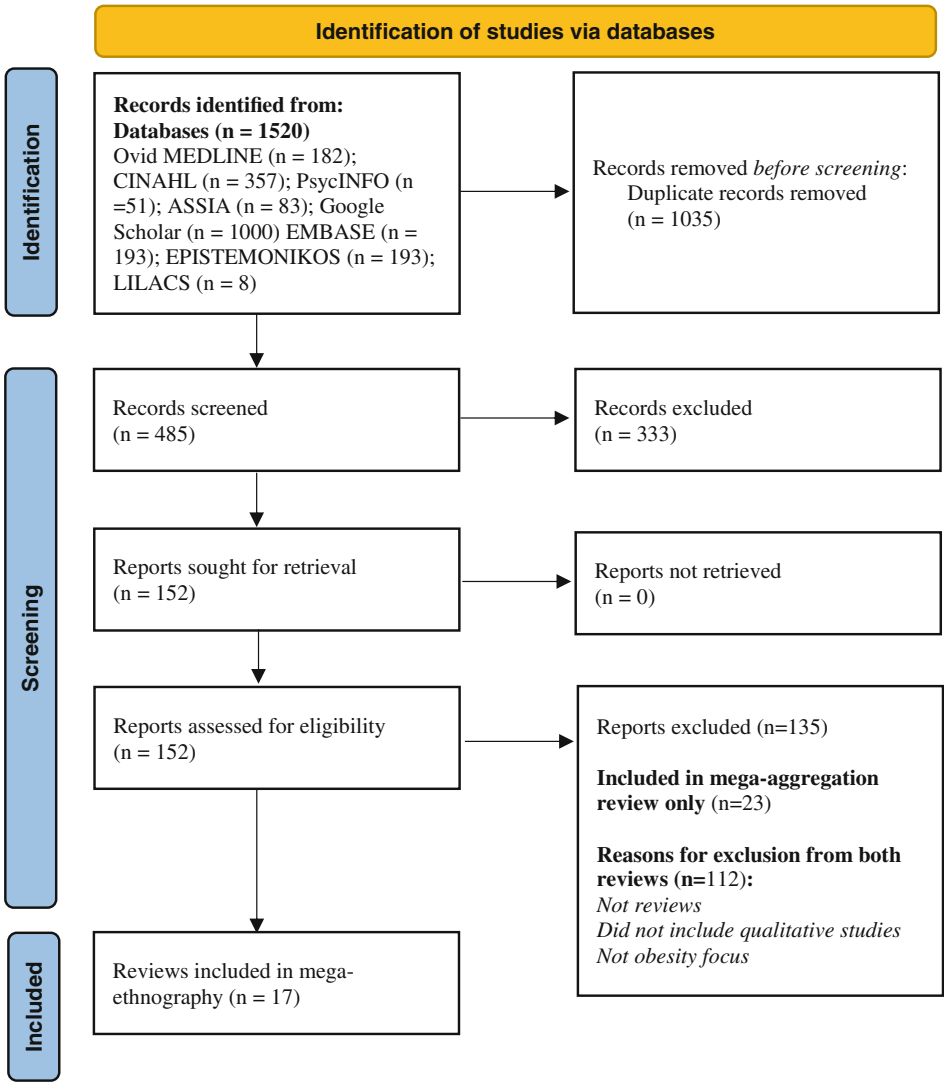

FIGURE 1 PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flowchart [Color figure can be viewed at wileyonlinelibrary.com]

5. Translating the reviews into one another: constant comparison of the first-, second-, and third-order constructs extracted for each review; stage 5 was conducted independently by two reviewers (CC, KS), who each provided their own interpretations of the data to create a series of fourth-order constructs;

6. Synthesizing translations: three genres of synthesis were explored: refutational (in which the findings contradict each other), reciprocal (in which the findings are directly comparable—these synthesis processes were conducted independently by two reviewers [CC, KS]), and a "line of argument" synthesis (in which findings are taken together and interpreted within an emerging conceptual model); the line of argument synthesis was conducted by one reviewer (CC) and was discussed critically by all three reviewers (CC, KS, AB) to arrive at a final, agreed-on version;

7. Expressing the synthesis: the outputs of the synthesis were the model and a series of tables of findings statements with accompanying narrative.

This mega-ethnography has been documented according to the eMERGe reporting guidelines, considered most appropriate to a meta-ethnographic review of reviews [14].

Sensitivity analysis

We planned a sensitivity analysis to explore any differences in findings by age group (infants/children [0–9 years] vs. adolescents [10 years and older]), country's per capita gross national income (low- and middle-income countries [LMICs] vs. high-income countries [HICs]), and setting (clinical vs. community/school settings). This analysis involved comparing findings, where possible, across and between reviews with evidence from different age groups, locations, and settings to assess whether certain findings applied only to some or to all such groups.

TABLE 1 Brief characteristics of the sets of studies in the included reviews

First author	Review type	Age of participants (y)	Contexts	Included WHO regions and countries	Type of samples	Qualitative perspectives	Review question/ objectives	Number of qualitative or mixed-method studies
Abdin [22]	A systematic review of qualitative research	Details at review level not reported	HIC	AMERICAS: Canada, United States EUROPE: Scandinavia, United Kingdom/Ireland, Netherlands, Denmark, Norway, Sweden WESTERN PACIFIC: Australia, New Zealand	Clinical	Doctors, nurses, other health professionals (not doctors or nurses)	To collect and synthesize primary research evidence relating to health professionals' views and experiences of discussing weight with children and their families.	26
Ames [27]	A mixed-methods systematic review	1–19	HIC	AMERICAS: Canada, United States EUROPE: Norway, United Kingdom/Ireland WESTERN PACIFIC: Australia	Mixed school-clinical	Children, parents (not specified), unspecified health care providers	To explore parents' and children's preferences for and experiences with communication about weight issues as part of routine weight screening and notification programs.	23
Bradbury [26]	A meta-synthesis of qualitative studies	Details at review level not reported	HIC	AMERICAS: Canada, United States EUROPE: Sweden, United Kingdom/Ireland WESTERN PACIFIC: Australia	Clinical	Doctors, nurses, other health professionals (not doctors or nurses)	To explore barriers and facilitators experienced by HCPs when discussing child weight-related information with parents, we aim to: 1. appraise the methodological quality of published studies; 2. make recommendations for future practice and research to improve HCPs' weight-related communication with parents.	13
Burchett [31]	A systematic review using qualitative comparative analysis	0–11	HIC	AMERICAS: Canada, United States EUROPE: United Kingdom/Ireland WESTERN PACIFIC: Australia, New Zealand	Mixed clinical-community	Children, parents (not specified), NHS providers	To identify the critical features of successful lifestyle weight management interventions for early years and primary-school-aged children (0–11 years old).	11
Clarke [32]	A qualitative systematic review	4–11	HIC and LMIC	AMERICAS: Canada, United States EUROPE: United Kingdom/ Ireland, Western Europe SOUTHEAST ASIA: Thailand	School	Children, parents (not specified), teachers, school caterers, other education staff, nurses	To identify and synthesize the research literature concerning the views of stakeholders on the role of the primary school in preventing childhood obesity. In addition, the review	18

(Continues)

TABLE 1 (Continued)

First author	Review type	Age of participants (y)	Contexts	Included WHO regions and countries	Type of samples	Qualitative perspectives	Review question/ objectives	Number of qualitative or mixed-method studies
				WESTERN PACIFIC: Australia, New Zealand			aims to identify gaps in knowledge which could indicate further research requirements.	
Confiac [24]	An integrative review	Details at review level not reported	HIC	AMERICAS: United States	Community	Mothers, fathers, parents (not specified)	To examine the current literature from 2009 to 2018 on Mexican American parents' perceptions of childhood obesity, knowledge of causes and consequences of childhood obesity, and beliefs about parental role in childhood obesity prevention in order to provide an update of a previous systematic review.	6
Enright [29]	A realist synthesis	7–13	HIC and LMIC	AMERICAS: Canada, Central America, United States EUROPE: United Kingdom/ Ireland SOUTHEAST ASIA: China WESTERN PACIFIC: Australia, New Zealand, Israel, Malaysia, Hong Kong, Thailand	Mixed community-school	Not specified	To understand the key characteristics of programs that contribute to positive dietary and physical activity behavioral outcomes and through which key mechanisms. More specifically, we aimed to explore the following questions: 1. What are the diet and physical activity behavioral outcomes of family-based behavioral treatment strategies? 2. What are the key mechanisms by which family-based behavioral treatment strategies result in their outcomes? Specifically, how do theoretical grounding, targeted psychological variables, and behavior change techniques relate to one another and result in diet and/physical	3

(Continues)

TABLE 1 (Continued)

First author	Review type	Age of participants (y)	Contexts	Included WHO regions and countries	Type of samples	Qualitative perspectives	Review question/ objectives	Number of qualitative or mixed-method studies
							activity behavior change? 3. What influence does the type of parental involvement have on the ways different mechanisms produce behavioral outcomes?	
Farnesi [25]	An integrative review	Details at review level not reported	Not specified	Not specified	Mixed clinical-community-school	Children, parents (not specified), doctors, nurses	To examine the contemporary literature in pediatric weight management to identify characteristics that contribute to the family–health professional relationship and describe how these qualities can inform health care practices.	9
Grootens-Wiegers [30]	A narrative literature review	Details at review level not reported	Not specified	Countries not reported	Unclear	Not specified	To gain insight into the factors influencing participation, in particular guidance toward, adherence to, and completion of lifestyle interventions for the management of overweight and obesity in children.	Unclear
Jones [33]	A qualitative systematic review	12–17	HIC and LMIC	AMERICAS: United States, Canada EUROPE: United Kingdom WESTERN PACIFIC: Australia SOUTHEAST ASIA: China	Clinical	Children	To explore the viewpoints of adolescents with overweight/obesity who have attended a lifestyle obesity treatment intervention.	24
Kelleher [17]	A systematic review	4–12	HIC	AMERICAS: United States EUROPE: United Kingdom/Ireland WESTERN PACIFIC: New Zealand	Community	Parents (not specified), other family members (not parents)	To synthesize the findings of quantitative, qualitative, and mixed-methods research investigating the predictors of, and factors influencing, attendance or nonattendance at community-based lifestyle programs among families of	8

(Continues)

TABLE 1 (Continued)

First author	Review type	Age of participants (y)	Contexts	Included WHO regions and countries	Type of samples	Qualitative perspectives	Review question/ objectives	Number of qualitative or mixed-method studies
							primary school-aged children with overweight or obesity.	
Lachal [18]	A systematic review of the literature	Details at review level not reported	HIC and LMIC	AFRICA AMERICAS: Central America EASTERN MEDITERRANEAN EUROPE: Scandinavia, United Kingdom/ Ireland SOUTHEAST ASIA: China WESTERN PACIFIC: Australia	Mixed clinical-community-school	Children, mothers, fathers, parents (not specified), other family members (not parents), doctors, nurses, other health professionals (not doctors or nurses)	To propose a coherent view of child and adolescent obesity; to obtain an integrated description of the subject, including perspectives of children and adolescents, parents, and health care professionals. Focused on individual representations of obesity and personal experience of treatment, rather than prevention.	45
Rees [23]	A systematic review of qualitative studies	12–18	Not specified	Not specified	Mixed clinical-community-school	Children	To examine recent research findings from the United Kingdom where young people aged 12 to 18 y provide views about their own body sizes or about the body sizes of others. It aims to help inform the development of practice and policy-based initiatives and the commissioning of further research in ways that put the perspectives of young people at the forefront.	30
Skelton [19]	A systematic review	0–18	HIC	AMERICAS: United States EUROPE: United Kingdom/ Ireland WESTERN PACIFIC: Australia	Mixed clinical-community-school	Parents (not specified)	To survey the literature regarding satisfaction in pediatric obesity and questions used in measurement.	4
Stankov [20]	A systematic review	10–20	HIC and LMIC	AFRICA AMERICAS: Canada, United States EUROPE: United Kingdom/ Ireland	Mixed community-school	Children	1. To synthesize evidence from qualitative research reporting on the barriers to physical activity experienced by	15

(Continues)

TABLE 1 (Continued)

First author	Review type	Age of participants (y)	Contexts	Included WHO regions and countries	Type of samples	Qualitative perspectives	Review question/ objectives	Number of qualitative or mixed-method studies
				SOUTHEAST ASIA WESTERN PACIFIC: Taiwan			adolescents with overweight or obesity with attention to socioeconomic and ethnic differences and 2. To provide gender, socioeconomic, ethnic, and setting-specific implications for engaging adolescents with overweight or obesity in physical activity.	
Trübswasser [28]	A qualitative evidence synthesis	10–19, also includes women of reproductive age (15–49 y of age)	LMIC	AFRICA: South Africa, Cameroon, Ghana, Kenya, Botswana, Cape Verde, Uganda AMERICAS: Mexico, Costa Rica, Brazil, Guatemala, El Salvador, Bolivia, South America EUROPE: Turkey SOUTHEAST ASIA: India, Bangladesh, Nepal, Sri Lanka, Indonesia WESTERN PACIFIC: China, Malaysia, Samoa, Tonga EASTERN MEDITERRANEAN: Morocco, Pakistan, Iran, Libya	Mixed community-school	Children, women of reproductive age (15–49 y—perspectives about themselves, not children)	To synthesize the qualitative evidence on factors influencing obesogenic behaviors among adolescent girls and WRA, specifically in LMICs.	71
Zarnowiecki [21]	A systematic review	Details at review level not reported	HIC	AMERICAS: United States EUROPE: Sweden WESTERN PACIFIC: Australia	Unclear	Parents (not specified)	To identify peer-reviewed literature evaluating user-testing of child nutrition apps and/or websites conducted with parents (objective 2).	Unclear

Abbreviations: HCP, health care professional; HIC, high-income countries; LMIC, low- and middle-income countries; NHS, National Health Service; WHO, World Health Organization; WRA, women of reproductive age.

Reflexive note

In keeping with quality standards for rigor in qualitative research [15], the review authors considered their views and opinions on obesity management as possible influences on decisions made in the design and conduct of the study. They also considered how the emerging results of the study influenced those views and opinions. Standard refutational analytic techniques [9] were used to minimize the risk that author presuppositions influenced the analysis and the interpretation of the findings.

RESULTS

Study selection

The literature search generated 485 citations after deduplication across databases, which were reduced to 152 after screening of titles and abstracts. At the full text stage, 112 papers were excluded principally for one of two reasons: no qualitative or mixed-method studies were included in the review; the topic of interest was not obesity. We therefore identified 40 reviews, containing one or more qualitative or mixed-method studies, that explored child, adolescent, and caregiver views, experiences, and beliefs around children and adolescents with obesity. A mega-aggregation of these 40 reviews is to be reported elsewhere. Seventeen of these forty reviews fulfilled this mega-ethnography's narrower review criteria by considering the values and preferences of stakeholders specifically in relation to obesity management services or other types of interventions that might be implemented or made available for children and adolescents with obesity. Figure 1 provides details of the study selection process [16].

Study characteristics

Nine of the included reviews described themselves either as a systematic review [17–21], a qualitative systematic review [22, 23], or a systematic review of qualitative research [22, 23]. Two were integrative reviews [24, 25], and the remaining reviews described themselves as one of the following: a meta-synthesis of qualitative studies [26], a mixed-method systematic review [27], a QES [28], a realist synthesis [29], a narrative literature review [30], or a systematic review with qualitative comparative analysis [31]. The number of bibliographic databases searched by the included reviews ranged from 1 to 18, with an average of 6. Supplementary searching (principally checking included studies' reference lists, "snowballing" [30], and internet searches for gray literature [20, 28]) was conducted by all but one review [32].

The critical appraisal tool most frequently used by these reviews was the Critical Appraisal Skills Programme (CASP) checklist, "10 questions to help you make sense of a qualitative research" ($n = 5$). No other tool was used by more than one review, and four reviews did not critically appraise the included qualitative studies [19, 21, 25, 30].

The number of qualitative or mixed-method studies included in these reviews ranged from 3 to 71. The number was not specified in two reviews [21, 30]. Some form of thematic analysis or synthesis was undertaken in 10 reviews, by far the most frequent approach to qualitative or mixed-method evidence synthesis. Narrative synthesis [17, 19] and framework synthesis [27, 28] were each conducted by two reviews, and meta-ethnography [18], realist synthesis [29], and qualitative comparative analysis [31] by one each. Five reviews used an existing framework or theory to organize and structure their data and findings, such as the Health Belief Model [27, 30], socioecological models [26, 28], the framework of vaccination communication [27], model of adherence to pediatric medical regimens [30], and the model of human development [20].

Details of each review's population and context are presented in Table 1. Eight reviews included only studies conducted in HICs, and one review was exclusively in LMICs [28]. One review focused exclusively on studies conducted in a Mexican immigrant population in the United States [24]. Five reviews included a sample of studies from both HICs or LMICs. Three reviews did not report this information [21, 25, 30]. In the 10 reviews that specified an age range for the included studies, four focused on children up to 12 or 13 years old [17, 29, 31, 32]; four focused on children, adolescents, or teenagers between 10 and 20 years old [20, 23, 28, 33]; and two crossed these age ranges [19, 29]. The other seven reviews did not provide this detail. None of the reviews focused exclusively on girls or boys or on children or adolescents with a disability. However, it was possible to identify reported differences between sexes and socioeconomic and ethnic groups from the contexts of the first- and second-order constructs. Where possible, these differences are articulated in the findings. Study selection resulted in similar numbers of reviews with populations from clinical, community, and school samples.

Critical appraisal and data richness

The results of the quality assessment process are presented in Table 2. The competence of the reviewers was not explicitly reported by any review (Question 4), two reviews [27, 33] conducted a GRADE CERQual (Grading of Recommendations Assessment Development and Evaluations, Confidence in the Evidence from Reviews of Qualitative Research) assessment (Question 13), and in many cases it was not clear how far the synthesis extended beyond a simple summary of the included studies (Question 12). However, the majority of the included reviews ($n = 9$) were judged to pose a low risk to rigor according to the SBU appraisal tool [10]; six were judged to pose a moderate risk to rigor, and two were judged to pose a high risk to rigor [19, 30]. Collectively, these assessments suggest that the conduct and reporting of these reviews were mostly good or very good.

Five reviews were deemed to achieve the highest data richness score of 3 [18, 23, 28, 32, 33]; all but one of these was also judged to carry a low risk to rigor [32]. Five reviews were assigned a moderate data richness score of 2 [20, 22, 26, 27, 31], and seven were assigned

a data richness score of 1, the lowest score, indicating the inclusion of few qualitative studies (<10) and/or little or no qualitative data [17, 19, 21, 24, 25, 29, 30]. This set of studies with low richness included the two reviews with serious risk to rigor [19, 30].

Findings

The findings reported by the included reviews were interpreted with specific reference to what factors influence whether or not children and adolescents with obesity seek to access management services for obesity and complete or drop out of such programs. From the evidence, we were able to infer a line of argument that conceptualized the processes and influences that shape how and what children and their caregivers think about obesity and related services. A conceptual model representing this process is presented in Figures 2 and 3. Children, adolescents, and their caregivers proceed through a staged process, moving from the presence or absence of an awareness about body weight as an issue (stage 1) to an acceptance of the need to engage with an obesity management service, informed by their preferences for such programs (stage 2), and finally, their views based on their actual experience of these services: what they like, what they dislike, and what they need (stage 3). The results are presented in this order. Within these sections, specific children/adolescent/caregiver factors appear first, followed by factors reflecting their engagement with other people (professionals) or bodies (schools).

The following narrative explains and evidences the models and organizes the findings. Where available, we provide illustrative quotations from primary studies that inform and support the finding from within the richer reviews (online Supporting Information).

Body weight as an issue

The need for information and knowledge about body weight

Views of children, adolescents, and caregivers about body weight are shaped by their knowledge, their personal experiences, and their family and sociocultural environment. Adolescents and caregivers from diverse contexts (HICs, LMICs, and a population of Mexican Americans in the United States [24]) report that they themselves wanted and needed knowledge and information about weight and what is a healthy weight [17, 18, 24–29, 32].

Awareness and acceptance of body weight as an issue

Whether or not body weight is a perceived issue is typically a matter of subjective judgment, linked to individual family and group expectations around body size and shape. This finding was reported by a contextually diverse evidence base: four reviews were conducted on studies from North America, Europe, and Australasia [22, 26, 27, 31]; one review focused on Mexican immigrants within the United States [24]; one focused on populations from Africa, Central and South America, and Southeast Asia [28]; and one review included studies from both HICs and LMICs [18]. Eight reviews reporting perspectives of adolescents, caregivers, and professionals describe how some adolescents and caregivers perceived an issue relating to body weight and therefore accepted the need for weight management [17, 18, 25–28, 30, 32]. However, seven reviews that principally reported the views of caregivers found that body weight might not be perceived as an issue at all [17, 18, 22, 24, 26–28]. Four reviews reported both views [17, 18, 26, 27]. Adolescents and their caregivers both report how body weight is an issue that affects self-esteem, the likelihood of bullying, and not being seen as "normal"; a clear social motivation was articulated, particularly by girls, in study reports [17, 18, 22, 23].

Interactions with health professionals concerning body weight

Across six reviews, health professionals report how they need opportunities to discuss body weight with children and caregivers if they are to raise awareness, that is, regular and timely instances of contact with families [18, 22, 25, 26, 30, 32]. They also report how they themselves need the knowledge, resources, and tools to facilitate those discussions, support convincing arguments for some children and caregivers, and be able to offer meaningful referral [18, 22, 25, 26, 30, 32]. In the same way, caregivers also report having preferred sources of information about body weight [27] and needing the skills to communicate with their children about this [17, 18, 27]. Children and caregivers reported how the nature of interactions with health professionals and schools can affect their willingness to access services [18, 22, 25, 27].

What can be done about it? Hopes, expectations, and concerns about obesity management services

Looking forward to the health and mental health benefits that such services might provide

Children, adolescents, and caregivers report being motivated by expectations of weight loss [18, 30, 33], the physical and health benefits of exercise [18, 19, 28, 32, 33], improved self-esteem and social acceptability [17, 18, 20, 33, 34], and social support from services [17]. Caregivers also reported that they are motivated by expectations of weight loss and of health and mental health benefits to their children [17–19, 30, 32], as well as enjoying some social support from services for themselves [17].

Clear preferences regarding the content and conduct of services

Children and adolescents with obesity report wanting services that mean having fun and making friends and that involve the whole family, including caregivers acting as role models [17, 18, 20, 21, 29,

TABLE 2 Risk to rigor and richness assessment of included reviews

	Abdin 2020	Ames 2020	Bradbury 2018	Burchett 2018	Clarke 2013	Confiac 2020	Enright 2020	Farnesi 2012	Grootens Wiegers 2020	Jones 2019	Kelleher 2017	Lachal 2013	Rees 2014	Skelton 2012	Stankov 2014	Trubswasser 2020	Zarnowiecki 2020
1. Aim	L	L	M	L	M	M	L	L	L	L	L	L	M	M	H	L	H
2. Search approach	L	L	M	M	L	L	L	L	M	L	L	L	L	M	L	L	L
3. Inclusion criteria	L	L	L	L	L	L	L	L	M	L	L	L	L	L	L	L	L
4. Competence	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
5. Search strategy	L	L	L	L	L	M	M	M	H	L	L	L	L	L	L	L	L
6. Study screening	L	L	M	L	M	M	M	H	H	L	M	L	M	L	M	L	L
7. Appraisal tool	L	L	L	H	L	L	L	H	H	L	L	L	L	H	L	L	L
8. Appraisal process	L	L	L	H	L	M	M	H	H	L	L	M	L	H	L	L	L
9. Synthesis (method appropriateness)	L	L	L	L	L	L	L	M	M	L	L	L	L	H	L	L	L
10. Synthesis process	L	M	L	L	M	M	L	M	M	L	M	L	L	H	L	L	M
11. Synthesis output: clearly grounded in primary studies	L	L	L	L	L	L	L	L	L	L	L	L	L	H	L	L	L
12. Synthesis output: beyond a summary of primary studies	M	M	M	H	M	M	M	M	M	M	L	M	M	M	L	L	L
13. Confidence in finding (CERQual)	H	L	H	H	H	H	H	H	H	L	H	H	H	H	H	H	H
Overall verdict (concerns)	Minor	Minor	Mod-erate	Mod-erate	Mod-erate	Mod-erate	Mod-erate	Mod-erate	Serious	Minor	Minor	Minor	Minor	Serious	Minor	Minor	Minor
Data richness score	2	2	2	2	3	1	1	1	1	3	1	3	3	2	2	3	1

Abbreviations: H, high risk to rigor; L, low risk to rigor; M, moderate risk to rigor.

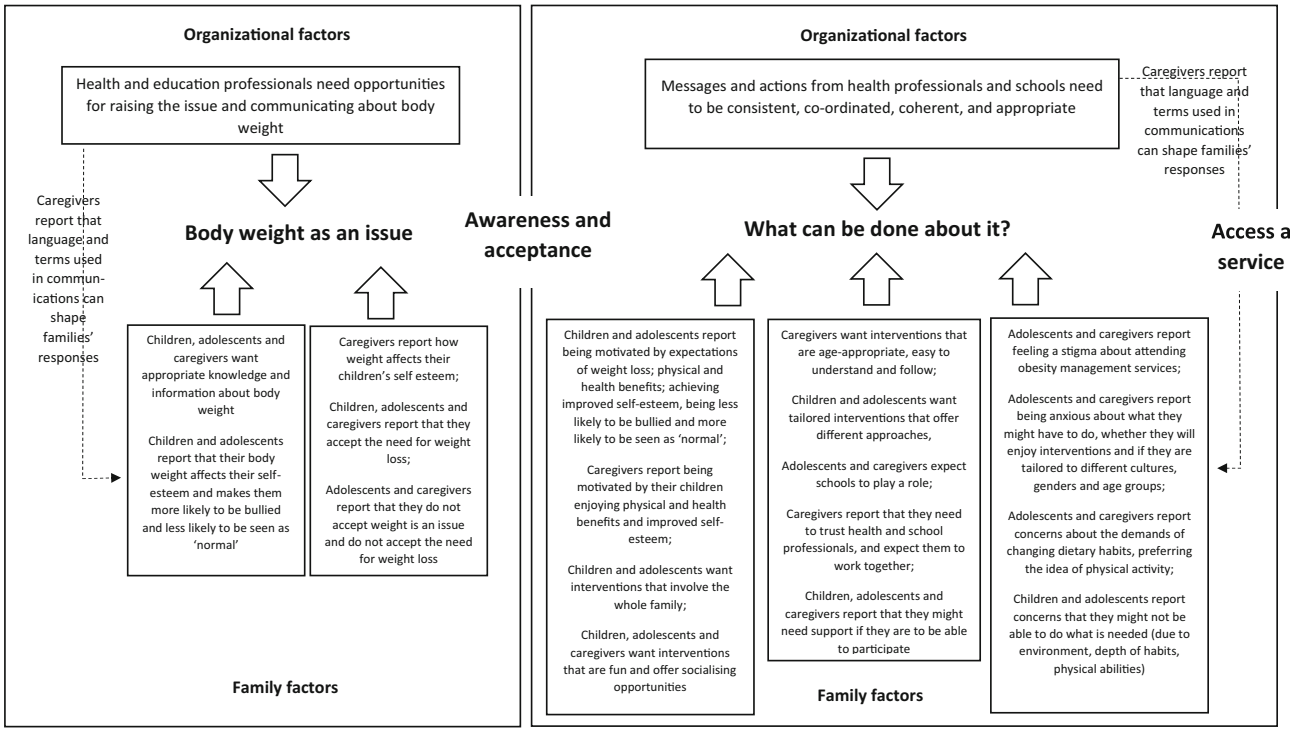

FIGURE 2 Factors that influence whether or not children and adolescents seek to engage with obesity management services

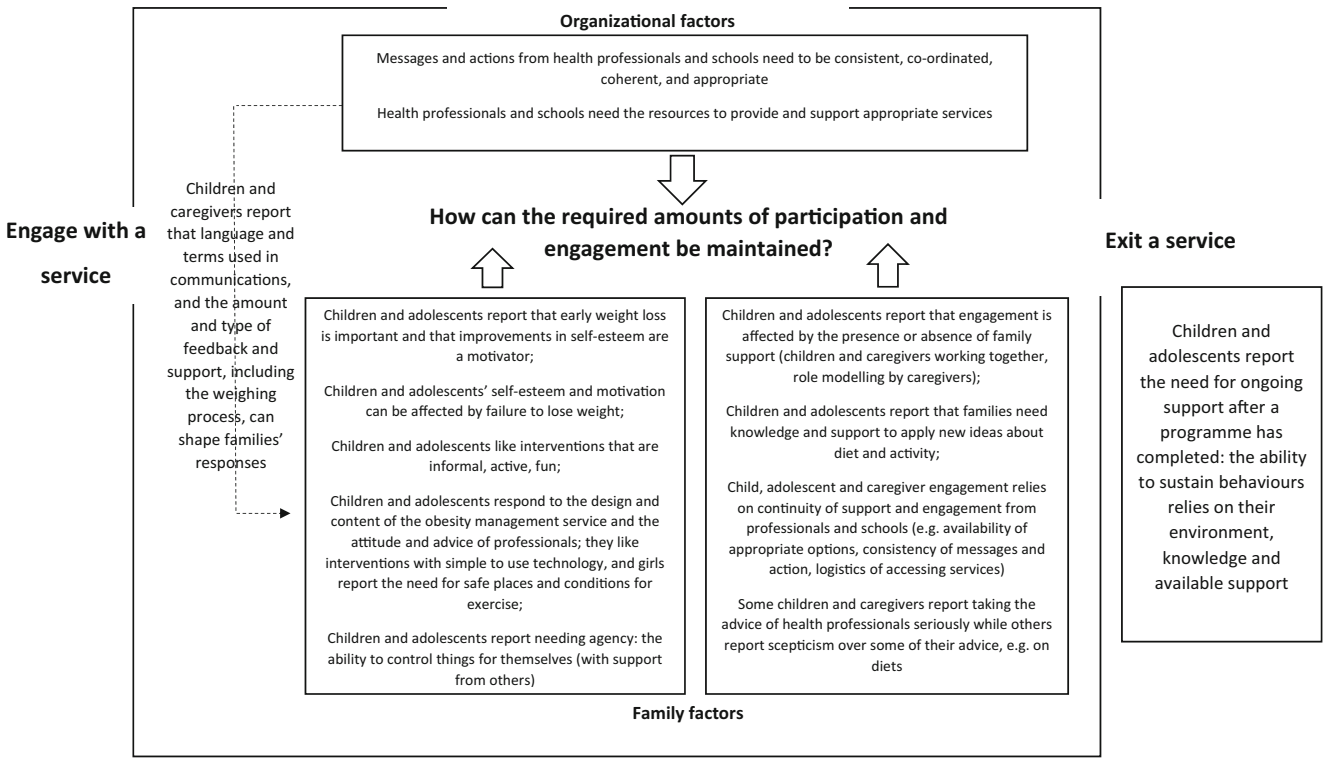

FIGURE 3 Factors that influence whether or not children and adolescents remain in and complete obesity management services

31, 33, 34]. All groups want services that are varied and tailored appropriately for different cultures, ethnicities, genders, and age groups [18, 20, 30, 32, 33]. Caregivers also report that they want interventions that are easy to understand and apply [18, 21].

Clear concerns regarding the content and conduct of services

Adolescents and caregivers reported their concerns about accessing obesity management services, in particular the social stigma of attending such services, which might lead to victimization [17, 20, 32, 33], and the activities involved, including whether they will enjoy them and what they will have to do and wear [17, 18, 20, 27, 30]. Children, caregivers, and professionals also report concerns, in some cases, regarding whether they would be physically able to do certain activities [20, 32], as well as the demands of changing dietary habits [32, 33]. In one review, children and adolescents expressed the preference for physical activity over changes in diet [18]. Children, adolescents, and caregivers report that they think they will need support if they are to meaningfully engage with services: they have doubts about their ability to take action [18, 25–28, 30, 32, 34], including the cost of certain dietary changes [21, 22] and the logistical demands of attendance [17, 22].

Interactions with health professionals and schools

Children, adolescents, and caregivers report how their likely engagement with obesity management services, and any expected success, is shaped by their interactions with others, especially relevant health professionals and the hugely influential school environment. Adolescents, caregivers, and professionals all state a preference for school involvement in services [19, 22, 24, 28, 29] and a preference that schools be supported as necessary, both finanically (there can be a cost to providing certain foods) and through the provision of physical resources, for example, for exercise [21, 22, 28, 32]. Children, adolescents, and caregivers also report concerns about whether health professionals and schools will work together to coordinate activities and be consistent across messages and actions [25, 26, 32]. If they are to consider engaging with these services, caregivers report needing to be able to trust health and school professionals [18, 22, 25].

How can the required amounts of engagement and participation be maintained?

Content of obesity management services and levels of family engagement shape the willingness of children, adolescents, and caregivers to continue

Children, adolescents, and caregivers report that they prefer services that are fun, informal (noncompetitive), and physically active [17, 18, 33] and that use technology [25, 32, 33]. However, adolescent girls in one review explicitly report that they need safe spaces and conditions for exercise [18]. Children and adolescents report how their adherence is affected by their ability (even when assisted by others) to enact changes [17, 22, 28, 29, 33]. Children, adolescents, and caregivers report that they prefer interventions that involve the family as a whole, and the family as a whole must be able and willing to implement the intervention, including caregivers acting as role models, if the actions are to be implemented and maintained [17, 18, 21–23, 25, 26, 28, 29, 31]. Caregivers liked interventions to include practical sessions, rather than theory [17].

Outcomes experienced shape the willingness to continue with a service

Children, adolescents, and caregivers report that success or failure (in terms of weight loss and changes in self-esteem, health, and well-being) can be both a motivator to continue in [18, 30] and a reason to drop out of programs [33]. Whereas some children report that they enjoyed having a normal body weight and eating healthily, others report feelings of guilt or shame either from failure itself [33] or simply because they had to engage with such services [32]. However, being around children and young people who looked the same and experienced similar hopes, expectations, and concerns offered normalization and peer support. By not standing out, children and adolescents report being offered a positive reason to continue in programs [33, 34].

Concerns about the capacity to take action because of costs of certain dietary changes and attendance at services

Children, adolescents, and caregivers report their need for support if they are to participate: they might have doubts about their ability to take action because of the costs of either certain dietary changes [21, 22] or attendance at certain types of services. Parents specifically expressed a need to cover the cost of childcare [17, 22]. Children and adolescents also report needing ongoing support from their wider environment (family, school, and community) if appropriate habits and activites are to be maintained [18, 20, 27, 28, 32, 33].

Communication, principally with health professionals but also within families, is an issue

Health professionals report needing the skills to communicate with children, adolescents, and caregivers about whether there is an issue with weight, including knowing what language and terms are acceptable to parents and adolescents [18, 22, 25–28]. When engaged with services, children and caregivers report that their motivation is affected by how health professionals communicate, about the interventions (including how to do something, not just what to do), the weighing process, and feedback on progress and weight loss [17, 18, 21, 27, 30, 31, 33].

Children and caregivers like schools to be involved as long as messages and practices are consistent and provision well resourced

Children, adolescents, and caregivers report a preference for school involvement, working alongside health professionals. Messages and actions from caregivers, schools, and health professionals need to be consistent, coherent, and appropriate, for example, making only appropriate foods available both at home and in school [18, 19, 22, 25–28, 32]. But in some cases, caregivers or school professionals felt that the implementation of interventions was not their responsibility but the responsibility of the other [32].

There is a need for timely, well-resourced support from health professionals and schools

Support is needed for children and their families if they are to have the knowledge, means, and motivation to engage with services and to develop and sustain appropriate habits during and after a program. Children, adolescents, and caregivers report that continuous provision of support to families is important: It needs to be well resourced, timely, and available if disruption, loss of motivation, and dropout are to be avoided [17, 26, 30, 34]. They also report the need for extensive support to enable them to participate fully, including having the knowledge and support to apply what they have learned in their home life [17, 33] and having logistical or financial support to access some services (depending on where and when they are held), including childcare provision for other, younger children not in the program [17, 30]. Some children and parents report taking the advice of health professionals seriously [17, 33], whereas others report skepticism about some of their advice, for example, regarding diets [18]. Children and adolescents also report needing ongoing support from the wider environment (family and schools) if they are to sustain appropriate habits and activities after involvement in a service has ended [18, 27, 32, 33].

Sensitivity analyses

We modified the planned sensitivity analysis to explore any differences in findings by age group from 0 to 9 years to 1 to 12 years (vs. 10 or more years). The new date ranges were chosen because four reviews focused on children aged 2 to 12 or 13 years [17, 29, 31, 32], four focused on adolescents or teenagers 10 years of age and older [20, 28, 33, 34], and two looked across both age ranges, specifically 1 to 19 years and 0 to 18 years [19, 27]. The remaining seven reviews did not provide this detail. All the findings were supported by one or more reviews from each age group, building confidence that the overall findings apply across both younger and older age groups. Despite differences in details (e.g., concerns about the terms used by health professionals in communicating about weight being expressed by caregivers of younger children in one review and by adolescents themselves in another review), the overall finding (i.e., how these interactions shape the willingness of individuals to engage with programs) remained the same. We were not able to conduct similar analyses for LMICs versus HICs or for clinical versus community/school settings. Only one of the 17 reviews focused exclusively on primary LMICs [28], and the range and combination of settings was prohibitively diverse.

Line of argument statement

For most children, adolescents, and caregivers, awareness of obesity as an issue needing action is shaped by (1) subjective norms of body weight and (2) interactions with health professionals. If excess body weight is accepted as an issue, then initiating participation in a obesity management service is determined by the content, acceptability, and perceived benefits and demands of such services. Provision of diverse services and interventions is more likely to garner higher rates of initiation, participation, and engagement. The likelihood of completion of or continued engagement with these services is also determined by their success (not only in achieving weight loss but also through behavior change and an enhanced sense of well-being or self-esteem) and the provision of timely and relevant support to children and families. The family and school environments play a crucial role in initiating, supporting, and sustaining behavior change. Services involve costs to families and schools, for food, resources, and travel to activities. The capacity or means to initiate, engage, and sustain such activities can vary among individuals, groups, and schools.

DISCUSSION

This mega-ethnography found extensive information from a sample of 17 qualitative and mixed-method evidence reviews at mostly low or moderate risk to rigor for what matters to children and caregivers as they contemplate engagement with obesity management services.

The synthesis enabled the development of a new conceptual model interpreting the decision-making process of children and adolescents with obesity and their caregivers when they are considering the following issues: whether and how body weight might be managed, what sort of services they are most willing to access and engage with, what interactions and outcomes shape these decisions, and what help and support they report that they are likely to need if they are to be able to engage with services and sustain appropriate activities and behaviors.

In behavioral responses involving the contemplation of change, acceptance of the need for change, the move to action, the taking of action, and the maintenance (or not) of that action, our proposed model resembles the familiar domains of the transtheoretical model of behavior change [35]. However, the conceptual model presented here should be considered more dynamic because it highlights the vital role played by interactions of children and adolescents (and certain caregivers) with other family members, communities, schools, and health

services. This broader environment is key to shaping views, motivations, and responses to services, thereby influencing behavior change.

Several findings clearly yielded both reciprocal and refutational evidence. For example, whereas some reviews reported that adolescents and caregivers accepted that excess body weight was an issue requiring action, others reported the absence of any such issue: This contrasting evidence even appeared within some of the same reviews. When there is no perceived problem, caregivers and their children are unlikely to access a service. Whereas some reviews reported that children, adolescents, and caregivers anticipated the many benefits of an obesity management service, other reviews identified adolescents and caregivers with concerns and doubts about such services: the stigma of attending or concerns about what the service would involve (i.e., the diets or the activities they might be asked to do).

The positive role to be played by others in children's and adolescents' immediate environment (family and school) in initiating, enabling, and sustaining engagement with services was consistently acknowledged. Conversely, a lack of role modeling behaviors from caregivers (or the absence of consistent and appropriate practices, messages, or habits from families and schools) could reduce the likelihood of initiation or continued participation in and engagement with a service.

A consistent finding—at work at all stages in the process—was the influential role played by interactions with health professionals. When communication is sensitive, is informed, makes use of appropriate language and resources, and is timely and supportive, then children, adolescents, and caregivers report across multiple reviews that they were more likely to start and to continue with a service. In the absence of such sensitive, appropriate, and available communication, children, adolescents, and caregivers reported (again across multiple reviews) that they were less motivated to start or continue to engage with a service. Schools were also consistently seen by stakeholders as playing an important role but requiring financial, physical, and knowledge resources to support their services, and they were seen as needing to work with both health professionals and caregivers.

A sensitivity analysis of the findings by age group (1–12 vs. 10–20 years), geographical source of the evidence (LMIC vs. HIC), and setting (clinical vs. community/school) was not able to identify any emerging distinctions of note. Findings appear to be consistent across location, age, and setting.

The evidence base possesses several strengths. First, we searched a variety of sources, which makes the potential of dissemination bias unlikely. The 17 included reviews included 316 supporting qualitative and mixed-method primary research studies; 15 of 17 reviews were judged to be at only low or moderate risk to rigor. All settings were covered (home, community, school, and clinic), and diverse geographical and cultural contexts were included (reviews included studies from HICs, LMICs, and an Mexican immigrant community in the United States). However, only 5 of 17 reviews scored a 3 (the highest score) for data richness, and the majority of reviews were weighted toward HICs, thereby limiting generalizability.

Limitations of the review itself include the review-of-reviews methodology, lacking the depth of a review of primary studies, being one step further removed from the primary research. However, this limitation is mitigated to some extent by the extraction of first- and second-order constructs and the use of illustrative quotations to detail findings that were available from the reviews with the highest score of data richness. A further limitation of the review is the use of new and experimental methods. These include methods for quality assessment (the SBU tool for appraising QESs is not yet widely used [10]) and methods for synthesis (only two previous mega-ethnographies having been published, both by the same group [7, 8]). Assessment of richness is recognized as an important consideration in qualitative research, but in the absence of a suitable scoring system for QESs, the authors had to develop their own system. One recently published and seldom-used scoring system exists, but only for primary qualitative research [13]. However, this review operationalized clear inclusion and exclusion criteria and was conducted by three experienced QES systematic reviewers; all stages, decisions, and processes were conducted independently by two or more reviewers or were conducted by a single reviewer and double-checked, challenged, or supported by a second or third reviewer.

CONCLUSION

This mega-ethnography of 17 reviews of qualitative and mixed-method evidence found that children, adolescents, caregivers, and health professionals reported that their awareness and acceptance of obesity as an issue that needs action are shaped by subjective norms of body weight and interactions with relevant professionals. The review found that obesity management services must be tailored (appropriate to ages, genders, and cultures) and varied, and they must be promoted in a sensitive manner. The provision of diverse services and activities is more likely to find success among children and their families. Children, adolescents, and caregivers also reported that family and school environments play a crucial role in initiating, supporting, and sustaining behavior change. Finally, services involve costs to families and schools, for food, resources, support, and travel to activities. The capacity or means to initiate, engage, and sustain such activities can vary among individuals, groups, and schools.O

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CONFLICT OF INTEREST

The authors declared no conflict of interest.

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SUPPORTING INFORMATION

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

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