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The Design, Delivery, and Workforce Composition of 30 Pilot Weight Management Services for Children and Young People in England

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Abstract

Background

Since 2021, the Complications from Excess Weight (CEW) pilot has supported children and young people living with severe and complex obesity. Commissioned by NHS England, sites were given autonomy in how their services were designed and delivered. Twenty-one clinics opened in 2021, nine in 2023/24, and nine in 2024/25. National funding expires in March 2027, after which commissioning will transfer to local Integrated Care Boards. This paper 1) illustrates what care is delivered across the CEW services, 2) highlights how the services were designed and delivered at the local level, and 3) presents the different workforce models across the CEW services.

Methods

A 52-item adapted STAndardised Reporting of Lifestyle weight management InTErventions (STAR-LITE) template was used to collect data on: 1) service design processes, 2) referral routes, capacity, and waiting lists, 3) the Multi-Disciplinary Team (MDT) composition, service delivery, pharmacotherapy, and complication management, 4) discharge and onward referral processes, and 5) data management systems. The survey was completed as an online structured interview or independently by MDT members and analysed descriptively.

Results

All 30 services from the 2021 and 2023/24 rollout completed the STAR-LITE survey. Services supported individuals aged 0–18 years, though most clinics applied eligibility criteria of 2–17 years, alongside Body Mass Index Standard Deviation Score (BMI-SDS) thresholds ranging from + 2.0 to + 5.0 SDS units (> 98th centile). Many services required evidence of weight-related complications as part of the referral criteria. Services were commissioned to support 20–120 patients per year, and waiting lists were commonly reported. Duration of care ranged between 12–24 months. All services had a specialist obesity consultant; most also included a nurse, psychologist and dietitian, with additional roles (social workers, administration assistants, family support workers and physiotherapists) varying across sites. Services addressed multiple complications including Polyendocrine Metabolic Ovarian Syndrome (PMOS), impaired fasting glucose, and type two diabetes mellitus. Services provided dietary, physical activity, psychosocial, and pharmacological support. All services were heavily tailored to meet individual needs.

Conclusions

CEW services share core design features but demonstrate variation in local delivery and MDT composition, using a range of locally appropriate models to address need.

1. Introduction

Paediatric obesity in England is an urgent public health issue that is particularly prevalent in areas of higher deprivation [1]. In the UK, 29.3% of children aged 10–11 years old from the most deprived decile are living with obesity, compared to 13.5% of children from the least deprived decile [2]. The prevalence of severe obesity amongst children in England (defined by a Body Mass Index (BMI) above 99.6th Centile (SDS + 2.66)), according to National Child Measurement Programme (NCMP) data from 2024/5, is 2.9% for Reception children (4–5 years old), and 5.6% for children in Year 6 (10–11 years old). The distribution across deprivation levels mirrors that among all children living with obesity [2]. Obesity tracks from child into adulthood in the majority of cases without successful weight management intervention [3]. The current NHS costs associated with obesity equate to £11.4 billion per year [4] making it a significant economic challenge and highlighting the urgent need for early prevention and intervention of obesity and its comorbidities.

Currently in England, the National Institute for Health and Social Care Excellence (NICE) recommend children and young people (CYP) are provided with non-judgemental, person-centred healthcare that is tailored to individual need [5]. However, weight management provision in England is not mandated, resulting in significant variability in the availability and type of services provided across the country, leading to considerable geographical disparities [6,7]. Furthermore, the evidence base for weight management services, particularly for specialist services for CYP living with severe and complex obesity is largely absent, resulting in limited insights as to the efficacy and cost-effectiveness of specialist weight management support [8].

To address the gap in support for CYP living with severe and complex obesity in England, NHS England commissioned a specialist "Complications from Excess Weight" (CEW) pilot. The pilot began in 2021 with 21 initial clinics (wave 1), followed by nine more clinics in 2023 (wave 2), and a further nine in 2024 (wave 3) (Fig. 1). The CEW pilot had three primary aims: 1) to identify the factors leading to severe obesity through a holistic assessment, considering physical and mental health and social needs of children and young people; 2) to ensure that care is holistic and individualised, based on the needs of CYP, and including culturally appropriate support and, 3) to treat the complications of excess weight by coordinating care with other services if and when required [9].

NHS Trusts were given flexibility to design their CEW service to meet local need, presenting the opportunity for innovative approaches to care, and to expand on the scant evidence base on specialist paediatric weight management approaches [8]. Due to this, NHS England anticipated that there would be variation in the composition and delivery of the services between sites [10]. In 2024, the National Institute for Health and Care Research (NIHR) commissioned a national evaluation of the CEW pilot programme [11] to determine how the CEW service works, for whom it works (or does not work), why, and in what context. A core component of this evaluation was to understand the composition of CEW services, which is reported in this paper, addressing the following research questions:

1. What care is being delivered across the CEW programme?
2. How are the services designed and delivered at the local level?
3. What are the different workforce models across the CEW services?

2. Materials and Methods

2.1 Design

We employed a cross-sectional study design to determine how CEW services were designed and delivered, using an adapted STAndardised Reporting of Lifestyle weight management InTErventions (STAR-LITE) template [12]. The study was granted ethical approval from Leeds Beckett University Ethics Committee (Ref: 107887) and Sheffield Hallam University Ethics Committee (Ref: 79269135).

2.2 Sampling and Recruitment

All 30 CEW services from waves 1 and 2 of the pilot (see Fig. 1, clinics 1–30) were invited to take part. We emailed an invitation to complete a survey to clinical leads of each service in June 2024, inviting them, or any member of the MDT to complete the survey. Follow-up emails were sent where required (no more than two per clinic). All those involved in completing the STAR-LITE template were required to provide informed written consent after reading the participant information sheet. Supplementary Materials 1 outline which MDT members completed the survey.

2.3 Data Collection

We worked closely with clinical and academic colleagues to adapt and pilot the original STAR-LITE template to ensure it would capture relevant information and that it would be feasible to complete within approximately one-hour.

Our adapted STAR-LITE template (Supplementary Materials 2) systematically examined: a) the process of designing the CEW services (seven items); b) referral routes, capacity, and waiting lists (11 items); c) the MDT composition, service

delivery, pharmacotherapy, and complication management (29 items); d) discharge criteria and onward referral processes (three items), and e) data management systems (two items). CEW services had the option to complete the survey via different methods, which was hosted in Microsoft Excel so that it could be completed easily by multiple MDT members independently (e.g., each completing sections relating to their specialisms), and/or via an online structured interview with a researcher from the ENHANCE project completing the template on behalf of the MDT member (KK, TB, JN, or JMat). All data were collected between June 2024 and January 2025.

2.4 Data Analysis

Data were descriptively analysed and synthesised by JM, PD, JN, TB, DF, KS, KK, RD and RAS to determine the design, delivery and workforce models.

3. Results

All 30 services completed the STAR-LITE survey. Responses were completed via structured interview for 22 sites, online survey for seven sites, or a combination of both for one site, based on the preference of respondents. Results are presented in the following order: 1) designing the CEW services, 2) referral pathways, 3) the support offer, and 4) discharge and onward referrals.

3.1 Designing the CEW services

The CEW services were designed with several aims, and all services reported more than one aim. The most often cited aim (*n*=22 services) was the intention to reduce and manage the complications associated with excess weight. Seventeen services stated that their main aim was to facilitate weight loss and weight management. Ten services emphasised their focus was on improving quality of life, twelve services stated they aimed to provide holistic care, and seven services cited using a biopsychosocial approach to weight management. Eight services referred to the aim of improving mental health, five services aimed to identified drivers of excess weight and the barriers to weight loss, and ten services stated they aimed to use a family-based approach.

Multiple professionals were involved in designing CEW services as illustrated in Figure 2. Only 13 services had evolved from a previously established service, the remaining 17 services were newly formed.

The CEW services drew on a range of information, evidence, and expertise during design. Twenty-five services were informed by clinicians' own expertise and previous experience, 13 used research evidence, and 15 used guidance from other services and established clinics. Services also cited service user involvement (*n*=10) and behaviour change theory input (*n*=11). NHS England specifications and frameworks, such as the CEW Framework [9], the Healthier Weight Competency Framework [13] the NHS Long Term Plan [14], the NHS 10 Year Health Plan [15], and other best practice documents informed service design for 22 services.

3.2 CEW Referral routes

A range of professionals were able to refer to CEW services, including specialist clinician/consultant (*n*=30), General Practitioner (*n*=22), dietitian (*n*=14), nurse (*n*=14), paediatrician (*n*=12), other weight management providers (*n*=9), and health visitors or school nurses (*n*=9). Referrals were managed and prioritised based on the severity of clinical need (*n*=22), and / or based on a first-come, first-served basis (*n*=16).

Eligibility criteria

Services supported CYP mainly aged 2-17 years old, with some stating they include CYP aged 0-18-years-old. All services used BMI SDS as an eligibility criterion, varying from >+3 to >+5 SDS units for CYP without complications, and >+2 to >+3.5 with complications. Other eligibility criteria were based on postcode, usually within a specific ICB catchment area (*n*=28),

BMI SDS with complications (ranging between one and two complications *n*=23), the presence of a learning disability (*n*=20), and a lowered BMI SDS for specific ethnic populations (e.g., South-Asian, Arab and Afro-Caribbean populations, typically BMI SDS >+3) (*n*=11).

Service capacity

Services were commissioned to support between 20-120 new patients per year (average = 68). Waitlists varied considerably from 0 to over 200, with most services reporting 50-100 CYP waiting for their initial appointment. The time to access the service was also variable; some services saw CYP within 2 weeks, while others reported waits of over 24 months. Most services reported waits between 3-8 months. Services commonly reported a high demand and finite capacity, said to be influenced by issues such as recruitment, retention of staff, and funding limits.

3.3 The support offer

Initial assessments and goal setting

Services were asked if patients required an initial assessment to enter the service after the referral has been received (e.g. discussion to determine eligibility and suitability of the CEW service). Initial assessments were conducted in 18 CEW services and served several purposes, although the exact content and structure varied across services. These included understanding motivations, gauging the CYP and family's readiness to engage and an opportunity to understand the CYP's behaviours and environments, which in turn helped providers to plan and deliver tailored support. During these assessments, a holistic picture of the CYP was obtained, including, identification of barriers to weight loss, co-morbidities, social and developmental history, clinical examinations, and an extensive review of the CYP's family history. The initial assessments allowed CYP to become familiarised with the role of the team, as well as to share family and professional expectations of the service and the team. If any adaptations for support were required, these were identified and discussed during the initial assessment, along with any safeguarding concerns that were identified by the MDT.

Initial assessments were delivered in various formats, including in-person in the clinical setting (*n*=9), via telephone/video call (*n*=7), or at the CYP's home (*n*=2). A range of MDT members conducted the initial assessments, including nurses (*n*=9), dietitians (*n*=7), specialist obesity clinician (*n*=7) psychologists (*n*=5), youth workers (*n*=4), physiotherapists (*n*=2), and family support workers (*n*=2). As services could involve more than one professional in delivering assessments, these totals exceed the number of services (*n*=18).

All CEW services supported CYP to set their own goals, as outlined in Table 1. Most services set multiple goals, but typically no more than three goals at any one time. Goal setting was usually collaborative, involving the CYP and the service team (*n*=26), the CYP and their family (*n*=3), or solely the service team (*n*=1). A clinical goal was typically set by the service team, whereas social or mental health goals may be decided by the CYP.

Table 1: Examples of goal setting within CEW services

*Examples include reduced screen time, goals related to school attendance/education, and social events

Multi-disciplinary support

Table 2 illustrates the members of the MDT and the service duration for each CEW service. The MDTs comprised clinicians and a range of other specialists including nurses, dietitians and psychologists. Most also had team members delivering family and/or social support such as youth workers, social workers and family support workers.

[Please insert Table 2: Multidisciplinary Team composition and service duration]

Dietary support

Twenty-eight services reported tailoring dietary approaches to individual CYP needs. Diet was usually monitored and assessed by estimated food diaries (*n*=24) and photograph/picture food diaries (*n*=23). Online tools or apps were used in 12 services, as well as food frequency questionnaires (*n*=11), and weighed food diary (*n*=5). A variety of dietary interventions were supported, including culturally appropriate healthy eating in practice (*n*=29), selective eating interventions, such as food play, food presentation, food chaining, and sensory regulation (*n*=20), prescriptive plans (*n*=25), vitamin/mineral deficiency interventions (*n*=23), partial meal replacement (*n*=12), time-restricted eating (*n*=16), total meal replacement (*n*=8), and food relationship interventions for emotional and disordered eating (*n*=24). Attention was also paid to glycaemic index, gut symptomology, the microbiome, and hyperphagia (*n*=15 total).

Support for complications associated with obesity

Several associated complications of obesity were managed within the CEW services. Although some services managed these conditions 'in-house', some screened for conditions and/or referred on, or worked in conjunction with specialists outside of the service. Table 3 illustrates the range of complications and the way in which these are managed across each service. Most conditions were managed in conjunction with specialists outside of the CEW service, however, impaired fasting glucose, impaired fasting insulin, and Polyendocrine Metabolic Ovarian Syndrome (PMOS) tended to be managed solely within the CEW service.

[Please insert Table 3: Complication Management in the CEW Service]

Physical activity support

Twenty-one CEW services reported offering physical activity support via supervised or non-supervised sessions, via physical activity advice or using loaned gym equipment, 18 of which reported tailoring their support to CYP needs. Ten delivered physical activity support exclusively in-person, with the other services using a combined (online/in-person) approach. Fifteen also signposted CYP to face-to-face community or NHS programmes and sessions, and 11 also offered gym subscriptions, including subsidised membership. For the nine services who did not report offering physical activity support, three services still signposted CYP to face-to-face community or NHS programme sessions, and one service still offered a gym subscription. Twenty services monitored CYP activity levels using either one, or a combination of, methods including; digital applications (*n*=2), activity diaries (*n*=7), wearable fitness technology (*n*=9), physical tests (i.e., sit to stand test, six minute walk test, or cardiopulmonary exercise testing; *n*=4), and discussing activity and energy levels at appointments (*n*=3).

Psychosocial support

Twenty-eight services offered psychosocial support. This included psychological support and diagnosis provided by a psychologist (*n*=23), assistant psychologist (*n*=2), Child and Adolescent Mental Health Services (CAMHS, *n*=4) or Cognitive Behaviour Therapist (*n*=1). Broader social and emotional support was provided by a family support worker (*n*=9), social worker (*n*=9), family therapist (*n*=3), youth worker (*n*=4), health and wellbeing practitioner (*n*=1), pastoral care worker (*n*=1), or dietician (*n*=1). Psychosocial health was assessed primarily using validated tools and scales, including the Paediatric Quality of Life Inventory (PEDSQL 4.0 [16], the Revised Children's Anxiety and Depression Scale (RCADS [17], and the Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS [18], although in some cases psychosocial health was evaluated using more informal measures. Seventeen services reported being able to screen for disordered eating, though not all did this routinely. Fourteen services reported being able to offer support for disordered eating within the service.

Pharmacological support

Pharmacological support was prescribed in 21 services, which included Glucagon-Like Peptide-1 Receptor Agonists (GLP-1RAs) (Semaglutide (*n*=18), Liraglutide (*n*=6), and Orlistat (*n*=4)). Thirteen services also reported the use of Metformin. Prescribing decisions for individuals were based on a number of factors, including severity and duration of obesity, additional complications and comorbidities, age and service engagement. Before pharmacological support was prescribed,

CYP were required to undertake blood tests and families were trained on how to use injections (where required), as well as learning about potential side effects and how to manage them. Some services reported barriers to prescribing, namely due to a lack of locally provided funding outside of the service delivery costs provided by NHSE (*n*=5), a national shortage of medications (*n*=3), and the absence of a NICE Technology Appraisal (*n*=2)[1].

Medical Technologies (Med-tech) Support

Sixteen services reported using medical technology to support CYP, and ten planned to introduce it in the future. These included use of Evira[2], pedometers, nutrition applications, and heart rate monitors. Evira, is a digital tool offered to all CEW services that helps to provide personalised feedback for childhood obesity and enables close monitoring and contact with CYP and their families [19].

Tailoring service provision

Families on a low-income were often supported with travel passes, reimbursement of travel costs and parking, the option of virtual appointments and home visits, and 'poverty-proofed' [20] recommendations, including free services (holiday clubs, gym access, and other activities in the community) (*n*=25). Adaptations for CYP with *neurodiversity* (*n*=20) and *learning disabilities* (*n*=14) took the form of quiet waiting areas, less team members present during appointments, availability of sensory rooms, and play therapy. Translators and culturally sensitive materials were often used, alongside tailored eligibility criteria for different *ethnic groups* (*n*=18). Resources were tailored to different *ages* (*n*=7), and five services mentioned specific *gender-related* requirements (*n*=5) by recognising CYP pronouns and providing female-only group sessions and female staff when requested. A range of *group-based* activities were reported by 17 services, including cooking classes, peer support, Roma-Slovak groups, physical activity, parent forums, and residential weekends. The most common reason for not providing group-based aspects of support was a lack of capacity (i.e., workforce time, physical space, and funding).

3.4 Discharge and Onward Referral

There were different reasons given for the timing of discharge, including; when CYP had reached the end of the intervention period or the end of treatment course for pharmacological support (*n*=15), if there had been sufficient progress or CYP had met their goals (*n*=15), when they exceeded the service's age eligibility (*n*=5) or if they were not engaging as expected (*n*=19). Eleven services reported discharge criteria relating to outcomes, such as a reduction in BMI SDS (*n*=6) or reduced number/severity of complications (*n*=6). Other reasons for discharge included no progress after a certain time (*n*=4), having exhausted all elements of the service (*n*=4), CYP choice (*n*=3), discharge to eating disorder services (*n*=2), and other concerns taking priority (*n*=1).

At the point of discharge, twenty-two services reported referring to other services upon discharge, while others did not provide this option (*n*=5) or were not currently at a time-point for discharging (*n*=3). Referrals were to specialist care (e.g., CAMHS, eating disorder services, general paediatrics, endocrinology; *n*=8), primary care (*n*=5), bariatric surgery (*n*=5), or behavioural weight management services (*n*=4) if eligible and available locally. Nineteen services stated that they would consider re-referrals of discharged CEW patients back into their service, nine did not offer the opportunity to re-refer, and two services said the question was not applicable.

[1] NHSE funding did not cover GLP-1RA prescribing for obesity

[2] Evira was piloted as part of NHSE commissioning in some areas

4. Discussion

This study sought to provide a detailed description of CEW services, their design, support offer, and workforce models. Our findings demonstrate variation across the 30 services, which reflects the original commissioning specification to provide a place-based service that is tailored to CYP needs. However, there are also consistencies in the overall approach of the

services, in their use of MDT and a personalized approach. The CEW pilot programme provides evidence of how services delivered on the original commissioning specification manage and support CYP living with severe obesity and complications relating to excess weight, by providing innovative, holistic, and person-centered care.

4.1 What care is being delivered across the CEW services?

The support offered across services was comprehensive and highly tailored to the individual needs of the CYP and their families. Tailored support considered neurodiversity, age, socioeconomic context, locally-available physical activity options, cultural appropriateness, dietary requirements, the psychosocial and medical needs of the CYP, and broader support needs of their families. This responds to the demographics of CEW patients as shown in other work [21]. Many services cited flexibility in their provision to meet CYP needs, such as offering or accommodating meetings in a range of settings (e.g., school, home, community, clinical). Individualised care also included joint goal setting, which helped to shape a bespoke management plan based on needs, concerns, and required adaptations. In the wider literature, tailored counselling approaches to diet have shown efficacy in children living with obesity [22] and individualised goal setting has been successfully used in paediatric weight management interventions [23], suggesting that these factors may have similar effects in CEW services.

Initial assessments were offered by 18 services. Initial assessments were noted as a requirement in the initial NHSE guidance for designing the programme however, these were sometimes not considered necessary in services where referrals were high quality. Some services reported that the initial assessment process prepares families for the expectations of the CEW service. Evidence suggests that assessing expectations in paediatric weight management may help with realistic goal setting, which in turn reduces attrition [24] meaning that initial assessments to set expectations may result in more favourable outcomes.

Psychosocial support was offered in all but two services, mainly by a psychologist, but also other professionals such as social workers, youth workers, family support workers, and family therapists. However, not all of these professionals are trained to diagnose and deliver therapeutic support. Psychosocial health was assessed using validated measures and services reported managing psychosocial issues within the CEW setting, however, more severe needs were referred to specialist services such as CAMHS or eating disorder services. Notably, only 57% of services reported screening for disordered eating and 47% were able to provide support for disordered eating within CEW. Disordered eating behaviours are a known comorbidity in children and adolescents living with severe obesity [25], and are more common in those with ADHD [25] and food insecurity [26] - two prevalent issues within the CEW cohort [21]. Disordered eating behaviours can progress into clinical eating disorders if untreated [27], and the DELPHI process that informed the development of the CEW programme recommended disordered eating as a core measured outcome of the service [28]. It is recommended that there should be greater provision for the assessment and treatment of disordered eating behaviours within CEW services.

4.2 How are the services designed and delivered at the local level?

As per the national aims of the programme, services reported that they were designed with the aim of reducing and managing complications of excess weight, and were primarily designed by medical specialists, dietitians, psychologists, and nurses. Over half of the services stated that one of their main aims was the reduction of weight, in addition to management of complications, reflecting that the service has a dual purpose in weight management and reduction of complications.

Many elements of delivery were provided by working in conjunction with other services, which was a reported aim of the CEW programme taken from NHSE guidance. This was seen in the management of complications of obesity and in the provision of physical activity support, where half of services reported signposting to face-to-face community sessions. The wide range of professionals in the MDT meant that specialist care could be provided in-house by the CEW teams avoiding additional referrals and delays for CYP. Due to the positioning of CEW services in NHS Trusts, they were able to work closely with other specialists within the hospital setting. Many services also reported links to wider services which were important

in the context of discharge; most services reported referring to other weight management provisions (e.g., bariatric surgery or behavioural weight management), where this existed locally.

Services were given flexibility over the design and delivery of the service to meet the needs of their local population. For example, eligibility criteria differed between clinics, including variations in BMI SDS thresholds (> + 2 to > + 5 units) and the number of associated complications (one or two). Evidence from the wider ENHANCE evaluation suggests that some services have adapted their eligibility criteria and increased the threshold of service entry in response to unmanageable demand [29], and services commonly reported high demand and low capacity. However, this flexibility in eligibility threshold may inadvertently create inequalities in access for CYP who could be eligible for a service in one locality but not in their local area. This is also seen in the provision of pharmacological support, where 21 services provided pharmacological support, including GLP-1RAs. The ability of services to fund and prescribe GLP-1RAs creates inequity between CEW clinics across the programme, and services reported barriers relating to lack of funding and absence of national guidance, namely due to the lack of a NICE Technology Appraisal. Our findings show that there is inequity and suggest that national provision for CEW services and pharmacological support needs to be equitable and sustainable across geographical areas.

4.3 What are the different workforce models across the CEW services?

Services were delivered via an MDT approach, which is widely regarded as best practice for the management of obesity [30,31]. All services had a clinician, and the majority had a dietitian, a nurse, and a psychologist, reflecting the model suggested in the national guidance on CEW services. There was less consistency in the provision of other roles, which offer more holistic support, such as social workers, family support workers, and youth workers, though most services had at least one of these roles within their MDT. Findings suggest that the depth and breadth of MDT composition may contribute to the ability to provide tailored, holistic support to address the many factors that contribute to obesity and its complications. Indeed, this echoes other elements of the ENHANCE evaluation which has emphasised the importance of a broad and appropriately skilled workforce within CEW services [29].

4.4 Building on the evidence base

There is a paucity of evidence describing the design and approach of specialist weight management services for CYP living with excess weight [8]. This paper – and the wider findings from the ENHANCE project - begin to address this gap, providing insight into the national variance in specialist weight management CEW services across England. Our findings demonstrate how the CEW programme marks a substantial shift in efforts to achieve a nationwide provision that has thus far not been achieved in paediatric weight management services in England [6,7]. This paper also demonstrates how the CEW programme is addressing the NICE [31] recommendations detailed in Table 3, by building relationships with schools and nurseries, providing culturally appropriate support, dietary advice and behaviour change approaches for obesity management, through the lens of an MDT. Previous research has highlighted that there is no clear set of ‘ingredients’ for a successful paediatric weight management programme [23], which appears to be mirrored in the current findings demonstrating diversity across services. However, important factors cited by previous literature [23] including empowering support, fostering shared values between children and families, and whole-family ownership, are apparently achieved through the person-centred and holistic provision within CEW services. Overall, the CEW programme is already addressing NICE [31] recommendations and addressing gaps in the evidence base [8], even at the early pilot stage.

4.5 Strengths and limitations

This paper is the first to demonstrate the applicability of the STAR-LITE template in a paediatric weight management context. Our adapted STAR-LITE questionnaire was completed by all 30 services from wave 1 and 2 of the pilot programme, demonstrating its utility in this context. That said, survey items were condensed to reduce time burden for clinical staff, which may have sacrificed depth in some sections, particularly the exploration of behaviour change techniques used, compared to the original STAR-LITE template [12]. Additionally, not all MDT members contributed to all STAR-LITE responses

(see Supplementary Materials 1), which may be an uneven representation of perspectives. Whilst this may be considered a methodological limitation, this approach enabled all services to participate in a way that suited their availability and capacity, and most services had multiple MDT members contribute to the survey (*n* = 17). Although this study was cross-sectional, a second round of data collection with participating services is has been completed (June 2025 to March 2026) and is being analysed to ascertain service modifications one year on from the first round of data collection.

4.6 Future research

This paper provides a description of what the CEW programme looks like for the initial 30 services across England. Future research questions that will be addressed across ENHANCE include:

- Consideration of the extent to which the CEW services cater for all population groups so that we can understand who they work for, how they work, and under what circumstances
- Exploration of the cost-effectiveness of the CEW service to inform the design of and delivery of the programme going forward
- Understanding the perspectives of the service users and families so that services are aware of what CYP find beneficial
- Obtaining more in-depth data to understand some of the novel approaches taken by services, as well as those with a unique MDT composition. This will help to share knowledge and promote ongoing learning across the CEW programme as a whole
- Understanding the factors that inform commissioning of CEW services, moving forward

4.7 Conclusions

This paper provides a comprehensive synthesis of how CEW services were designed, the types of care provided and how care is delivered, and the workforce models adopted. It demonstrates that specialist weight management services for CYP can be designed, implemented, and scaled up nationally, and that the MDT who are working in these services are well-placed to design services that they perceive are best suited to meet the diverse and complex needs of CYP.

Declarations

Ethics approval and consent to participate

Ethical approval was granted from Leeds Beckett University Ethics Committee (Ref: 128404) and Sheffield Hallam University Ethics Committee (Ref: 79269135) and is in accordance with the declaration of Helsinki.

Consent for publication

Not applicable.

Availability of data and materials

The data that support the findings of this study are not openly available due to reasons of sensitivity and are available from the corresponding author upon reasonable request.

Competing interests

JM, RAS, PD, KK, JMat, RD, TB, DF, KS, CG, KS, NA, LN, AM, and EI declare no conflicts of interest. JN has received funding from the NIHR and Sport England, and has had travel expenses paid for by the Novo Nordisk Foundation to attend the Childhood Obesity cluster in Denmark. NW has received conference support from Novo Nordisk. LE receives funding from the NIHR, MRC and Oliver Bird Foundation. She is also an unpaid author of the ACTION Teens study and has delivered a workshop to clinical pharmacists that was sponsored by Eli Lilly – payment was received by Leeds Beckett University. CH

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Authors' contributions

JM – data curation, formal analysis, project administration, validation, visualization, writing original draft & writing reviewing and editing. PD – data curation, formal analysis, project administration, writing-original draft. JN – conceptualisation, data curation, formal analysis, methodology, investigation, supervision, writing-review and editing. RAS, KK, JMat, TB, DF, KS, RD – data curation, formal analysis, investigation, writing-review & editing. CG, KC, KS, NA, JHS, NW, LN, AM, EI – writing-reviewing and editing. LE & CH – conceptualisation, funding acquisition, writing-reviewing & editing.

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Tables

Tables 1 to 3 are available in the supplementary files section

Figures

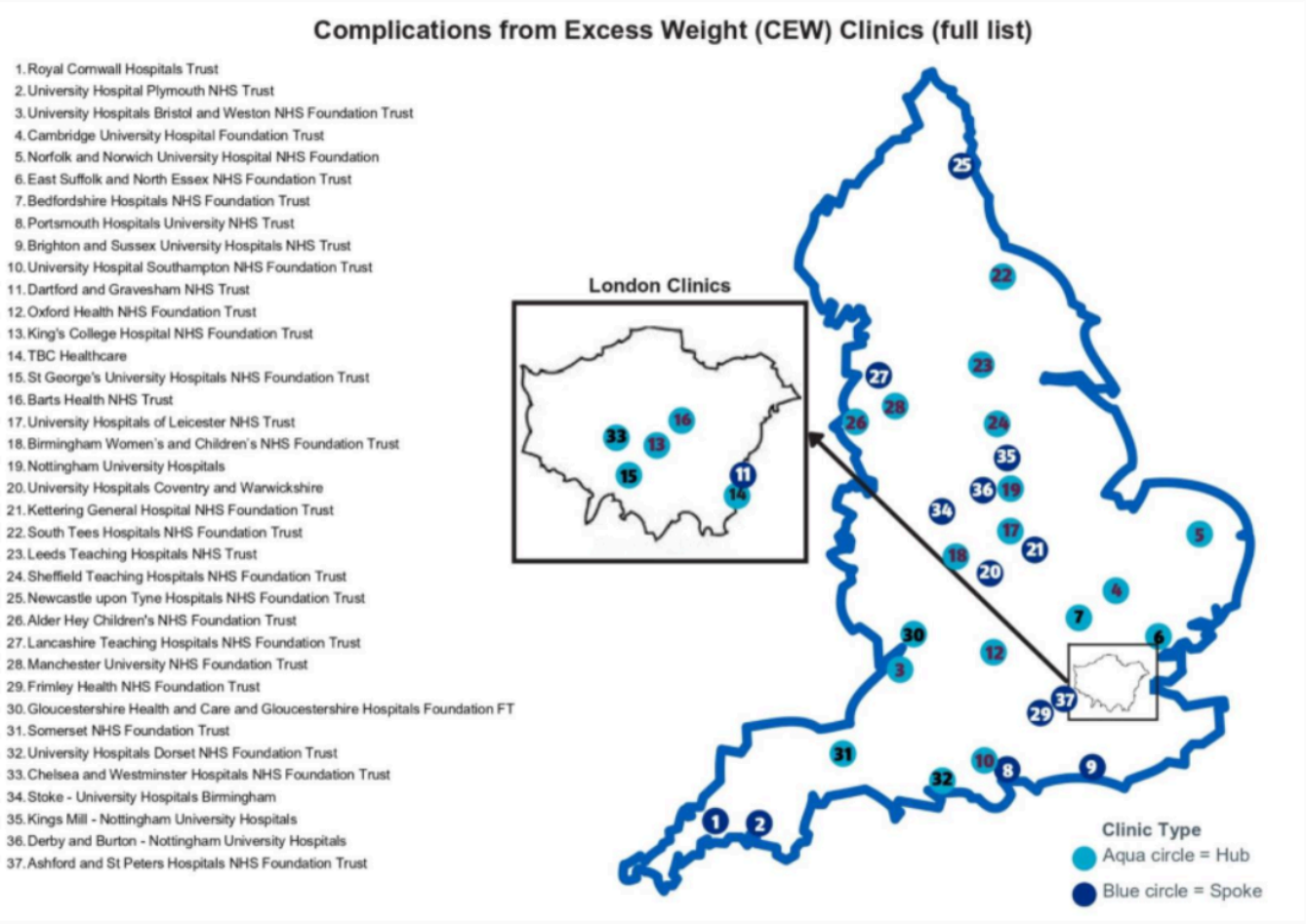

Figure 1

CEW Hub and Spoke Network (NHS England, n.d)

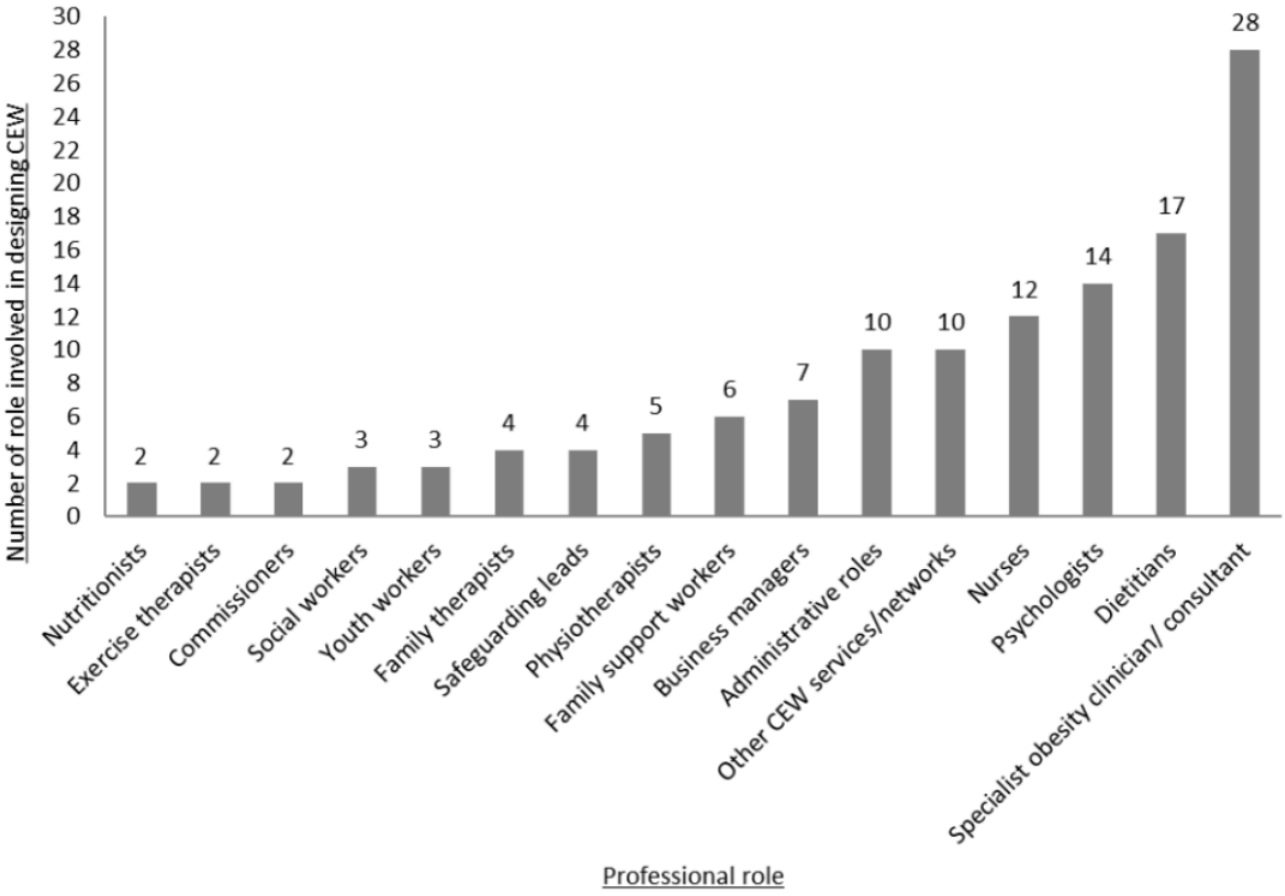

Figure 2

Vertical bar chart showing the role of the professional involved in designing their CEW service

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