National Institute for Health and Care Excellence

Final draft

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These evidence reviews were developed by Guideline development Team

Overweight and obesity management: preventing, assessing and managing overweight and obesity

[E] Evidence reviews for increasing uptake of weight management services in children, young people and adults

NICE guideline NGXX

Evidence reviews underpinning recommendations 1.2.3 to 1.2.4, 1.11.2, 1.11.4, 1.11.7 to 1.11.11, 1.11.14 to 1.11.15, 1.12.3, 1.12.6 to 1.12.11, 1.13.1 to 1.13.5, 1.14.8, 1.14.24 to 1.14.31, 1.19.2, 1.19.19 to 1.19.21, 1.19.23 to 1.19.25 and research recommendations in the NICE guideline

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1 Increasing uptake of weight management services in children and young people

1.1 Review question

a) What approaches are effective and cost-effective in increasing uptake of weight management services in children and young people, particularly those in black, Asian and minority ethnic groups?

b) What are the barriers and facilitators to increasing uptake of weight management services in children and young people, particularly those in black, Asian and minority ethnic groups?

1.1.1 Introduction

Central adiposity is a risk factor for development of CVD, type 2 diabetes, hypertension, dyslipidaemia or some types of cancer in children and young people. This is particularly important for black, Asian and other minority groups whose risk of conditions such type 2 diabetes is increased at a lower BMI and waist circumference than the general population.

Currently, people who are living with overweight or obesity are often referred to weight management interventions. Whether they accept this referral and go on to weight management interventions depends on barriers and facilitators. Interventions may be able to address these and increase uptake of services. Uptake is defined as accepting the referral, attending sessions, and adhering to the program.

The review exploring the effectiveness, barriers, and facilitators for increasing uptake of management services in adults is in section 2.

1.1.2 Summary of the protocol

Table 1: PICO table for effectiveness of approaches for increasing uptake of weight management services in children and young people

PICO Table	

Population	• Children and young people aged under 18 years
	Where possible, evidence will be stratified by ethnicity:
	  ○ White
	  ○ Black African/ Caribbean
	  ○ Asian (South Asian, Chinese, any other Asian background)
	  ○ Other ethnic groups (Arab, any other ethnic group)
	  ○ Multiple/mixed ethnic group
	• Parents and carers
	• Staff undertaking identification of children and young people with overweight or obesity and engaging them in weight management services.

Intervention	• Brief opportunistic behavioural interventions e.g., offer of and referral to weight management intervention and follow-up by GP (offered to either child, young people, parents and carers) • Incentives (e.g., GP incentives, patient/ participant incentives) • Motivational interview (offered either to children, young people, parents and carers) with a focus on increasing uptake to WM services

	• Interventions to provide information about WM services/ prompt uptake and attendance to WM service including:
	  ○ online campaigns including social media and apps (digital interventions)
	  ○ radio campaigns
	  ○ letters by mail
	  ○ printed materials (e.g. leaflets)
	  ○ multi-media campaigns
	  ○ TV and online advertising (including pop up adverts and use of culturally specific TV, social media and radio channels)
	  ○ Posters
	  ○ online information exchange- fill in questionnaire and get information
	
	• Educational and engagement interventions offered to children, young people, parents and carers (delivery methods):
	  ○ face-to-face sessions
	  ○ telephone conversations
	  ○ social media with responses
	  ○ interactive multi-media interventions (e.g. case studies on GP websites; e-learning)
	  ○ interactive community events (e.g. talks with question and answer sessions, talks in religious settings)
	  ○ peer education (carried out by a community member who shares similar life experiences to the community they are working with)
	  ○ lay education (carried out by community members working in a non- professional capacity)
	  ○ multicomponent interventions targeting education

Comparator	• No intervention/usual care • Comparison of interventions

Outcomes	Primary outcomes
	• Initial uptake of weight management interventions
	• Adherence and compliance with weight management intervention
	• Completion of weight management interventions
	• Health-related quality of life
	• Attendance and drop-out rates for weight management interventions
	Secondary outcomes
	• Adverse events:
	  ○ Eating disorders or disordered eating
	  ○ Stigma (including self-stigma and negative body image as defined in studies)

Table 2: SPIDER table for barriers and facilitators for increasing uptake of weight management services in children and young people

SPIDER Table	

Sample	• Children and young people aged under 18 years
	Where possible, evidence will be stratified by ethnicity:
	  ○ White
	  ○ Black African/ Caribbean
	  ○ Asian (South Asian, Chinese, any other Asian background)
	  ○ Other ethnic groups (Arab, any other ethnic group)
	  ○ Multiple/mixed ethnic group
	• Parents and carers

	• Staff undertaking identification of children and young people with overweight or obesity and engaging them in weight management services.
Phenomenon of interest	Barriers and facilitators to the uptake of weight management services in children and young people identified as overweight or obese. These may include: • Thoughts, views and perceptions of individuals, parents or carers • Thoughts of staff undertaking identification of children and young people who are living with overweight and obesity • Issues relating to motivation • Issues relating to accessibility • Issues relating to infrastructure (resources, cost, location of services) • Issues relating to education • Issues relating to stigma • Issues relating to self-esteem • Issues relating to cultural sensitivities
Design	• Systematic reviews of included study designs • Qualitative studies that collect data from focus groups and interviews. • Qualitative studies that collect data from open-ended questions from questionnaires • Mixed method study designs (qualitative evidence that matches the above study designs only)
Evaluation	Thematic synthesis
Research type	Qualitative and mixed methods

1.1.3 Methods and process

This evidence review was developed using the methods and process described in Developing NICE guidelines: the manual. Methods specific to this review question are described in the review protocol in appendix A..

Declarations of interest were recorded according to NICE's conflicts of interest policy.

1.1.4 Effectiveness and qualitative evidence

1.1.4.1 Included studies

A combined search was conducted for the review questions on identification and uptake in children, young people and adults (details of the search strategy are provided in appendix C) A total of 19,477 studies were identified in the search which explored both quantitative and qualitative evidence. The search was re-run in April 2023 to find newly published references prior to consultation, so an additional 1,630 articles were screened as part of this updated search. The evidence selection process is shown in the PRISMA diagram in appendix D.

Quantitative evidence

Following title and abstract screening, 44 studies were identified as being potentially relevant to weight management in children and young people. These studies were reviewed at full text against the inclusion criteria as described in review protocol (Appendix A). Overall, 6 studies were included; 3 RCTs and 3 cluster RCTs. These studies covered interventions for increasing enrolment and adherence to weight management.

Qualitative evidence

Following title and abstract screening, 98 studies were identified as being potentially relevant. These studies were reviewed at full text against the inclusion criteria as described in review protocol (Appendix A). Overall, 11 studies were included which used interviews and focus groups. There were 9 studies from the UK and 2 studies from Australia that focused on the experiences of people from minority ethnic family backgrounds.

See appendix E for evidence tables and the reference list in section 1.1.11. For information on included studies in adult population see section 2.1.4.

1.1.4.2 Excluded studies

See appendix J for the list of studies excluded at full-text screening with reasons for their exclusion

1.1.5 Summary of studies included in the effectiveness and qualitative evidence

Quantitative Evidence

Table 3: Quantitative evidence included in the review

Study and study design	Country	Setting	Population and number of participants	Intervention(s)	Comparator	Follow-up	Outcomes
Armstrong 2018 RCT	USA	Weight management program	81 children + parents	Motivational text messages + standard care (N = 42)	Standard care (N = 39)	3 months	• WM attendance • Adverse events
Bean 2019 RCT	USA	Paediatric obesity intervention program	128 parents + children	NOURISH+ with motivational interviewing (N = 64)	NOURISH+ (N = 64)	4 months	• WM enrolment • WM attendance
Bryant 2021 Cluster RCT	UK	Weight management program	881 parents	HENRY with optimisation (N = 443)	HENRY alone (N = 438)	12 months	• WM enrolment • WM attendance
Naar-King 2016 RCT	USA	Community	181 adolescents + parents	Phase 1: Home based MI (N = 90) Phase 2: contingency management incentives (N = 78)	Phase 1: office based MI (N = 91) Phase 2: Continued skills (N = 83)	Phase 1: 3 months Phase 2: 7 months	• WM attendance
Pallan 2019 Cluster RCT	UK	Children's weight management programme	243 families	Culturally adapted First Steps program (N = 169; Bangladeshi and Pakistani subgroup n= 80)	Standard First Steps program (N = 74)	6 weeks	• WM program completion

Study and study design	Country	Setting	Population and number of participants	Intervention(s)	Comparator	Follow-up	Outcomes
Sallis 2019 Cluster RCT	UK	Schools	2642 children + parents	Parental feedback letters (N = 1270)	Standard letters (N = 1372)	4 weeks	• WM enrolment • WM attendance

Qualitative Evidence

Table 4: Qualitative evidence included in the review

Study	Design and analysis	Country	Setting	Population and sample size	Objective
Banks 2014	Semi structured interviews with no specified analysis framework	UK	Childhood obesity clinics	• 32 parents • 33 children	To identify factors that had facilitated and inhibited clinical engagement.
Cyril 2016/2017[1]	Focus Groups and Semi structured interviews using agency-structure sociological theory and the community readiness model	Australia	Culturally and linguistically diverse (CALD) communities	• 39 parents (focus groups) • 95 parents (interviews) • 59 service providers	1. To explore service providers' perceptions of the key factors influencing the participation of CALD communities in the existing obesity prevention services and the service requirements needed to improve CALD communities' participation in these services. 2. To examine the level of readiness of disadvantaged communities to engage with childhood obesity prevention initiatives 3. To examine the barriers and facilitators to the engagement of CALD communities in obesity prevention initiatives
Gillespie 2015	Focus groups using Drummond's Model of Motivators of Personal Action	UK	Childhood weight management service	• 27 parents	To use social marketing insight gathering to further understand potential barriers and triggers for parents

Study	Design and analysis	Country	Setting	Population and sample size	Objective
					accessing the Tayside childhood weight management service
Jones 2021	Semi structured interviews with no specified analysis framework	UK	Hearty Lives programme	• 11 stakeholders	To gather the views of professional stakeholders in a UK weight management programme to identify potential areas to target to improve engagement and success for such programmes
Lucas 2014	Interviews with no specified analysis framework	UK	The MEND behaviour change intervention	• 29 service providers • 23 families (64 individuals)	To investigate user and provider perspectives on the acceptability, affordability, implementation, and impact of a family-based intervention for child overweight and obesity delivered at scale
Newson 2013	Semi structured interviews using Theory of Planned Behaviour	UK	NHS weight management service	• 11 families	To explore why families choose to attend or not attend a childhood obesity programme, and to examine the beliefs and experiences which influenced these decisions
Pallan 2019	Focus Groups and Interviews using Behaviour Change Wheel framework and Typology of Cultural Adaptation	UK	First Steps WM program	• 31 parents (interviews) • 12 (focus groups)	To culturally adapt an existing children's weight management programme for children aged 4–11 years so that the programme was more able to meet the needs of families from South Asian communities.
Povey 2020	Semi structured interviews with no specified analysis framework	UK	Childhood obesity management programme	• 10 families (23 individuals)	To discover the reasons behind invited families' lack of engagement with a family-based childhood obesity programme in a deprived area.
Renzaho 2018	Semi structured interviews using Community Energy Balance framework (CEBF) and the Community Readiness Model	Australia	Migrant communities	• 48 parents	To investigate the views and beliefs of CALD parents from collectivist cultures on childhood obesity and its prevention, the cultural factors affecting their adoption of a healthy lifestyle, and their preparedness to participate in obesity prevention initiatives.

Study	Design and analysis	Country	Setting	Population and sample size	Objective
Twiddy 2012	Focus Groups and Interviews using Social Cognitive Theory	UK	WATCH-IT child weight management programme	• 23 families (26 parents, 10 children)	To explore the views of parents, children and health trainers to identify issues which can inform the development of more effective programme
Visram 2013	Semi structured interviews with no specified analysis framework	UK	Childhood weight management programme	• 20 families (20 children) • 16 stakeholders	To examine the experiences of four stakeholder groups—children and young people, parents and guardians, national health service (NHS) staff and local authority staff—in attending, implementing or delivering the 'Balance It!' programme.

[1] Data from one study, published across two journal articles

See appendix E for full evidence tables.

1.1.6 Summary of the effectiveness and qualitative evidence

Quantitative Evidence

Table 5: Motivational interviewing based text messages compared to standard care

No. of studies	Sample size	Effect estimate (95% CI)	Quality	Interpretation of effect
Drop out: Number of participants who dropped out of the program. MID = 0.8 to 1.25				
Armstrong 2018	101	RR 0.84 (0.37 to 1.9)	Low	Evidence could not differentiate between arms

Table 6: NOURISH+ with motivational interviewing compared to NOURISH+

No. of studies	Sample size	Effect estimate (95% CI)	Quality	Interpretation of effect
Enrolment: Number of participants enrolled who in the program. MID = 0.8 to 1.25				
Bean 2019	128	RR 1.02 (0.86 to 1.21)	Moderate	Evidence could not differentiate between arms
Attendance: Average percentage of sessions attended. MID = 15.4				
Bean 2019	128	MD -9.4 (-20.8 to 2)	Low	Evidence could not differentiate between arms

Table 7: HENRY with optimisation compared to HENRY only for uptake to weight management

No. of studies	Sample size	Effect estimate (95% CI)	Quality	Interpretation of effect
Enrolment: Proportion of centres enrolling at least 8 families				

No. of studies	Sample size	Effect estimate (95% CI)	Quality	Interpretation of effect
Bryant 2021[1]	881	RD -1.2 (-19.5 to 17.1)[2]	Low	Evidence could not differentiate between arms
Attendance: Proportion of children's centres with at least 75% of parents attending at least 5 sessions				
Bryant 2021[1]	881	RD 1.2 (-15.7 to 18.1)[2]	Low[3]	Evidence could not differentiate between arms

[1] Results reported in Bryant 2021 with no further analysis conducted
[2]Cluster RCT adjusted analysis by Bryant 2021

Table 8: Home based motivational interviewing compared to office based motivational interviewing

No. of studies	Sample size	Effect estimate (95% CI)	Quality	Interpretation of effect
Attendance: Average number of sessions attended. MID = 2.87				
Naar-King 2016	181	RR 4.55 (2.89 to 6.21)	Moderate	Evidence favours home based motivational interviewing

Table 9: Contingency management incentives compared to continued skills training

No. of studies	Sample size	Effect estimate (95% CI)	Quality	Interpretation of effect
Attendance: Average number of sessions attended. MID = 3.09				
Naar-King 2016	161	RR 7.57 (5.25 to 9.89)	Moderate	Evidence favours contingency management incentives

Table 10: Culturally adapted weight management program compared to standard weight management program

No. of studies	Sample size	Effect estimate (95% CI)	Quality	Interpretation of effect
Attendance: Number of participants who completed the program. MID = 0.8 to 1.25				
Pallan 2019	243	RR 1.31 (1.06 to 1.62)	Very low	Evidence favours cultural adaptation
Attendance: Number of participants who completed the program (Pakistani and Bangladeshi subgroup). MID = 0.8 to 1.25				
Pallan 2019	154	RR 1.36 (1.08 to 1.7)	Very low	Evidence favours cultural adaptation

Table 11: Parent information letters compared to Weight status letters for increasing uptake to weight management

No. of studies	Sample size	Effect estimate (95% CI)	Quality	Interpretation of effect
Attendance: Number of participants who completed the program				
Sallis 2019[1]	2532	AOR 2.48 (1.46 to 4.21)[2]	Low	Evidence favours parent information letters
Attendance: Number of participants who completed the program (Pakistani and Bangladeshi subgroup)				
Sallis 2019[1]	2443	AOR 2.11 (1.01 to 4.41)[2]	Low	Evidence favours parent information letters

[1] Results reported in Sallis 2019 with no further analysis conducted

2 Cluster RCT adjusted analysis by Sallis 2019

See appendix G for full GRADE tables.

Qualitative Evidence

Table 12: Summary of the barriers and facilitators to uptake of weight management in children and young people

Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
Barriers and facilitators affecting initial motivation				
Objections that arise at the identification stage remain barriers at the point of uptake Parents who did not agree that their child was overweight, or were offended at them being identified as such, were not open to engaging with weight management. This was a particular issue for families who had only been identified via the NCMP. Some newly arrived migrants had limited access to healthcare and were unfamiliar with the healthcare system, which meant they were often missed out from identification.	Cyril 2016/2017 Gillespie 2015 Newson 2013 Pallan 2019 Povey 2020 Visram 2013	"I was disgusted so I got in touch with the school nurse and expressed my anger" Parent "she's not obese, she's a normal 5-year-old and she keeps up with the other kids" Parent "'most CALD parents are not regular in their MCH appointments where we talk about childhood obesity prevention to parents" Healthcare provider	No downgrading required	High
Parents were motivated to accept the offer of weight management because they wanted their child to avoid negative social outcomes of overweight While health risks were mentioned by some families, in the majority of cases the risks of overweight were emotional and social outcomes. There was pressure from family and community for the child to lose weight. Many families were concerned that their child was or may begin being	Banks 2014 Gillespie 2015 Jones 2021 Lucas 2014 Newson 2013 Twiddy 2012 Visram 2013 Povey 2020	"if my daughter felt better about herself, she wouldn't be so angry all the time, she's got quite a lot of emotional issues due to being a bit heavy" Parent "I was getting quite a lot of pressure from particularly family members about [patient]'s weight and so I decided that perhaps we ought to be doing something about it" Parent	Downgraded once for minor concerns about methodological limitations	Moderate

Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
bullied by their peers; they also worried about their child's self esteem. The Families who did mention a positive motivation were mostly also looking to boost their child's confidence. Offering programs that could address these motivations facilitated uptake of services.				
Many families were hesitant to take up weight management because they had doubts that programs would be effective or suitable Some parents felt that weight was a part of growth that could not and need not be controlled. They did not believe weight management would make a difference to their child's health in the long term. Others felt that the weight management programs offered would not be suitable or appropriate for their child. There were strong concerns expressed that enrolling their child into weight management could do more harm than good. They did not want their child to develop worries about their weight and some were concerned about the risk of eating disorders, especially in adolescents.	Cyril 2016/2017 Gillespie 2015 Jones 2021 Lucas 2014 Newson 2013 Pallan 2019 Povey 2020 Twiddy 2012 Visram 2013	"There's too many kids with problems and eating disorders and things like that and I don't want that." Parent "He doesn't need obesity treatment, it's normal and he will grow bigger" Parent	No downgrading required	High
Many parents were not sure what to do, so were motivated to take up weight management to access support They were interested in trying weight management programs because their individual	Cyril 2017 Gillespie 2015 Newson 2013 Pallan 2019 Visram 2013	"not knowing what to do, it's hard having the courage to ask for help'" Parent	Downgraded once for minor concerns about coherence	Moderate

Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
attempts to address weight had not been successful. Some parents had received mixed messages about their child's weight and health, so were not sure whether it was necessary to address it or not.		"We went along [to the medical assessment] like we were told to, and they said 'nothing physically wrong with him', so he is normal and then they say 'come and do this'…why?" Parent		
Barriers and facilitators arising from the child's agency and involvement				
Weight management was more successful when the child agreed to it than when the parents decided for them, so both needed to be in agreement for uptake of services In most cases, children did not spontaneously seek weight management but were happy to take part on the whole. When children refused to engage with the program, no progress could be made. Parents felt uncomfortable having to enforce the healthy habits when their children were unwilling to stick to them, which was a barrier to participation. Some children strongly resisted, which lead to conflict. Parents appreciated having weight management messages delivered to their children by other adults in the program, to diffuse this conflict and encourage adherence.	Banks 2014 Pallan 2019 Povey 2020 Twiddy 2012 Visram 2013	"'[Trainer] tries really hard to interact with D, but unfortunately D doesn't engage with [trainer] or the programme so we are not making much headway" Parent "'I felt that [I am] the wicked witch, you know because mum's not letting us have a big portion, mum's taking us out when we'd rather sit inside. For your children to sort of like feel that towards you, and in actual fact all you are doing is trying your best for them, it's quite hard and frustrating." Parent	No downgrading required	High
Children were motivated to take up weight management for different reasons to their parents, so faced different barriers and facilitators	Banks 2014 Jones 2021 Lucas 2014 Pallan 2019 Twiddy 2012	"'I don't think they particularly think about long term what it's gonna do to their health. I think that it's pretty much in the, it's in the here and now isn't it" Parent	Downgraded once for minor concerns about coherence	Moderate

Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
Weight management was most effective when the parents' and child's motivations are aligned. However, children more often cited appearance and wanting to be thin as their motivation. As this aspect is harder to achieve, these children tended to lost motivation quickly beyond initial uptake. Accessibility barriers for children with learning or physical disabilities were also demotivating for children.	Visram 2013	"I think adolescents, as well as some adults, are concerned about their appearance, so if their appearance is driving them into your arena, once you've got them there, it's selling the health message" WM staff member		
Families were often keen to take up and adhere to weight management because their children found it to be an empowering experience Older children and teenagers valued the opportunity to be treated like adults and given autonomy. They felt confident and empowered in making healthy food and exercise choices when they were able to make the choice themselves rather than have it imposed by a parent. They saw their own weight management as a shared responsibility between their parents, the program staff, but mostly themselves.	Banks 2014 Jones 2021 Lucas 2014 Pallan 2019 Twiddy 2012 Visram 2013	"I've started eating more, like, fruit and vegetables. I've started eating more, like, pasta and stuff that's healthy for me. So that's good. [.. .] I'm more active now than I was because I've been going out with my mates all the time." Young person "Well, definitely at, at school, and in terms of what they eat between meals and things, I think they have sole control over it. Over, over the meals themselves the parents are the ones that buy the food. Yeah. So, so I think they, they, it's going to be shared responsibility between the … it can't be all one, or all the other" WM staff member	Downgraded once for minor concerns about coherence	Moderate
Stigma as a barrier to uptake was overwhelmingly experienced by children rather than adults Some children found the prospect and experience of weight management to be embarrassing, especially the exercise	Banks 2014 Jones 2021 Lucas 2014 Newson 2013 Pallan 2019 Povey 2020	"she's at an age where she doesn't want to say to her friends 'oh I have to go to the clinic where I see someone about my weight'" Parent	No downgrading required	High

Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
components for those who were self-conscious about their bodies. Some reported that staff put pressure on them to participate in a way that felt stigmatising. There were concerns that weight management programs were a 'fat kids club' which they didn't want to be associated with. Some felt they did not belong with children who were more overweight than them. Some also worried that participation would single them out as different, for example having to eat different food or leave school early for weight management sessions. Children who were otherwise happy to take part felt the need to hide their participation or abandon their weight management behaviours around their friends.	Twiddy 2012 Visram 2013	"You will get some, some young people that, especially if they've got, like, they're really self-conscious, they wouldn't want to be in a group situation." Stakeholder		
Barriers and facilitators arising from circumstances and opportunity to participate				
Weight management services and opportunities to exercise and eat healthily were not always available to families, which made them reluctant to commit to accepting a referral. Some participants stated that healthy food options were difficult to access where they lived, whereas unhealthy food was abundant. Parents commented that there was too much temptation for their children, and it was impossible for parents to control the environment to remove this. They were concerned that it would not be worth joining a weight management program when there were barriers to implementing the advice and engaging with the behaviours it required.	Cyril 2016/2017 Lucas 2014 Newson 2013 Pallan 2019 Renzaho 2018 Visram 2013	"I don't really feel too safe going out on my own just doing stuff especially on a bike because I have a BMX but I don't want it to get robbed" Child "I was really cross because I was taking him to football club, but because of how he is they just left him twisting round in the pitch on his own" Parent "But, the temptation in this area is that we have cheap takeaways, and they are very tempting. You know, you think, 'Why cook?' And, you know, we're tempted to, you know, just, 'Oh, it's an easier option. We'll get chicken and chips. It's	No downgrading required	High

Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
Likewise, there were also often limited opportunities to exercise. Many parents were concerned about their child's safety and considered their local area too dangerous to exercise outside. Others reported that children's sports clubs were aimed at fit and sporty kids, so their children weren't catered for.		only £1.50.' So, you know, that's why the weight is creeping up with children" Parent		
Patients reported many circumstances that restricted their ability to commit to a weight management program Many families had multiple other competing priorities from childcare, work, illness, social commitments etc. There were often a greater burden on low socioeconomic status households and single parents. Some families could not find time to attend weight management programs and fulfil the required lifestyle changes, as they had many other time commitments. Changes in circumstances meant that some families could only attend irregularly, which made it hard to keep momentum. They found the lack of consistency decreased their child's motivation. For these reasons they were reluctant to take up weight management.	Banks 2014 Cyril 2017 Lucas 2014 Newson 2013 Pallan 2019 Povey 2020 Twiddy 2012	"He [exercise practitioner] does come up with some unrealistic things which I did tell him about. I said, 'You can't', because I hadn't long split up with my husband and that, and at the time, money was quite short" Parent "it is also being sensitive to how much else they've got going on, and if you're working with deprived families who've got parents working two jobs each and three or four children to manage, it's difficult" Stakeholder	No downgrading required	High
The challenge of balancing the needs of a whole family, especially when there were other children, made it harder for families to commit to weight management for their child.	Cyril 2017a Lucas 2014 Pallan 2019 Povey 2020	"after school they go to school and Mosque, all Muslims, even Indian or Bengali or Pakistani, every Asian, children attends Mosque after school"	No downgrading required	High

Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
Parents found it difficult to allocate the time needed for weight management to one child at the expense of their siblings. Some siblings attended weight management sessions with the patient. Many families had a schedule of after school activities for each of their children, which was difficult to add to or change without affecting all. For some families it is the norm for children to attend a religious group after school every day.		Parent "My daughter says to me that 'mamma I want to go for exercise'... I told her that I couldn't go with her because I have other children. I have small children, my youngest is 2 years old." Parent		
Barriers and facilitators arising from the structure of weight management programs				
Timing, location and cost had a substantial influence on uptake and attendance Having sessions held at a time and place that were convenient for patients to attend regularly was a critical factor in families' commitment. There were mixed opinions over whether this should be during or outside of school. There were also concerns from parents about a lack of transport options and the safety of the area where the sessions were hosted. Cost was also an important consideration, especially amongst patients from low socioeconomic backgrounds.	Banks 2014 Cyril 2016/2017 Gillespie 2015 Jones 2021 Lucas 2014 Newson 2013 Pallan 2019 Povey 2020 Renzaho 2018 Visram 2013	"'It's about being free, it's about easy access, it's about being able to get there." Stakeholder "I probably wouldn't be able to do it on the buses and walking and things 'cause (because) by the time you add it up it takes hours." Parent "Even if it was close, we wouldn't walk (be)cause it's not safe in the dark and in the summer it's not fair (be)cause there are gangs of kids and that worries us" Parent	No downgrading required	High
The content and approach of the program affected patients' willingness to take up weight management	Banks 2014 Cyril 2016/2017 Jones 2021	"[Mother] felt there was a psychological issue as to why [patient] eats but felt that this couldn't be tackled in the clinic. [Mother] has previously	Downgraded once for minor concerns about methodological	Moderate

Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
Both parents and children preferred interactive sessions to classroom based. Parents valued a focus on physical activity for their children. When parents were involved in the program however, the content they wanted most was advice on nutrition. They saw feeding their child the right foods as the parents role in weight management and were eager to learn more about this. Some parents also wanted more clinical help for their child's weight such as appetite suppressants, which were not provided by any program. They felt less inclined to take part without this component being available. Neither did any of the programs provide counselling services to the children. Many parents thought this would be a valuable addition to help their child manage the emotional impact of being seen as overweight.	Pallan 2019 Renzaho 2018	asked about a counselling aspect to the clinic and felt this was missing." Stakeholder "She likes the tinned fruit and I would just go and get her just tinned fruit, but I was told get it… in juice because the syrup is ... you know things like that has helped." Parent	limitations and coherence	
Parents felt strongly that diets are not appropriate for children and preferred a different focus. They were resistant to accepting weight management programs that were diet based. Programs that approached weight management as holistic lifestyle change were praised, whereas programs with diet group components such as regular 'weigh ins' were criticised as stigmatising and inappropriate. They worried that calorie	Banks 2014 Gillespie 2015 Jones 2021 Lucas 2014 Newson 2013 Pallan 2019 Povey 2020 Twiddy 2012 Visram 2013	"I don't think it was necessarily about losing weight, although that would have been a bonus. I think it was more about her confidence" Parent "I know it was weigh in and there was less time but with the kids I think if they approach them a bit differently because nowadays kids are very, very sensitive and every sort of thing just sticks in their head"	Downgraded once for minor concerns about coherence	Moderate

Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
counting could become an unhealthy habit leading to eating disorders. Parents believed that programs for children should focus on making it fun and engaging for them, with activities that don't focus on weight. They felt that the weight loss aspects such as controlling diet and measuring weight should be a concern only for the parents. Many parents viewed weight loss as a byproduct of the program, rather than the main aim of increasing self-esteem and activity levels.		Parent		
Providers and stakeholders prioritised convenience, value and cost in commissioning services, as they felt these were the most efficient ways to extend services to as many people as possible. There was discussion of what outcomes would indicate good value and many commented that there needed to be longer term continuity of services for it to be fully worthwhile. The ease of setting up services and the capacity for multidisciplinary working were important considerations in choosing a weight management program.	Cyril 2016 Lucas 2014 Visram 2013	"we cannot work in silos and not know what the other services are doing. . . we need a centralised approach with clear roles and responsibilities. ." Stakeholder "it really comes down to three…key questions for…all commissioners and providers of obesity services .. .what outcome, over what period of time, for what unit cost...." Stakeholder "with all the resources … they provide … MEND was kind of…already planned, already set up ready, it was easier for us .. than looking to set up a child weight management project ourselves because we just didn't have time" Stakeholder	No downgrading required	High
Barriers and facilitators arising from social factors affecting participation				

Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
Good rapport with the staff delivering the program was important in encouraging families to take up weight management The relationship between staff and participants was often cited as a key factor in patients feeling comfortable and motivated to attend weight management. It was important that staff appeared non-judgemental and took the time to understand individual children. Many preferred to attend sessions lead by people from similar cultural and SES backgrounds to them. Children tended to prefer younger staff whom they could relate to, but parents had doubts about the experience and competence of younger program leaders.	Banks 2014 Cyril 2016/2017 Gillespie 2015 Jones 2021 Lucas 2014 Pallan 2019 Renzaho 2018 Twiddy 2012 Visram 2013	"He [exercise practitioner] was so inspirational. I mean they couldn't wait to get home and start doing exercises." Parent "Yeah, I think there's so much judgement around being overweight in the health professional world, you know? 'Cause not all dietitians' are non-judgemental about overweight children. And when you get a parent who is so defensive and being so full of barriers my judgement of that parent is horrendous. So I think it is a very skilled area to work in because you have got to be non-judgemental at all times, even when you're told ridiculous things" WM staff member	No downgrading required	High
Fitting in with the group and feeling socially comfortable were very important to parents and children, which was a strong influence on whether they took up and adhered to weight management. Both parents and children valued being able to feel like they were 'all in it together' with the other families in the group. Parents appreciated the chance to share ideas and experiences. Children, particularly teenagers, strongly expressed that they wanted to be among their own age group and were uncomfortable in	Banks 2014 Jones 2021 Lucas 2014 Newson 2013 Pallan 2019 Povey 2020 Visram 2013	"I was quite excited to see other people who's on the same plan as me. It made me feel a bit better" Child "They told us about the activities, but it was little kids' games that you wouldn't want to play" Child "I think this is a really good idea like when you go to a talk then you get to hear the views of others and that has an effect on you" Parent	No downgrading required	High

Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
programs that catered for younger children, so were unwilling to take up programs .				
Family and community support outside of the program also had a substantial impact on whether families took up and adhered to weight management Encouragement from family, friends and the wider community including GPs was a strong facilitator to uptake and to maintaining momentum and motivation throughout the program. Some parents found other family members did not agree that their child should take part in weight management and were unwilling to support them with eating healthy food or doing exercise, which made it harder to incorporate these habits consistently for their children.	Cyril 2017 Jones 2021 Lucas 2014 Newson 2013 Pallan 2019 Renzaho 2018 Twiddy 2012 Visram 2013	"But, you know, we do really try and make a bigger effort. Like I say, we're going as a family often to the gym and things like that. And we've all got bikes now. I never used to have a bike." Parent "…. My husband's mother does not like advice from nurses…she says, all that for sick people in hospital not for our family… she tells us to cook her recipes" Parent	No downgrading required	High
Parental commitment and engagement were the most influential social factors in adherence Program staff emphasised the importance of parents modelling the healthy behaviours they wanted their child to adopt. Some staff believed the most effective way to approach child weight management is to educate and motivate the parents to change, rather than the child, so facilitating their uptake may have the greatest impact.	Cyril 2016/2017 Jones 2021 Lucas 2014 Newson 2013 Pallan 2019 Renzaho 2018 Twiddy 2012	"we cannot blame these parents if they don't know about healthy eating, and end up as poor role models for their children... ultimately the message needs to be followed" "I think that's key… because if you don't change the parents, then nothing changes at home…" WM staff member "I feel bad, they like [fizzy drink], right, so just drink a bottle and give it to them, I say 'look hide it'" Parent	No downgrading required	High

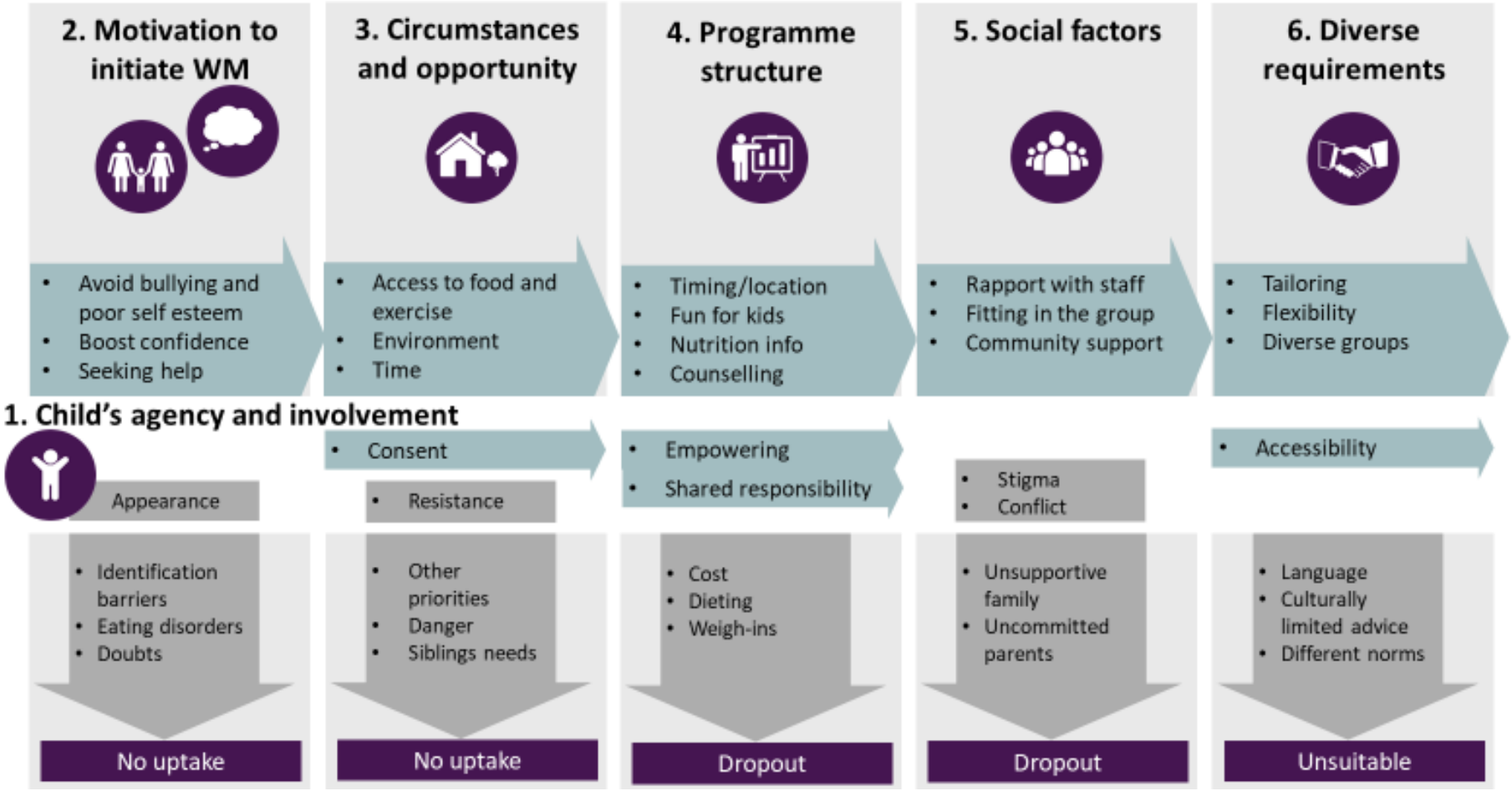
Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
Where parents disagreed on the importance of weight management, there were reports of one parent undermining the other's efforts.				
Barriers and facilitators arising from diverse community needs				
Cultural norms presented specific barriers for uptake and engagement of BAME families Some families considered obesity to be a western problem that was not relevant to them. In some cultures, overweight is considered to be healthy for children and underweight is a greater concern. In others, there is a feeling that prevention is unnecessary and that healthcare is only needed if and when a problem occurs. There were also concerns about gender and dress for young people. Some girls were less comfortable with male staff and with sports that required specific clothing/uniforms	.Cyril 2016/2017 Lucas 2014 Renzaho 2018	".in our families, we give children enough food so that they grow chubby and bonny to become healthy people... if children are thin then they fall sick and not grow properly, little bit overweight is no problem." Indian parent "…the girls don't know how to play all these western games…they feel scared and shy to ask male teachers how to use these sports equipment and articles for playing…they feel better if women teachers are there…" Turkish parent	Downgraded once for minor concerns about methodological limitations	Moderate
Language and understanding presented barriers to program delivery in many cases, which restricted the range of people who could take part in the program. Language barriers were a significant problem for some non-native English speaking parents, but their children rarely had difficulty with language. Having their children or multi-lingual staff members translating the program content was highly valued.	Cyril 2016/2017 Lucas 2014 Pallan 2019 Renzaho 2018	". . .CALD parents cannot understand the 'why' behind fliers or posters, why do they need to eat more fruits and vegetables, or do exercises everyday. . .they want someone to explain and convince them what are the reasons for changing their food habits and food choices." WM staff member "Someone rang on my home phone speaking English & inviting me to attend the programme but I was asking her if I needed to take my daughter with me, because my English is not very good; but she could not understand what I	No downgrading required	High

Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
Staff commented that literacy and knowledge gaps also presented challenges. Many newly arrived immigrants found that they had different knowledge gaps to their UK or Australian born contemporaries.		was trying to ask her. I was asking if I needed to take my daughter with me. She couldn't understand me so she said she will call me back but we never heard from her again." Bangladeshi parent (in Bengali)		
Cultural variations in dietary practices need to be taken into account when delivering weight management, in order to encourage uptake from all communities. Many participants felt the dietary practices from their culture were not accommodated by weight management programs. For example, South Asian participants noted that calorie counts were not provided for the types of meals they most frequently cooked. Some parents were reluctant to change the food they made for their families as they felt it was important for their children to grow up with traditional food to maintain their cultural identity.	Cyril 2016/2017 Lucas 2014 Pallan 2019 Renzaho 2018	". If I'm making a curry – it's really hard to – how many calories – you know, handsize or, you know, it's hard – in reality, it's really, really hard. Maybe do a cooking session; say, 'This is a portion.' You know. 'It's right.' Maybe do it that way…or even, like, give recipes on maybe even healthier Asian food, rather than – fair enough, do the English food, as well. OK, we have it once a week or whatever. And that's ovenly – oven-made or it's grilled. But help us with the type of food that we're eating." Pakistani parent	No downgrading required	High
It is important to strike the right balance of representation and tailoring towards the communities targeted by the weight management program, in order to encourage uptake from all communities. Many families were more likely to attend a program with a flexible structure that could be adapted to suit the individual child, including, for example, either 1-to-1 or groups sessions.	Banks 2014 Cyril 2016/2017 Jones 2021 Lucas 2014 Pallan 2019 Visram 2013	"Community driven model is welcoming and supportive, depending on the service provider model alone is not working. . . involving community members will improve the community ownership of these programs." Stakeholder "It was very flexible of how often we went to see [the dietician] and everything like that. You know, we agreed together so there was no .. .	No downgrading required	High

Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
Many parents expressed a desire to have programs tailored to their culture, but doubted the ability of services to do this competently. They felt it was important for the community to have ownership over their services rather than have it designed by outsiders. Some BAME families had felt unwelcome or out of place in majority white weight management groups. In more diverse groups, families felt that mixing with different types of people was an asset and improved their experiences.		there was nothing cast in stone that 'this is how it happens'. There was nothing regimental about it or anything. It was very flexible around us, which is really good" Parent "There was different community families, and friendly. Indian, Bengali, English, Sikh, and children's mix up, and share their experiences" Pakistani parent		

See appendix G for full GRADE-CERQual tables.

Theme map showing the barriers (grey) and facilitators (green) towards accepting a referral to overweight or obesity interventions. The 5 pillars represent influences on the family, with the child's agency and involvement cutting across and adding considerations to all themes.



1.1.7 Economic evidence

1.1.7.1 Included studies

A combined search was conducted for economic evidence on identification and uptake in children, young people and adults. This search retrieved 444 studies. Based on title and abstract screening, all of the studies were excluded for this question as none of the studies were applicable to the review question. Thus, the review for this question does not include any study from the existing literature.

1.1.7.2 Excluded studies

All studies were excluded in the title and abstract screening phase. Hence no studies excluded in the full-text review.

1.1.8 Economic model

This question was not prioritised for economic modelling.

1.1.8 Unit Costs

Not applicable

1.1.9 The committee's discussion and interpretation of the evidence

The committee discussion of the quantitative evidence and qualitative evidence are presented together.

1.1.9.1. The outcomes that matter most

Quantitative evidence

During the development of the review protocol, the committee identified 5 primary outcomes:

- Uptake of weight management interventions
- Adherence and compliance with weight management intervention
- Completion of weight management interventions
- Health-related quality of life
- Attendance and drop-out rates for weight management interventions

Adverse events were identified as secondary outcomes, specifically eating disorders or disordered eating and stigma (including self-stigma and negative body image as defined in studies).

The consensus was that the uptake of weight management interventions was the most important outcome for decision making, as measured by uptake of referral or by attendance at interventions. The committee were also interested in adherence and completion of weight management programs. All included studies reported at least one of these outcomes.

Qualitative evidence

Qualitative outcomes were individual perspectives, experiences, values, beliefs, preferences, views and considerations that describe the barriers and facilitators to uptake of weight management. The protocol specified particular areas of interest:

- Thoughts, views and perceptions of individuals, parents or carers

- Thoughts of staff undertaking identification of children and young people who are living with overweight and obesity
- Issues relating to motivation
- Issues relating to accessibility
- Issues relating to infrastructure (resources, cost, location of services)
- Issues relating to education
- Issues relating to stigma
- Issues relating to self-esteem
- Issues relating to cultural sensitivities

The committee found themes that described issues relating to cultural sensitivities, stigma, accessibility and infrastructure were most useful to draw upon when considering recommendations.

1.1.9.2 The quality of the evidence

Quantitative evidence

The quantitative findings were assessed using GRADE. Of the 11 outcomes, 3 were moderate quality, 6 were low quality, and 2 were very low quality. There were no high quality evidence. The committee took this into account and decided not to recommend any of the interventions directly. They instead used the evidence to understand the types of intervention that can facilitate uptake.

Three of the 6 studies were UK based and set in existing weight management interventions or in schools, which added validity and relevance to their findings. The other 3 were conducted in the USA, so these results were less applicable due to the differences in culture and healthcare system.

Qualitative evidence

Confidence ratings given to the qualitative evidence using the GRADE-CERQUAL criteria were considered good. The majority of themes were rated as high confidence (16 themes). There were also 7 themes rated as moderate confidence. No themes were rated lower than moderate confidence.

Evidence from the UK was considered particularly important for qualitative analysis, so this evidence was prioritised. Studies conducted outside the UK were also available but as there was sufficient UK evidence, these studies were only included where they were able to supplement the UK evidence by covering a population group of interest for which there was no direct UK evidence.

The majority of qualitative studies were based in the UK (9 studies), so these were highly relevant. Two Australian studies were also included because they specifically addressed the views and experiences of people from minority family backgrounds, which the UK studies had not covered in detail.

1.1.9.3 Benefits and harms

The committee considered the recommendations on uptake of weight management interventions from within the context of the evidence presented on the effectiveness of these interventions in review question 2.3.

The evidence indicated that weight management interventions have very little effect on BMI in the long term, so the committee felt it was important to convey this information when making referrals to weight management interventions, so that families do not attend with false expectations. They recommended advising families that weight management may not

reduce BMI in the long term, but may help improve health and wellbeing and that they may need support with maintenance because overweight and obesity can be a long-term chronic relapsing health issue. They also added recommendations that encouraged referral and uptake of alternative services that may better suit the needs of children and young people with overweight or obesity, by addressing the determinants of overweight and obesity, such as social care, physiotherapy, medical assessments for any comorbidity, and early help services. There was particular emphasis on mental health support as this was a concern raised in the qualitative evidence.

Raising awareness of behavioural weight management interventions

As there was no directly new evidence on raising awareness, the committee considered the existing recommendations from PH47 and adapted them to cover a wider range of situations and mediums for raising awareness, as they decided by consensus that the principles of these recommendations still applied. They targeted these recommendations at three groups.

Firstly, recommendations for commissioners and programme providers, focused on giving children and young people and their families or carers information and on being familiar with obesity care pathways, the local need for interventions and the range of interventions that could be commissioned.

Secondly, recommendations for health and social care professionals, focused on awareness of who can refer people to interventions. The committee also added a new recommendation that online and social media resources should be made available and accessible for health professionals to share with families. This reflects the most common way people access this this type of information and the resources health professionals want to have at hand, according to committee consensus.

Thirdly, the committee made recommendations for integrated care boards outlining the ways they are able to raise awareness (for example, libraries, community venues), what information to raise awareness of (for example locally available interventions), and where to disseminate information about interventions.

When discussing referral to behavioural weight management interventions

As the evidence showed that children and young people and their families or carers were not always keen to accept a referral to weight management, the committee felt that it was primarily important to focus on the overall health benefits and psychosocial improvement of overweight and obesity management. They also felt it was important to discuss the health risks associated with a higher BMI and to advocate for the child's health in proportion to the impact their BMI may have. The committee believed that the higher the child's BMI, the greater the risks, so they felt it was important to convey this to families and carers to create motivation. They also updated recommendations on discussing what the interventions involve, what to expect, and previous experiences with obesity management interventions, but updated these recommendations to emphasise patient choice in the referral.

The qualitative evidence contained a variety of views on what types of intervention children and young people and their families and carers wanted and how these could be tailored to meet their needs. To address the need for tailoring the committee recommended that referrers identify interventions that are culturally appropriate or have been adapted for different cultural communities and dietary practices or are tailored to particular demographic groups. Children and young people expressed a particular desire for peer support in the interventions, so being amongst their own age group was an example of a particularly important concern when choosing an intervention. The committee also recommended that referrers should communicate the benefits of these interventions to the child, young person and their family or carers, and that this should include improvements in psychosocial outcomes such as sense of wellbeing, self-efficacy, self-esteem, and self-perception, as the

qualitative evidence shows that children and young people consider these to be important health benefits.

The committee chose to retain recommendations from PH47 on discussing previous or ongoing weight management attempts and on discussing personalised goals and the importance and wider potential benefits of making sustainable, long-term changes to dietary habits and physical activity levels. They added additional bullet points to discuss how both the child or young person and the family or carers feel about the intervention. They also added that there should be discussion of the wider health, social and cultural determinants and norms, and the impact of deviating from these to achieve better health, with a further recommendation to address these where possible before choosing a weight management intervention. These additions were added by consensus and from the understanding of these determinants gained from the qualitative evidence.

The committee noted that the evidence differed for how adults felt about declining referral to weight management interventions compared to how children and young people and their families or carers felt. While for adults it is most important to respect their choice not to be referred, for children it is more important to keep monitoring them as they grow and ensuring their growth follows a healthy trajectory. The committee recommended more options for follow up and raising the topic and referral again at subsequent opportunities than they did with adults, to ensure these needs were met. They also emphasised giving information on making changes to dietary behaviours and physical activity as a sustainable action outside of an intervention, as this can provide wider long term health benefits.

Providing ongoing support

Recommendations targeted at healthcare professionals on providing ongoing support were mostly adapted from existing recommendations on adherence in PH47 and updated using evidence from this review and from review 2.3. The committee emphasised the need for ongoing support from healthcare and other professionals, based on their experience and expertise in supporting children and young people through their path to adulthood. They agreed that it is important to continue to measure and monitor the child or young person's weight, because overweight and obesity can be a recurring issue and further support is needed if the child or young person's BMI begins to increase.

The committee added a recommendation that where possible, referrals should be made to interventions that can offer ongoing maintenance advice and support, because the evidence indicated that there is rarely a sustained changed in BMI once an intervention ended. The qualitative evidence also indicates that families wanted longer term support and found it harder to maintain changes once the intervention had ended.

Recommendations on monitoring the child or young person's weight were expanded upon to include using the information fed back from the intervention and offering follow up sessions. The committee retained recommendations on signposting to additional sources of support but updated the list of examples to be futureproofed. Recommendations on what to do if the child or young person's BMI centile begins to increase or the family feel they need additional support was updated to emphasise referral to other services that may better address the needs of the child or young person, and those of their family and carers as well as re-referral to overweight or obesity management.

The committee include' a recommendation to ensure that children and young people who had difficulties with engaging with an intervention where given support and the opportunity to be re-referred at a later date, as the qualitative evidence indicated that there are many barriers outside of the families control that make it difficult to engage with interventions (for example, other extracurricular commitments, scheduling, transport cost).

Safeguarding

Members of the committee highlighted the need for guidance on how to approach situations where weight or weight related comorbidities posed a significant risk of the child or young persons health such that it would be a safeguarding concern if left unaddressed. There was discussion around how to balance the importance of patient choice for the child or young person and their family or carers, against the duty of care to ensure that the child or young person's health is prioritised and protected. They drafted a recommendation highlighting the importance of offering additional support (referring to NG204) and emphasised using professional judgement to decide when to intervene.

1.1.9.4 Cost effectiveness and resource use

No studies were identified as relevant in the economic evidence review. The most likely impact of the recommendations would be a potential increase in the length of appointments for children and young people, as health professionals take additional time to discuss about the weight management strategies and deal with facilitators and barriers that affect the uptake. However, the cost impact related to increased appointment time is expected to be small. Additionally, any such increase in costs would be offset by downstream cost savings occurring as result of better health outcomes obtained through a reduction in the incidence of obesity-related disease. Therefore, the committee agreed that the resource impact of these recommendations is unlikely to be significant.

It was noted that the current financing of weight management programmes has the potential to exacerbate health inequalities, as weight management services may not be available in all areas – often times referred to as the 'post-code lottery' where one's ability to access services is dependent on the post-code they live in. Some of the weight management programmes (e.g. diet plans) are not included in the drug tariff so that patients need to pay out-of-pocket. It creates barriers for people to access weight management services and is likely to lead to inequalities for people from disadvantaged socioeconomic backgrounds.

1.1.9.5 Other factors the committee took into account

Equality impact assessment

- Ethnicity and family background: There were two qualitative studies on 'culturally and linguistically diverse communities', which highlighted the specific experiences of people from minority family backgrounds. The committee used this information to ensure that the recommendations emphasised the importance of well informed cultural tailoring in weight management interventions to make these accessible to children and young people and their parents and carers from a range of family backgrounds.
- Children and young people with disabilities, learning disabilities and neurodevelopmental disabilities. These factors were included in the list of the wider determinants and the context of overweight and obesity and central adiposity that was referred to throughout as an important consideration when addressing an individual child or young person.
- Younger and older groups: The evidence covered children and young people from age 2 to 18 and sufficient evidence was found for all age groups to be represented. Therefore it is unlikely that any group will be disadvantaged by the recommendations.
- Looked after children and young people: Family circumstances were listed among the wider determinants and the context of overweight and obesity and central adiposity that was referred to throughout as an important consideration when addressing an individual child of young person.

1.1.10 Recommendations supported by this evidence review

[To be completed once editorially complete version of the guideline is available for submission to NICE for quality assurance, consultation and publication]

This evidence review supports recommendations [add recommendation numbers] and the research recommendation on [add topic of research recommendation]. Other evidence supporting these recommendations can be found in the evidence reviews on [add topic of evidence review and review letter (A, B, C, etc)]. OR No recommendations were made from this evidence review. Amend as needed

1.1.11 References – included studies

1.1.11.1 Effectiveness

Armstrong, Sarah, Mendelsohn, Alan, Bennett, Gary et al. (2018) Texting motivational interviewing: A randomized controlled trial of motivational interviewing text messages designed to augment childhood obesity treatment. Childhood Obesity 14(1): 4-10

Bean, M. K, Thornton, L. M, Jeffers, A. J et al. (2019) Impact of motivational interviewing on engagement in a parent-exclusive paediatric obesity intervention: Randomized controlled trial of NOURISH+MI. Pediatric Obesity 14(4): 1-9

Bryant, Maria, Burton, Wendy, Collinson, Michelle et al. (2021) A cluster RCT and process evaluation of an implementation optimisation intervention to promote parental engagement enrolment and attendance in a childhood obesity prevention programme: results of the Optimising Family Engagement in HENRY (OFTEN) trial. Trials 22(1): 773

Naar-King, Sylvie, Ellis, Deborah A, Idalski Carcone, April et al. (2016) Sequential Multiple Assignment Randomized Trial (SMART) to Construct Weight Loss Interventions for African American Adolescents. Journal of clinical child and adolescent psychology : the official journal for the Society of Clinical Child and Adolescent Psychology, American Psychological Association, Division 53 45(4): 428-41

Pallan, Miranda, Griffin, Tania, Hurley, Kiya L et al. (2019) Cultural adaptation of an existing children's weight management programme: the CHANGE intervention and feasibility RCT. Health technology assessment (Winchester, England) 23(33): 1-166

Sallis, A, Porter, L, Tan, K et al. (2019) Improving child weight management uptake through enhanced National Child Measurement Programme parental feedback letters: A randomised controlled trial. Preventive medicine 121: 128-135

1.1.11.2 Qualitative evidence

Banks, Jonathan, Cramer, Helen, Sharp, Deborah J et al. (2014) Identifying families' reasons for engaging or not engaging with childhood obesity services: A qualitative study. Journal of child health care : for professionals working with children in the hospital and community 18(2): 101-10

Cyril, Sheila, Green, Julie, Nicholson, Jan M et al. (2016) Exploring Service Providers' Perspectives in Improving Childhood Obesity Prevention among CALD Communities in Victoria, Australia. PloS one 11(10): e0162184

Cyril, Sheila, Nicholson, Jan M, Agho, Kingsley et al. (2017) Barriers and facilitators to childhood obesity prevention among culturally and linguistically diverse (CALD) communities in Victoria, Australia. Australian and New Zealand journal of public health 41(3): 287-293

Cyril, Sheila, Polonsky, Michael, Green, Julie et al. (2017) Readiness of communities to engage with childhood obesity prevention initiatives in disadvantaged areas of Victoria, Australia. Australian health review : a publication of the Australian Hospital Association 41(3): 297-307

Gillespie, J, Midmore, C, Hoeflich, J et al. (2015) Parents as the start of the solution: a social marketing approach to understanding triggers and barriers to entering a childhood weight management service. Journal of human nutrition and dietetics : the official journal of the British Dietetic Association 28suppl1: 83-92

Jones, Helen M, Oyebode, Oyinlola, Melendez-Torres, G J et al. (2021) Professional stakeholder's views of adolescent weight management programmes: a qualitative study. BMC research notes 14(1): 125

Lucas, Patricia J, Curtis-Tyler, Katherine, Arai, Lisa et al. (2014) What works in practice: user and provider perspectives on the acceptability, affordability, implementation, and impact of a family-based intervention for child overweight and obesity delivered at scale. BMC public health 14: 614

Newson, Lisa, Povey, Rachel, Casson, Abigail et al. (2013) The experiences and understandings of obesity: families' decisions to attend a childhood obesity intervention. Psychology & health 28(11): 1287-305

Pallan, Miranda, Griffin, Tania, Hurley, Kiya et al. (2019) Cultural adaptation of a children's weight management programme: Child weigHt mANaGement for Ethnically diverse communities (CHANGE) study. BMC public health 19(1): 848

Povey, R C, Cowap, L J, Scholtens, K et al. (2020) 'She's not obese, she's a normal 5-year-old and she keeps up with the other kids': families' reasons for not attending a family-based obesity management programme. Perspectives in public health 140(3): 148-152

Renzaho, Andre M N, Green, Julie, Smith, Ben J et al. (2018) Exploring Factors Influencing Childhood Obesity Prevention Among Migrant Communities in Victoria, Australia: A Qualitative Study. Journal of immigrant and minority health 20(4): 865-883

Twiddy, Maureen, Wilson, Inga, Bryant, Maria et al. (2012) Lessons learned from a family-focused weight management intervention for obese and overweight children. Public health nutrition 15(7): 1310-7

Visram, S; Hall, T D; Geddes, L (2013) Getting the balance right: qualitative evaluation of a holistic weight management intervention to address childhood obesity. Journal of public health (Oxford, England) 35(2): 246-54

1.1.11.3 Economic

No economic studies were included for this question.

2 Increasing uptake of weight management services in adults

2.1 Review question

a) What approaches are effective and cost-effective in increasing uptake of weight management services in adults, particularly those in black, Asian and minority ethnic groups?

b) What are the barriers and facilitators to increasing uptake of weight management services in adults, particularly those in black, Asian and minority ethnic groups?

2.1.1 Introduction

Central adiposity is a risk factor for development of CVD, type 2 diabetes, hypertension, dyslipidaemia or some type of cancer in adults. This is particularly important for black, Asian and other minority groups whose risk of conditions such type 2 diabetes is increased at a lower BMI and waist circumference than the general population.

Currently, people who are living with overweight or obesity are often referred to weight management interventions. Whether they accept this referral and go on to weight management interventions depends on barriers and facilitators. Interventions may be able to address these and increase uptake of services. Uptake is defined as accepting the referral, attending sessions, and adhering to the program.

2.1.2 Summary of the protocol

Table 13: PICO table for effectiveness of approaches for increasing uptake of weight management services in adults

PICO Table	
Population	• Adults 18 years and over. Where possible, evidence will be stratified by ethnicity: ○ White ○ Black African/ Caribbean ○ Asian (South Asian, Chinese, any other Asian background) ○ Other ethnic groups (Arab, any other ethnic group) ○ Multiple/mixed ethnic group • Staff undertaking identification of adults with overweight or obesity and engaging them in weight management services.
Intervention	**Methods for uptake to weight management services** • Brief opportunistic behavioural interventions e.g., offer of and referral to weight management intervention and follow-up by GP • Incentives (e.g., GP incentives, patient/ participant incentives) • Motivational interview with a focus on increasing uptake to WM services • Interventions to provide information about WM services/ prompt uptake and attendance to WM service including: ○ online campaigns including social media and apps (digital interventions) ○ radio campaigns ○ letters by mail ○ printed materials (e.g. leaflets) ○ multi-media campaigns ○ TV and online advertising (including pop up adverts and use of culturally specific TV, social media and radio channels)

	○ Posters ○ online information exchange- fill in questionnaire and get information • Educational and engagement interventions (delivery methods): ○ face-to-face sessions ○ telephone conversations ○ social media with responses ○ interactive multi-media interventions (e.g. case studies on GP websites; e-learning) ○ interactive community events (e.g. talks with question and answer sessions talks in religious settings) peer education (carried out by a community member who shares similar life experiences to the community they are working with) ○ lay education (carried out by community members working in a non- professional capacity) ○ multicomponent interventions targeting education
Comparator	• No intervention/usual care • Comparison of interventions
Outcomes	Primary outcomes • Initial uptake of weight management interventions • Adherence and compliance with weight management intervention • Completion of weight management interventions • Health-related quality of life • Attendance and drop-out rates for weight management interventions Secondary outcomes • Adverse events: ○ Eating disorders or disordered eating ○ Stigma (including self-stigma and negative body image as defined in studies)

Table 14: SPIDER table for barriers and facilitators for increasing uptake of weight management services in adults

SPIDER Table	
Sample	• Adults 18 years and over. Where possible, evidence will be stratified by ethnicity: ○ White ○ Black African/ Caribbean ○ Asian (South Asian, Chinese, any other Asian background) ○ Other ethnic groups (Arab, any other ethnic group) ○ Multiple/mixed ethnic group • Staff undertaking identification of adults with overweight or obesity and engaging them in weight management services.
Phenomenon of interest	Barriers and facilitators to the uptake of weight management services in people identified as overweight or obese • Thoughts, views and perceptions of individuals, carers or staff • Thoughts of staff undertaking identification of people who are living with overweight of obesity • Issues relating to motivation • Issues relating to accessibility • Issues relating to infrastructure (resources, cost, location of services) • Issues relating to education • Issues relating to stigma • Issues relating to self-esteem • Issues relating to cultural sensitivities

Design	• Systematic reviews of included study designs • Qualitative studies that collect data from focus groups and interviews. • Qualitative studies that collect data from open-ended questions from questionnaires • Mixed method study designs (qualitative evidence that matches the above study designs only)
Evaluation	Thematic synthesis
Research type	Qualitative and mixed methods

2.1.3 Methods and process

This evidence review was developed using the methods and process described in Developing NICE guidelines: the manual. Methods specific to this review question are described in the review protocol in appendix A..

Declarations of interest were recorded according to NICE's conflicts of interest policy.

2.1.4 Effectiveness and Qualitative evidence

2.1.4.1 Included studies

A combined search was conducted for the review questions on identification and uptake in children, young people and adults. The search strategy is shown in.appendix C. A total of 19,477 studies were identified in the search which explored both quantitative and qualitative evidence. The search was re-run in April 2023 to find newly published references prior to consultation, so an additional 1,630 articles were screened as part of this updated search. The evidence selection process Is shown in the PRISMA diagram in appendix D.

Quantitative evidence

Following title and abstract screening, 75 studies were identified as being potentially relevant in adults. These studies were reviewed at full text against the inclusion criteria as described in review protocol (Appendix A). Overall, 8 studies were included; 7 RCTs and 1 cluster RCT.

Qualitative evidence

Following title and abstract screening, 94 studies were identified as being potentially relevant. These studies were reviewed at full text against the inclusion criteria as described in review protocol (Appendix A). Overall, 8 studies were included which used semi-structured interviews/ focus groups. All 8 studies were conducted in the UK, so no further evidence from other countries was considered.

See appendix E for evidence tables and the reference list in .section 1.2.13 For information on included studies in children and young people, see section 1.1.4.

2.1.4.2 Excluded studies

See appendix J for the list of studies excluded at full-text screening with reasons for their exclusion.

2.1.5 Summary of studies included in the effectiveness and qualitative evidence

Quantitative Evidence

Table 15: Quantitative evidence included in the review

Study and study design	Country	Setting	Population and number of participants	Intervention	Comparator	Follow-up	Outcomes
Aveyard 2016 RCT	UK	Primary care	1882 patients	Active referral to a weight management group (n=940)	Advice on weight loss (n=942)	12 months	• Enrolment in weight management program
Befort 2008 RCT	USA	Community health centre	43 African American patients	Behavioural weight loss program with motivational interviewing (n=20)	Behavioural weight loss program with health education (n=23)	16 weeks	• Attendance at weight management sessions • Engagement with weight management program
Heredia 2019 RCT	USA	Healthcare	168 patients	Health coaching (n=84)	Printed information materials (n=84)	6 months	• Enrolment in weight management program
McVay 2021 Cluster RCT	USA	Primary care	6 healthcare providers; 60 patients	Online mobilisation tool with tailored feedback (n=34)	Non-tailored comparator tool (n=26)	2 months and 6 months	• Enrolment in weight management program • Attendance at weight management sessions
Moss 2017 RCT	Canada	Gym	135 patients	Behavioural weight loss program with motivational interviewing (n=69)	Behavioural weight loss program with an attentional control (n=66)	6 months	• Attendance at weight management sessions
Tudor 2020 RCT	UK	GP practices	60 patients	Cost comparison for weight management compared to other costs (n=30)	Basic cost of weight management (n=30)	None	• Enrolment in weight management program

West 2016 RCT	USA	Online weight management	398	Online behavioural weight management program with motivational interviewing (n=199)	Online behavioural weight management program only (n=199)	6 months and 18 months	• Attendance at weight management sessions
West 2022 RCT	USA	Online weight management	418 patients	Online behavioural weight management program with financial incentives. (n=206)	Online behavioural weight management program only (n=212)	6 months, 12 months, and 18 months	• Attendance at weight management sessions

Qualitative Evidence

Table 16: Qualitative evidence included in the review

Study	Design and analysis	Country	Setting	Population and sample size	Objective
Coupe 2018	Semi structured interviews using behaviour change theory	UK	Health/community centres	• 11 service facilitators • 14 service users	To identify how best to tailor lifestyle interventions to low socio-economic populations to improve outcomes.
Elliott 2020	Semi structured interviews using Protection Motivation Theory	UK	Healthy Lifestyle Service	• 18 men	To explore men's experiences and expectations of mainstream weight loss services in the UK, following referral from a medical professional, particular in relation to barriers and motivators.
Holt 2021	Semi structured interviews using the Delphi method	UK	Bariatric clinics	• 17 healthcare providers • 14 patients	To explore the factors that influence patient access to weight management services
Hunt 2014	Focus Groups	UK	Football clubs	• 63 men	To explore who is attracted to FFIT and why overweight/obese men choose to take part

Study	Design and analysis	Country	Setting	Population and sample size	Objective
Jolly 2020	Focus Groups and interviews using typology of cultural adaptations	UK	Urban local authority areas with high proportion of BAME communities	• 17 fathers/grandfathers • 12 mothers	To adapt and test the Australian Healthy Dads, Healthy Kids programme for delivery to men in an ethnically Diverse, socioeconomically disadvantaged UK setting
McDonald 2020	Focus Groups and interviews	UK	Community	• 50 men	To report on recruitment to the men-only weight management feasibility trial, including the acceptability and feasibility of recruitment
Morrison 2014	Narrative interviews	UK	Dietitian clinic	• 20 patients • 4 family volunteers	To explore the reasons for enrolling, experiences of participating and reasons for remaining in a family-based, cluster randomised controlled trial of a dietitian-delivered lifestyle modification intervention aiming to reduce obesity in South Asians at high risk of developing diabetes.
Taylor 2020	Interviews and Questionnaires using behaviour change theory and techniques, including social cognitive theory	UK	NHS maternity unit	• 13 postnatal women	To understand the barriers and facilitators to uptake and retention of postnatal women randomised to a commercial group weight management intervention using the COM-B (capability, opportunity, motivation and behaviour) behaviour change model.

See appendix E for full evidence tables.

2.1.6 Summary of the effectiveness and qualitative evidence

Table 17: Active referral to weight management vs. weight advice

No. of studies	Sample size	Effect estimate (95% CI)	Quality	Interpretation of effect
Enrolment to weight management: assessed by number of patients who attended a session. MID = 0.8 to 1.25				
Aveyard 2016	1882	RR 4.63 (3.71 to 5.78)	Moderate	Favours active referral to weight management

Table 18: Health coaching vs. information

No. of studies	Sample size	Effect estimate (95% CI)	Quality	Interpretation of effect
Enrolment to weight management: assessed by number of patients enrolled at 6 month follow up. MID = 0.8 to 1.25				
Heredia 2019	168	RR 1.38 (0.89 to 2.11)	Very low	Could not differentiate between arms

Table 19: Tailored 'mobilisation' tool vs. non-tailored tool

No. of studies	Sample size	Effect estimate (95% CI)	Quality	Interpretation of effect
Enrolment to weight management: assessed by number of patients who initiated treatment. MID = 0.8 to 1.25				
McVay 2021	58	RR 1.76 (0.94 to 3.32)	Very low	Could not differentiate between arms
Attendance at weight management: assessed by number of patients who attended at least 8 sessions. MID = 0.8 to 1.25				
McVay 2021	58	RR 1.55 (0.6262 to 3.8989)	Very low	Could not differentiate between arms

Table 20: Cost comparison framing vs. basic cost

No. of studies	Sample size	Effect estimate (95% CI)	Quality	Interpretation of effect
Enrolment to weight management: assessed by number of patients who accepted a referral. MID = 0.8 to 1.25				
Tudor 2020	60	RR 0.87 (0.5 to 1.49)	Very low	Could not differentiate between arms

Table 21: Financial incentives + weight management vs. weight management only

No. of studies	Sample size	Effect estimate (95% CI)	Quality	Interpretation of effect
Attendance at weight management: assessed by number of sessions attended at 6 month follow-up (out of a maximum of 24). MID = 3.3				
West 2022	418	MD 2 (0.87 to 3.13)	Low	Favours financial incentives
Attendance at weight management: assessed by number of sessions attended at 12 month follow-up (out of a maximum of 6). MID = 1.1				
West 2022	418	MD 0.9 (0.51 to 1.29)	Very low	Could not differentiate between arms
Attendance at weight management: assessed by number of sessions attended at 18 month follow-up (out of a maximum of 6). MID = 1.05				
West 2022	418	MD 0.4 (0.01 to 0.79)	Low	Could not differentiate between arms

Table 22: Motivational interviewing + online weight management compared to online weight management only

No. of studies	Sample size	Effect estimate (95% CI)	Quality	Interpretation of effect
Attendance at weight management: assessed by number of sessions attended at 6 month follow-up (out of a maximum of 24). MID = 3.25				
West 2022	398	MD -0.6 (-1.9 to 0.7)	Low	Could not differentiate between arms
Attendance at weight management: assessed by number of sessions attended at 18 month follow-up (out of a maximum of 36 (full program)). MID = 4.75				

No. of studies	Sample size	Effect estimate (95% CI)	Quality	Interpretation of effect
West 2022	398	MD -0.3 (-2.2 to 1.6)	Low	Could not differentiate between arms

Table 23: Motivational interviewing + weight management vs. attentional control + weight management

No. of studies	Sample size	Effect estimate (95% CI)	Quality	Interpretation of effect
Attendance at weight management: assessed by number of weight management sessions missed (out of a maximum of 24). MID = 1.8				
Moss 2017	135	MD -0.36 (-1.66 to 0.94)	High	Could not differentiate between arms

Table 24: Motivational interviewing + weight management vs. health education + weight management

No. of studies	Sample size	Effect estimate (95% CI)	Quality	Interpretation of effect
Attendance at weight management: assessed by number of weight management sessions attended (out of a maximum of 16). MID = 2.35				
Befort 2008	43	MD -2.2 (-5.07 to 0.67)	Very low	Could not differentiate between arms
Engagement: Number of self-monitoring logs submitted (out of a maximum of 15). MID = 1.93				
Befort 2008	43	MD -0.78 (-3.45 to 1.89)	Very low	Could not differentiate between arms

See appendix G for full GRADE tables.

Qualitative Evidence

Table 25: Summary of the barriers and facilitators to uptake of weight management services in adults

Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
Barriers and facilitators affecting initial motivation				
Being invited to participate prompted many people to take up weight management, but pressure to take part was unwelcome Invitations were well received when they were private, gave time to consider and discuss the decision, and had the backing of a healthcare professional. Some patients felt a great deal of apprehension and anxiety at the prospect of signing up. Others were offended at being asked. There was a mistrust of people who actively recruited to weight management programs, as it was assumed there would be a catch. Some patients avoided or ignored invitations as a result.	Holt 2021 Hunt 2014 McDonald 2020 Taylor 2020	"I got a letter through the post, and it was, right okay, maybe this is the thing that's going to spark that motivation to actually do it, rather than just, maybe, think about it" "I just didnae want to be here. I felt very nervous aboot the whole thing, I was like, "Oh, this is terrible"… and I genuinely thought, "After I get out [of] here, I'm just going in the car, ignore the phone calls, ignore the emails, I'm not daen [doing] that"	Downgraded twice for moderate concerns about methodological limitations and minor concerns about relevance and coherence	Low
Most participants were motivated to take up weight management because they wanted to avoid the negative outcomes of overweight or obesity Some patients were aware that their weight was increasing and wanted to prevent this continuing. Others had developed mobility or health issues which their weight had contributed to, were at high risk of developing further problems such as diabetes, or were	Elliott 2020 Holt 2021 Hunt 2014 Morrison 2014 Taylor 2020	"My weight had gone up to 160kg … and my GP hinted at well you don't want to carry on putting on weight because you might have to have a gastric band and I said no, we're not going to go there" "I understand the causes of diabetes and how close I am to it, and the fatty liver that I've got,	Downgraded once for minor concerns about methodological limitations	Moderate

Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
concerned about needing surgery or other more invasive interventions in the future. There were also patients who had been denied surgery for unrelated medical issues due to their weight. They were concerned that these problems would continue to worsen unless they were able to lose enough weight to access the treatment they needed.		and if I don't do something about it now, the irreversible damage it's causing" "I have these problems with my knee and they said I've got to lose 10% of my body weight before they can think about operating"		
Some participants were motivated to take up weight management because they were seeking the benefits of weight loss These motivations were mostly based upon a responsibility to others: Some wanted to improve their health out of a duty to their loved ones and others wanted to provide a good example of healthy habits to their children. Patients who were referred to weight management often participated because they trusted their healthcare professional's advice	Elliott 2020 Hunt 2014 Jolly 2020 McDonald 2020 Morrison 2014 Taylor 2020	""I wouldn't have ever thought about going there [the weight loss group] and doing it without being referred," "Just to be a good example to the children and to be a good role model"	Downgraded once for minor concerns about relevance and minor concerns about coherence	Moderate
Many people were hesitant to take up weight management because they had doubts that the programs would be effective or suitable Some considered obesity to be inevitable and believed that weight loss cannot be sustained in the long term. Many had previous weight loss attempts that had resulted in more weight being regained than had been lost.	Coupe 2018 Elliott 2020 Holt 2021 Hunt 2014 Morrison 2014 Taylor 2020	"I've tried various diets, various things, and you seem to get to a stage where you're successful, then you fall back out the way again" "I was asked whether I would be comfortable with people cheering if I'd lost weight which made me think I had done something wrong rather than have a child! And also that the	No downgrading required	High

Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
Others felt that the weight management programs offered would not be suitable or appropriate for them. They were concerned that this unsuitability would make it difficult to sustain the motivation required to get results.		programme was targeted to teach me how to eat better—for example, by using olive oil and not eating ready meals—which I'd never done. So it sounded more like something for unhealthy people with bad habits, not new mums."		
Barriers and facilitators arising from circumstances and opportunity to participate				
Weight management services and opportunities to exercise and eat healthily were not always available to patients, which made them reluctant to commit to accepting a referral. The programs on offer varied in availability and quality, and healthcare providers often did not know where they could refer patients to. Some programs were complicated and patients had difficulty understanding and navigating the 'rules'. Some participants stated that healthy food options were difficult to access where they lived and were more expensive than unhealthy alternatives. Likewise, there was often limited opportunity to take part in sports or other exercise outside of gyms, which were considered expensive and intimidating. They felt that it would not be worth joining a weight management program when there were barriers to implementing the advice and engaging with the behaviours it required.	Coupe 2018 Holt 2021 Hunt 2014 Jolly 2020 Taylor 2020	"I don't want to go to a gym and see all the younger ones, the fitter ones – and you got a kinda, you look roon [around] and you think they're looking at ye [you]. "He's that fat he cannae [can't] even dae that." " "and they're talking about, if you like a burger, go buy a nice piece of steak and mince it, and she said "I can't afford steak, I've got 4 kids and limited amount of money, I just can't afford it,"	No downgrading required	High

Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
Patients reported many circumstances that restricted their ability to commit to a weight management program They had other competing priorities from childcare, work, illness, social commitments, breastfeeding etc. Many patients stated that they had no time to dedicate to weight management. They felt that a large time commitment was required both for attending sessions and for making the lifestyle changes required. For this reason they were reluctant to take up weight management.	Coupe 2018 Jolly 2020 Morrison 2014 Taylor 2020	", …childcare can sometimes be an issue… a lot of people have a lot of other things that are going on in their life that they need to prioritise over weight.…it's just life, I just think life just gets in the way for people" "I think the length of time will cause a problem to people because 90 minutes is an hour and a half. You've got to realise that you've got time to get there and time to get back."	Downgraded once for minor concerns about relevance	Moderate
Weight management was not accessible for some patients due to their physical or mental health Patients whose mobility was restricted worried that programs with an exercise component would be painful or dangerous for them to take part in. Some patients were concerned that they were too overweight for a mainstream program and that specialised help would be needed for them to lose weight safely.	Coupe 2018 Holt 2021 Hunt 2014 Taylor 2020	"I thought, "Och, no," you know? I've got arthritis, I'm taking these pills, I can hardly move, you know?"	Downgraded once for minor concerns about methodological limitations and minor concerns about coherence	Moderate
Barriers and facilitators arising from the structure of weight management programs				
The practicality of attending sessions affecting people's ability to take part: Timing, location and cost were major influences on this.	Coupe 2018 Jolly 2020 McDonald 2020	"That (group) was the only one within walking distance from my house…On most days; I didn't stay (after being weighed)…because of the inconvenient timing"	Downgraded once for moderate concerns about relevance	Moderate

Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
Having sessions held at a time and place that were convenient for patients to attend regularly was a critical factor in patients' commitment. Some felt it wasn't worth trying if they could not attend consistently. Cost was an important consideration, especially amongst patients from low socioeconomic backgrounds. While a free program was preferred by many, some felt that it might indicate a lack of value. Many patients were concerned with getting value for money in terms of program length and resources.	Morrison 2014 Taylor 2020	"Once the 12 weeks were up … that was the time when I (had) no money, so £5 a week ended up being quite a lot of money that I couldn't really afford …"		
The content and approach of the program affected patients' willingness to take up weight management Patients often praised programs that felt like a lifestyle change rather than a diet. Dieting was described in negative terms, so a focus on counting calories and monitoring weight was unappealing to many patients. Some patients also disliked feeling pressured to have lost weight at regular 'weigh in' sessions and feel demotivated when they did not lose enough. Patients whose program included educational elements sometimes felt like they were being lectured and patronised and found this approach off-putting, which forms a barrier to uptake.	Coupe 2018 Hunt 2014 Jolly 2020 Morrison 2014 Taylor 2020	"From day one, it was stressed in here, this is no a diet, it's not a diet" "I hated lectures with a passion. That lecturer standing in the front with that PowerPoint presentation, I actually wanted to die." "'Manual for Dads'. Erm it may be a bit sort of – not patronising's the word, may be a bit for suggesting, 'Oh, I know how to be a dad. You're telling me how to be a dad!'"	Downgraded once for minor concerns about relevance	Moderate
Some participants were more willing to accept referral to programs where the focus was not weight management directly	Hunt 2014 Jolly 2020	"The fact that I was coming to [Club05] stadium and going into the changing room and stuff like that… you felt kinda part of it…	Downgraded twice for moderate	Low

Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
Participants in one study gave detailed descriptions of how their love of football was the driving force behind their involvement in the program. While they had the desire to lose weight, they felt this would not have sustained their interest for long and were instead attending for the other benefits the program offered: 'behind the scenes' tours of the football club, spending time with other fans, feeling part of the football club community etc. Parents in Jolly 2020 also valued spending quality time with their kids during the program and saw weight loss as a by product of participation. These additional motivations to engage with weight management programs encouraged uptake of them.		Just the enjoyment of coming along and being involved in the club… even walking round [stadium], to me, was an exciting part of the Monday night" "I know it's for me and I also know they know it's for them too and it's for us together, you know, an activity together or time together"	concerns about methodological limitations and minor concerns about relevance and adequacy	
Barriers and facilitators arising from social factors affecting participation				
Good rapport with the staff delivering the program was important in encouraging patients to take up weight management Patients found it off-putting when staff seemed preachy or condescending. Many felt more comfortable having sessions lead by people from similar cultural and SES backgrounds to them. The relationship between staff and participants was often cited as a key factor in patients feeling comfortable and motivated to continue attending weight management sessions beyond the initial referral.	Coupe 2018 Holt 2021 Hunt 2014 Jolly 2020 Morrison 2014 Taylor 2020	"They're coming voluntarily, and if you start really, sort of, preaching to them, they're not going to come back anyway" "These guys [the coaches] are [Club], through and through. They are. They're us. They're the same as us… It's in the blood."	No downgrading required	High

Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
Fitting in with the group and feeling socially comfortable were very important to most patients, which was a strong influence on whether they took up and adhered to weight management. Patients valued being able to feel like they were 'all in it together' and could build camaraderie and provide mutual support. Being from similar backgrounds helped, but having interests in common and an accepting atmosphere were the most influential aspects. Patients were reluctant to take up referrals to programs where they felt they would not fit in.	Coupe 2018 Hunt 2014 Jolly 2020 McDonald 2020 Taylor 2020		Downgraded once for minor concerns about relevance	Moderate
Family and community support outside of the program also had a substantial impact on people's willingness to take up weight management. Encouragement from family, friends and the wider community including GPs was a strong facilitator to maintaining momentum and motivation. This was crucial for engagement with weight management programs beyond the initial uptake, so that participants adhered for long enough to gain a benefit from them. Some patients found their families unwilling to join in with eating healthy food or doing exercise, which made it harder to incorporate these habits. They felt that unhealthy behaviours were normalised among their friends and family so it was difficult to be the one doing things differently by engaging with weight management.	Coupe 2018 Hunt 2014 Jolly 2020 McDonald 2020 Taylor 2020	"It's a lot easier to do (follow the plan) on the nights he (husband) is working. I suppose he just likes certain food … he likes to have a proper meal." "I think the general culture within [city] can sometimes make it really difficult for people to lose weight, so there's lots of convenience food, there's lots of takeaways, it's very normal for people to eat takeaway food, convenience food, you know, it's very much the norm"	Downgraded once for minor concerns about relevance and coherence	Moderate

Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
Stigma was a prevalent concern before taking up weight management, but often subsided once patients began to participate. Patients who had negative experiences around weight management in the past were reluctant to expose themselves to similar situations where they may feel judged. For many others, simply showing an interest in weight management was embarrassing, as wanting to lose weight felt like admitting a weakness. This was particularly an issue for men who felt it was less acceptable for them to worry about their weight. These concerns were usually expressed when starting a weight management program, and were not cited as a reason for dropping out, indicating that stigma is less of an issue once a patient has committed and attended the program.	Coupe 2018 Elliott 2020 Holt 2021 Hunt 2014 Jolly 2020 McDonald 2020	"I think it's just the stigma that's attached to it for weight loss for men, they think it's more of a woman's thing to lose weight and worry about their weight" "I think even men approaching you, it would be in the back of their mind, it would be I'm advertising I'm overweight. You know, so I've not wanted to show myself off as a humpty dumpty"	No downgrading required	High
Barriers and facilitators arising from diverse community needs				
Gender was a highly influential factor in weight management program uptake and participation, especially for men. Men viewed most weight management environments as female dominated and so geared towards women by default, which would prevent them from even considering attending. Even in a male-targeted program,	Elliott 2020 Hunt 2014 Jolly 2020 McDonald 2020	"It's really tough walking into a female environment, like a weight loss environment, because you feel like… you shouldn't be there … like a women's club, that's what it's like … it doesn't feel good really" "Yeah, you see 'cos, it was not exactly industrial language, but there was the odd bit of comment and football slagging and stuff	Downgraded once for minor concerns about methodological limitations and relevance	Moderate

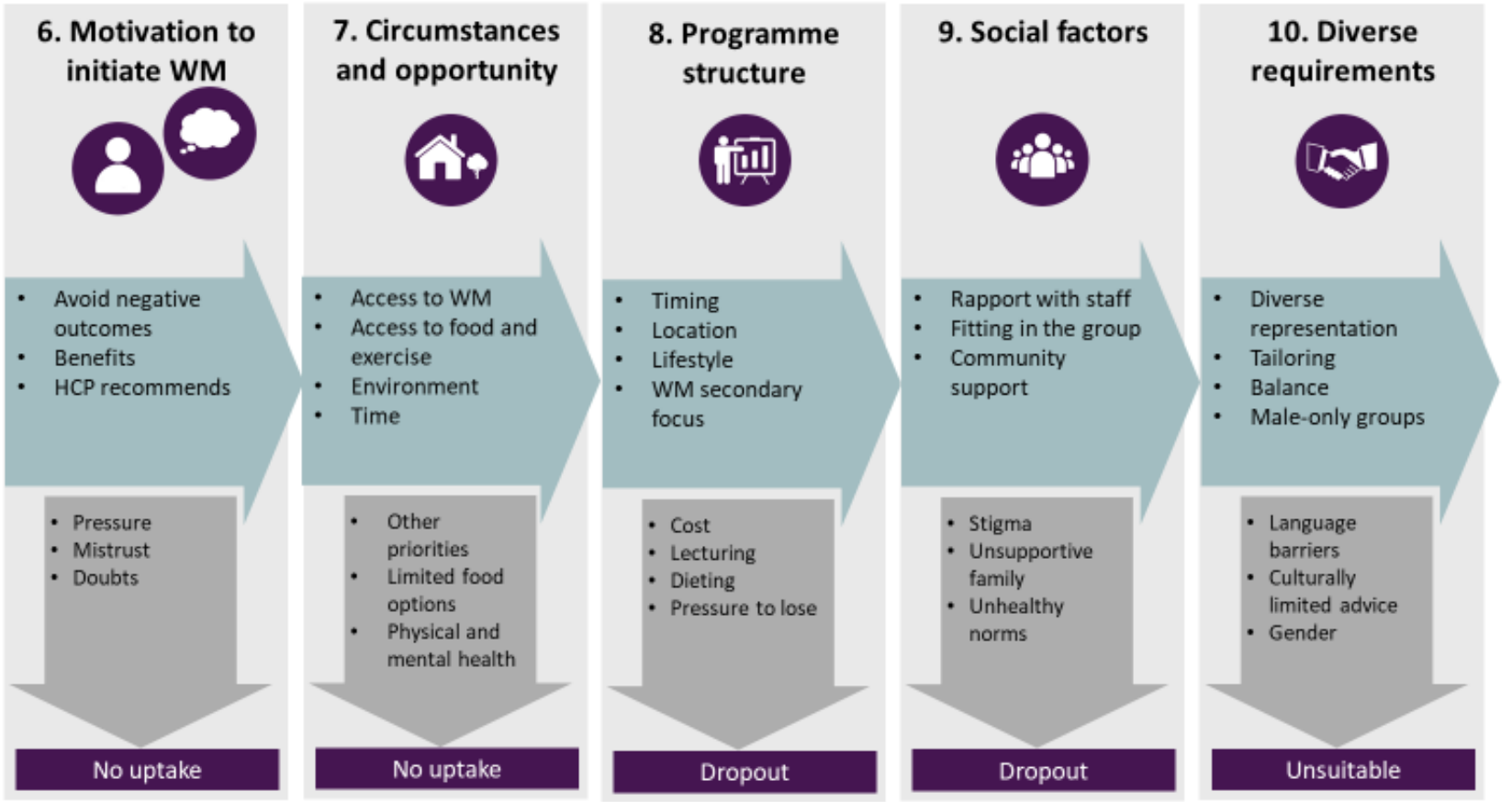
Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
some men felt embarrassed and reluctant to participate fully as talking about weight was considered unmanly. Most men preferred to attend male-only programs. They felt that the 'lad culture' and 'banter' that was emphasised in these programs destigmatised the experience. There were some concerns that this atmosphere would result in unnecessary competitiveness and one-upmanship, but most did not find this to be the case as the 'team spirit' aspect overcame it. Additionally, some cultures discourage men and women at certain ages from mixing in these types of environments. Some patients, both male and female, stated that they would be less comfortable in a mixed gender group.		like that. And yeah, we would laugh it off but somebody [?a woman] might not…. I thought it was easier to build up the camaraderie without ladies being there." "The big no-no is if you give an Asian lady, a Bangladeshi lady with a bunch of Bangladeshi guys . . . So you need probably a male with a male and definitely a female with a female."		
Language and understanding presented barriers to program delivery in many cases, which restricted the range of people who could take part in the program. Program staff described the language barriers they had faced when delivering weight management sessions. Some non-native English speakers valued the opportunity to speak to staff and group members in their own language when needed. Even for patients who spoke fluent English, the amount of written material and the jargon used in some of it	Coupe 2018 Jolly 2020 Morrison 2014 Taylor 2020	"It made me—like—relaxed when she was around because I didn't, sometimes I don't understand in English, then I could speak to her in Indian. But mostly I didn't want to speak to her in Indian." "See, the thing is, the language is quite complicated in general. Family strategies I'll understanding, 'To make the Trust paradigm work', what do they mean by, 'paradigm work'?. So, I would personally say it's too complicated for the Bangladeshi community to understand that."	No downgrading required	High

Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
made it harder to understand. They preferred the use of visual aids and plain language. Knowledge gaps and a range of educational backgrounds also made it difficult to deliver a program that is appropriate for all participants.				
Cultural variations in dietary practices need to be taken into account when delivering weight management, in order to encourage uptake from all communities. Many participants felt the dietary practices from their culture were not accommodated by weight management programs. For example, South Asian participants noted that calorie counts were not provided for the types of meals they most frequently cooked. This meant that they would have to calculate the calories in every ingredient separately, whereas a guidebook was provided for common British meals. In many cultures, food is a social activity with norms around feeding guests and accepting food when it is offered. Some patients felt that the programs did not acknowledge this and instead treated meals as an individual choice. Others commented on there being a heavy focus on cutting down alcohol consumption which was not relevant in a group where many did not drink for religious reasons. For Muslims, Ramadan presented a distinct set of challenges to their weight management routine, and	Coupe 2018 Jolly 2020 Morrison 2014 Taylor 2020	"It doesn't say anywhere how many calories are in a chapatti or how many calories are in a curry." "I know that if I lose more weight I'm going to put it back on at Ramadan because I just have to walk by food and it just adds onto my body, the fat just is invisible and it runs after you" "Once a week they have children all come so we feel that the food should be much nicer according to the tradition and also children don't like ordinary vegetables they fancy food like from McDonald's so just to compete with that kind of food we try to make our old Indo-Pakistani dishes."	No downgrading required	High

Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
some felt it was not possible to adhere to a program during this time.				
It is important to strike the right balance of representation and tailoring towards the communities targeted by the weight management program, in order to encourage uptake from all communities. Many BAME patients commented that the materials provided by weight management programs only featured images of white people. They did not feel represented, which emphasised the impression that the program was not designed for people from their culture, so made them less inclined to sign up. There were pros and cons stated for targeting specific cultural groups. Some patients felt that this would help to form a cohesive group and tailor to their shared experiences. Program staff reported having successfully done this when there was enough demand. Others commented that the diversity of lifestyles and customs within perceived 'groups' of people meant there would always be a mixture of people to adapt to. There were also concerns that staff would not have enough understanding of what is culturally appropriate to deliver a tailored program competently.	Coupe 2018 Jolly 2020 Morrison 2014 Taylor 2020	"Right, the images aren't multicultural… if you're gonna aim at a broad range of people within the community, these are just aiming at the European ones, so you need to have more multicultural images. That will then help people associate with it and recognise – say that they can recognise that lifestyle and go from there." "They bring all different needs with them as well, so the two areas, even though geographically they're very, very close, they're quite different, and what groups works in [other area] may not work in this area because the client base can be so, so different, so it's quite a juggling act really"	No downgrading required	High

See appendix G for full GRADE-CERQual tables.

Theme map showing the barriers (grey) and facilitators (green) towards accepting a referral to overweight or obesity interventions. The 5 pillars represent the grouped themes that influence a person's decision.



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2.1.7 Economic evidence

2.1.7.1 Included studies

A combined search was conducted for economic evidence on identification and uptake in children, young people and adults. This search retrieved 444 studies. Based on title and abstract screening, 1 study (Retal et al 2019) was deemed to be relevant and was included (appendix I). Therefore, in total there was one study which met the inclusion criteria for this review.

2.1.7.2 Excluded studies

. 443 studies were excluded in the title and abstract screening stage. No studies were excluded in the full text screening stage.

2.1.8 Summary of included economic evidence

Table 26: Summary of economic evidence

Applicability & limitations	Other comments	Intervention	Absolute		Incremental			Uncertainty
			Cost	Effects	Costs	Effects	ICER	
Retat et al. 2019								
Directly applicable (Appendix I) with very serious limitations (Appendix I)	**Approach to analysis**: Virtual cohorts of 20 million people were created by randomly sampling with replacement from the adult population enrolled in the BWeL trial. BMI growth equation was applied to the BMI of cohort members and simulated using a Monte Carlo Process. **BMI related complications considered:** Breast cancer, cardiovascular disease, colorectal cancer, type 2 diabetes mellitus, endometrial cancer, hypertension, knee osteoarthritis, oesophageal cancer, ovarian cancer, pancreatic cancer, renal cancer, and stroke **Perspective:** UK NHS perspective	Support	NR	NR	NR	NR	Dominant when extrapolated to years 2024 and later	**Deterministic:** Not performed. **Probabilistic:** The authors report that as the model is a microsimulation, it was not possible to include probabilistic sensitivity analysis as this would have required a super computer.
		Advice	NR	NR	-	-	-	

Abbreviations: BMI, body mass index; BWeL, Brief Intervention for Weight Loss; ICER, incremental cost-effectiveness ratio; NR, not reported; QALYs, quality-adjusted life years

2.1.9 Economic model

This question was not prioritised for economic modelling.

2.1.9 Unit Costs

Not applicable

2.1.10 Evidence statements

- One cost utility analysis showed that for adults living with obesity, physicians opportunistically endorsing, offering and facilitating a referral to a weight loss programme (support) was likely to be an effective use of NHS resources as it resulted in greater health (more QALYs) and was cheaper compared with recommending weight loss alone (advice).

2.1.11 The committee's discussion and interpretation of the evidence

The committee discussion of the quantitative evidence and qualitative evidence are presented together.

2.1.12.1. The outcomes that matter most

Quantitative evidence

During the development of the review protocol, the committee identified 5 primary outcomes:

- Uptake of weight management interventions
- Adherence and compliance with weight management intervention
- Completion of weight management interventions
- Health-related quality of life
- Attendance and drop-out rates for weight management interventions

Adverse events were identified as secondary outcomes, specifically eating disorders or disordered eating and stigma (including self-stigma and negative body image as defined in studies).

The consensus was that the uptake of weight management interventions was the most important outcome for decision making, as measured by uptake of referral or by attendance at interventions. The committee were also interested in measures of engagement with weight management programs.

Qualitative evidence

Qualitative outcomes were individual perspectives, experiences, values, beliefs, preferences, views and considerations that describe the barriers and facilitators to uptake of weight management. The protocol specified particular areas of interest:

- Thoughts, views and perceptions of individuals, parents or carers
- Thoughts of staff undertaking identification of children and young people who are living with overweight and obesity
- Issues relating to motivation
- Issues relating to accessibility
- Issues relating to infrastructure (resources, cost, location of services)
- Issues relating to education
- Issues relating to stigma
- Issues relating to self-esteem
- Issues relating to cultural sensitivities

The committee found themes that described issues relating to cultural sensitivities, stigma, accessibility and infrastructure were most useful to draw upon when considering recommendations.

2.1.12.2 The quality of the evidence

Quantitative evidence

The quantitative findings were assessed using GRADE. Of the 13 outcomes, 1 was high quality, 1 was moderate quality, 4 were low quality, and 7 were very low quality. The committee took this mostly low quality evidence into account and decided not to recommend any of the interventions directly. They instead used the evidence to understand the types of intervention that can facilitate uptake.

The majority of the quantitative evidence was from non-UK sources, with only 2 out of the 8 studies conducted in the UK, both in primary care settings. One study was from Canada and the remaining 5 studies were from the USA, so these results were less applicable due to the differences in culture and healthcare system.

One study from the USA focused specifically on African American patients, which offered valuable evidence about increasing uptake in groups from minority family backgrounds. However, this study was at high risk of bias and the committee expressed strong concerns about the methodology so no direct conclusions could be drawn from it.

Qualitative evidence

Confidence ratings given to the qualitative evidence using the GRADE-CERQUAL criteria were considered good. The majority of themes were rated as either high confidence (7 themes) or moderate confidence (9 themes). There were also 2 themes rated as low confidence, but no themes were rated very low confidence.

Evidence from the UK was considered particularly important for qualitative analysis, so this evidence was prioritised. Studies conducted outside the UK were also available and would have been included to supplement the UK evidence if they had covered a population group of interest for which there was no direct UK evidence. This was not the case for this review, so only UK evidence was used, in order focus on the most directly relevant evidence.

All 8 qualitative studies were UK based, so this evidence base can be considered highly relevant. They also covered multiple settings (health centres, football clubs, bariatric clinics, dietician clinics etc.) and population groups (healthcare professionals and service users including men and postnatal women). One study focused on men in an ethnically diverse, socioeconomically disadvantaged UK setting. The committee were satisfied that these studies were able to provide a reasonably wide representation of the UK population.

2.1.12.3 Benefits and harms

Raising awareness of local behavioural weight management services

The committee considered the existing recommendations on raising awareness from PH53 for commissioners and programme providers and adapted them to cover a wider range of situations and mediums for all age groups. They outlined ways to raise awareness (for example, libraries, community venues), what information to raise awareness of (for example local overweight and obese management pathways and locally available interventions), and who to target (for example, healthcare professionals). The committee added a new recommendation that online and social media resources should be made available and accessible for health professionals to share with adults. This reflects the most common way people access this this type of information and the resources health professionals want to have at hand, according to committee consensus.

When discussing referral to behavioural weight management programmes

The committee chose to retain recommendations from PH53 on discussing previous or ongoing weight management attempts and on discussing personalised goals and the importance and wider potential benefits of making sustainable, long-term changes to dietary habits and physical activity levels. They added that there should be discussion of the wider health, social and cultural determinants and norms, and the impact of deviating from these to achieve better health. These additions were added by consensus and from the understanding of these determinants gained from the qualitative evidence, in which families described the challenges they faced in implementing changes due to practical barriers (for example accessing healthy food, scheduling physical activity) and social barriers (for example family disagreements, children and young people not wanting to be seen to be different).

Recommendations on ensuring knowledge of the local obesity care pathway and referral criteria and capacity of services were also retained, along with giving people information on what services are available, and discussing what the interventions involve and what to expect, but updated these recommendations to emphasise patient choice in the referral to a intervention that suits them. Based on concerns highlighted in the qualitative evidence, they added a recommendation on informing adults if there are any known costs associated with taking part in the intervention or continuing it after a funded referral period has ended, as cost had been highlighted as a barrier to participation.

The qualitative evidence contained a variety of views on what types of intervention adults wanted and how these could be tailored to meet their needs. To address the need for tailoring the committee recommended that referrers identify interventions that are culturally appropriate or have been adapted for different cultural communities and dietary practices or are tailored to particular demographic groups. Men were highlighted as a demographic group who reported in the qualitative evidence benefitting from targeted interventions for men only. The committee recommended that referrers should communicate the benefits of these interventions, such as peer support.

During behavioural weight management programmes

Recommendations on adherence to weight management services from PH53 were retained and updated. The qualitative evidence outlined how accessibility and convenience of the interventions could act as barriers or facilitators to attendance. The committee agreed this showed the importance of suitable venues, times, flexibility, and consistency. They also used their expertise and experience to agree that maintaining contact with families and following up on any problems with attendance were valuable actions to support adherence.

The committee discussed how best to address concerns or barriers that may affect the child or young person's attendance and participation in the intervention. They agreed it was useful to repeat the discussion points from the initial referral to ensure consistency. Likewise, when reviewing progress towards meeting goals they agreed it was important to continue to focus on achievable health goals, rather than focusing solely on weight goals (which are less likely to be met), and to address any difficulties that affect the person's attendance and participation. If difficulties cannot be resolved, they agreed that alternative options such as referral to another service could help the child or young person maintain adherence.

The committee recommended that as well as sending feedback to the person's referrer or GP, the committee added that participant data should also be entered into the National Obesity Audit, as is current practice.

Additional support outside of overweight and obesity management interventions

The committee noted that the evidence differed for how adults felt about declining referral to weight management interventions compared to how children and young people and their

families or carers felt. While for children it is important to keep monitoring them as they grow, for adults it is most important to respect their choice not to be referred. The committee recommended that adults should be given information on other ways to make changes and the opportunity to discuss referral again in the future, but emphasised the need to acknowledge and respect their choice to decline. They additionally recommended being aware of the factors that may affect a person's decision to decline weight management. These recommendations reflect the qualitative evidence that shows adults often find it stigmatising to feel pressured to engage with weight management, which the committee agreed with.

The committee felt it was important to still offer further opportunities for referral or re-referral as needed because overweight and obesity can be a long-term relapsing health condition. For this reason they also retained recommendations from PH47 on signposting to additional sources of community and healthcare support but updated the list of examples to be futureproofed and added a cross-reference to behaviour change interventions guidance NG183, as a way to provide alternative or supplementary support to weight management interventions.

2.1.11.4 Cost effectiveness and resource use

Only one study was identified as relevant in the economic review: Retat et al. 2019. This study, a cost-utility analysis with a UK NHS perspective, found that active referral to weight management was likely to be an effective use of NHS resources. Although the intervention cost of active referral to weight management programmes was higher than giving advice alone, the intervention was found to be more effective at reducing the incidence of obesity-related diseases, so it improved health outcomes and reduced downstream healthcare costs.

The most likely impact of the new recommendations would be an increase in the length of appointments, as health professionals take additional time to discuss about the weight management strategies and deal with facilitators and barriers that affect the uptake. However, the cost impact related to increased appointment time is expected to be insignificant. Additionally, any such increase in costs would be offset by downstream cost savings occurring as result of better health outcomes obtained through a reduction in the incidence of obesity-related disease. Therefore, the committee agreed that the resource impact of these recommendations is unlikely to be significant.

It was noted that the current financing of weight management programmes has the potential to exacerbate health inequalities, as weight management services may not be available in all areas – often times referred to as the 'post-code lottery' where one's ability to access services is dependent on the post-code they live in. Some of the weight management programmes (e.g. diet plans) are not included in the drug tariff so that patients need to pay out-of-pocket. It creates barriers for people to access weight management services and is likely to lead to inequalities for people from disadvantaged socioeconomic backgrounds.

2.1.11.5 Other factors the committee took into account

People from ethnic minority family backgrounds

Although the review question focused particularly on people from ethnic minority family backgrounds, there was only 1 quantitative study that looked at these groups specifically. However, due to the poor quality of the study and the poor generalisability from a USA setting, this evidence could not be used to inform the recommendations.

There was some qualitative evidence that addressed the experiences of people from minority family backgrounds. The committee used these reports to consider how the recommendations may affect people from different family backgrounds. They chose to highlight the need for interventions that are culturally appropriate or have been adapted for

different cultural communities and dietary practices and to emphasise the need to take this into account when choosing appropriate interventions for people from minority family backgrounds.

Disability and SEND

There was no direct evidence uptake of weight management interventions in people with neurodevelopmental conditions and/or special educational needs. These factors were included in the list of the wider determinants and the context of overweight and obesity and central adiposity that was referred to throughout as an important consideration when addressing an individual adult.

Older adults

No qualitative or quantitative evidence was identified for people from older age groups, however their individual needs and circumstances should be considered using a person centred approach, which is highlighted in the recommendations. The committee specifically addressed older adults in the recommendation to take into account the complexity of their needs when identifying the most appropriate intervention.

2.1.12 Recommendations supported by this evidence review

This evidence review supports recommendations 1.2.3 to 1.2.4, 1.11.2, 1.11.4, 1.11.7 to 1.11.11, 1.11.14 to 1.11.15, 1.12.3, 1.12.6 to 1.12.11, 1.13.1 to 1.13.5, 1.14.8, 1.14.24 to 1.14.31, 1.19.2, 1.19.19 to 1.19.21, 1.19.23 to 1.19.25 and the research recommendations outlined in appendix K.

2.1.13 References – included studies

2.1.13.1 Effectiveness

Aveyard, Paul, Lewis, Amanda, Tearne, Sarah et al. (2016) Screening and brief intervention for obesity in primary care: a parallel, two-arm, randomised trial. Lancet (London, England) 388(10059): 2492-2500

Befort, Christie A, Nollen, Nicole, Ellerbeck, Edward F et al. (2008) Motivational interviewing fails to improve outcomes of a behavioral weight loss program for obese African American women: a pilot randomized trial. Journal of behavioral medicine 31(5): 367-77

Heredia, Natalia I, Lee, MinJae, Hwang, Kevin O et al. (2019) Health coaching to encourage obese adults to enroll in commercially-available weight management programs: The path to health study. Contemporary clinical trials 83: 1-9

McVay, Megan A, Yancy, William S, Bennett, Gary G et al. (2021) A web-based intervention to increase weight loss treatment initiation: results of a cluster randomized feasibility and acceptability trial. Translational behavioral medicine 11(1): 226-235

Moss, Erin L, Tobin, Leah N, Campbell, Tavis S et al. (2017) Behavioral weight-loss treatment plus motivational interviewing versus attention control: lessons learned from a randomized controlled trial. Trials 18(1): 351

Tudor, Kate, Jebb, Susan A, Manoharan, Indrani et al. (2020) Brief interventions for obesity when patients are asked to pay for weight loss treatment: an observational study in primary care with an embedded randomised trial. The British journal of general practice : the journal of the Royal College of General Practitioners 70(694): e348-e355

West, Delia S., Stansbury, Melissa L., Krukowski, Rebecca A. et al. (2022) Randomized controlled trial of financial incentives during weight-loss induction and maintenance in online group weight control. Obesity 30(1): 106-116

West, Delia Smith, Harvey, Jean R, Krukowski, Rebecca A et al. (2016) Do individual, online motivational interviewing chat sessions enhance weight loss in a group-based, online weight control program?. Obesity (Silver Spring, Md.) 24(11): 2334-2340

2.1.13.2 Qualitative evidence

Coupe, Nia; Cotterill, Sarah; Peters, Sarah (2018) Tailoring lifestyle interventions to low socio-economic populations: a qualitative study. BMC public health 18(1): 967

Elliott, Megan; Gillison, Fiona; Barnett, Julie (2020) Exploring the influences on men's engagement with weight loss services: a qualitative study. BMC public health 20(1): 249

Holt, Nicholas L, Neely, Kacey C, Newton, Amanda S et al. (2015) Families' Perceptions of and Experiences Related to a Pediatric Weight Management Intervention: A Qualitative Study. Journal of nutrition education and behavior 47(5): 427-31e1

Hunt, Kate, Gray, Cindy M, Maclean, Alice et al. (2014) Do weight management programmes delivered at professional football clubs attract and engage high risk men? A mixed-methods study. BMC public health 14: 50

Jolly, Kate, Griffin, Tania, Sidhu, Manbinder et al. (2020) A weight management programme for fathers of children aged 4-11 years: cultural adaptation and the Healthy Dads, Healthy Kids UK feasibility RCT.

McDonald, Matthew D, Dombrowski, Stephan U, Skinner, Rebecca et al. (2020) Recruiting men from across the socioeconomic spectrum via GP registers and community outreach to a weight management feasibility randomised controlled trial. BMC medical research methodology 20(1): 249

Morrison, Zoe, Douglas, Anne, Bhopal, Raj et al. (2014) Understanding experiences of participating in a weight loss lifestyle intervention trial: a qualitative evaluation of South Asians at high risk of diabetes. BMJ open 4(6): e004736

Taylor, Cath, Bhavnani, Vanita, Zasada, Magdalena et al. (2020) Barriers and facilitators to uptake and retention of inner-city ethnically diverse women in a postnatal weight management intervention: a mixed-methods process evaluation within a feasibility trial in England. BMJ open 10(7): e034747

2.1.13.3 Economic

Retat L, Pimpin L, Webber L, Jaccard A, Lewis A, Tearne S, Hood K, Christian-Brown A, Adab P, Begh R, Jolly K. Screening and brief intervention for obesity in primary care: cost-effectiveness analysis in the BWeL trial. International Journal of Obesity. 2019 Oct;43(10):2066-75.

Appendices

Appendix A – Review protocols

Review protocol for uptake of weight management services

Field	Content
PROSPERO registration number	
Review title	Identifying effective approaches for and increasing uptake of weight management services in adults and in children and young people Identifying barriers to, and facilitators for increasing uptake of weight management services in adults and in children and young people
Review question	1.4a) What approaches are effective and cost-effective in increasing uptake of weight management services in children and young people, particularly those in black, Asian and minority ethnic groups? 1.4b) What approaches are effective and cost-effective in increasing uptake of weight management services in adults, particularly those in black, Asian and minority ethnic groups? 1.4 c) What are the barriers and facilitators to increasing uptake of and adherence to weight management services in children and young people, particularly those in black, Asian and minority ethnic groups? 1.4 d) What are the barriers and facilitators to increasing uptake of and adherence to weight management services in adults, particularly those in black, Asian and minority ethnic groups?
Objective	Identifying the most effective and cost-effective approaches for increasing uptake, and subsequent adherence to weight management services in adults in children and young people, particularly those in black, Asian and minority ethnic groups.

	Identifying barriers and facilitators to increasing uptake and subsequent adherence of weight management services in adults and in children and young people, particularly those in black, Asian and minority ethnic groups.

Searches	Databases to be searched:
	• Medline/MIP/MEP
	• Embase
	• Cochrane CDSR/CENTRAL
	• HMIC
	• SPP
	• PsycInfo
	
	Searches will be restricted by:
	• English language
	• Human studies
	• Systematic reviews
	  • UK and OECD countries
	  • Date: 2000 – current
	• Experimental studies (e.g.RCT/Controlled trials)
	  • UK and OECD countries
	  • Date: 2000 – current
	• Observational studies (as needed)
	  • UK and OECD countries
	  • Date: 2000 – current
	• Qualitative studies
	  • Country limit: UK. Expand to Australia, Canada, Ireland, the Netherlands and Scandinavia (Denmark, Norway, and Sweden) if insufficient UK studies are found.
	  • Date limit: 2010 - current
	• Mixed method studies
	  • Country limit: UK. Expand to Australia, Canada, Ireland, the Netherlands, and Scandinavia (Denmark, Norway, and Sweden) if insufficient UK studies are found.
	  • Date limit: 2010 - current
	The searches will be re-run 6 weeks before final submission of the review and further studies retrieved for inclusion.
	
	The full search strategies for MEDLINE database will be published in the final review.

Condition or domain being studied	Weight management / obesity management
Population	**Inclusion for RQ1.4a and 1.4c** • Children and young people aged under 18 years Where possible, evidence will be stratified by ethnicity: o White o Black African/ Caribbean o Asian (South Asian, Chinese, any other Asian background) o Other ethnic groups (Arab, any other ethnic group) o Multiple/mixed ethnic group Further stratification within this group will be informed by the analysis undertaken in the included studies. Studies that do not stratify by ethnic group will not be excluded though. • Parents and carers • Staff undertaking identification of children and young people with overweight or obesity and engaging them in weight management services. **Inclusion for RQ1.4b and 1.4d** • Adults 18 years and over. Where possible, evidence will be stratified by ethnicity: • White • Black African/ Caribbean • Asian (South Asian, Chinese, any other Asian background) • Other ethnic groups (Arab, any other ethnic group) • Multiple/mixed ethnic group Further stratification within this group will be informed by the analysis undertaken in the included studies. Studies that do not stratify by ethnic group will not be excluded though. • Staff undertaking identification of adults with overweight or obesity and engaging them in weight management services. **Exclusion:** • People whose body weight is below the healthy range (underweight)

	• Pregnant women • Children under the age of 2 years • 1.4a and 1.4c only: People aged 18 years and over • 1.4b and 1.4d only: Children and young people under 18 years

Intervention	**RQ1.4a and RQ1.4c) <u>Methods for uptake to weight management services:</u>**
	• Brief opportunistic behavioural interventions e.g., offer of and referral to weight management intervention and follow-up by GP (offered to either child, young people, parents and carers)
	• Incentives (e.g., GP incentives, patient/ participant incentives)
	• Motivational interview (offered either to children, young people, parents and carers) with a focus on increasing uptake to WM services
	• Interventions to provide information about WM services/ prompt uptake and attendance to WM service including:
	  ○ online campaigns including social media and apps (digital interventions)
	  ○ radio campaigns
	  ○ letters by mail
	  ○ printed materials (e.g. leaflets)
	  ○ multi-media campaigns
	  ○ TV and online advertising (including pop up adverts and use of culturally specific TV, social media and radio channels)
	  ○ Posters
	  ○ online information exchange- fill in questionnaire and get information
	
	Educational and engagement interventions offered to children, young people, parents and carers (delivery methods):
	• face-to-face sessions
	• telephone conversations
	• social media with responses
	• interactive multi-media interventions (e.g. case studies on GP websites; e-learning)
	• interactive community events (e.g. talks with question and answer sessions, talks in religious settings)
	• peer education (carried out by a community member who shares similar life experiences to the community they are working with)
	• lay education (carried out by community members working in a non- professional capacity)
	• multicomponent interventions targeting education
	
	RQ1.4b and RQ1.4d) <u>Methods for uptake to weight management services</u>

	• Brief opportunistic behavioural interventions e.g., offer of and referral to weight management intervention and follow-up by GP
	• Incentives (e.g., GP incentives, patient/ participant incentives)
	• Motivational interview with a focus on increasing uptake to WM services
	• Interventions to provide information about WM services/ prompt uptake and attendance to WM service including:
	  ○ online campaigns including social media and apps (digital interventions)
	  ○ radio campaigns
	  ○ letters by mail
	  ○ printed materials (e.g. leaflets)
	  ○ multi-media campaigns
	  ○ TV and online advertising (including pop up adverts and use of culturally specific TV, social media and radio channels)
	  ○ Posters
	  ○ online information exchange- fill in questionnaire and get information
	
	Educational and engagement interventions (delivery methods):
	• face-to-face sessions
	• telephone conversations
	• social media with responses
	• interactive multi-media interventions (e.g. case studies on GP websites; e-learning)
	• interactive community events (e.g. talks with question and answer sessions talks in religious settings) peer education (carried out by a community member who shares similar life experiences to the community they are working with)
	• lay education (carried out by community members working in a non- professional capacity)
	• multicomponent interventions targeting education

Comparator	<u>Quantitative review</u> • No intervention/usual care • Comparison of interventions <u>Qualitative review</u> Not applicable

Types of study to be included	<u>Quantitative review</u> • Systematic reviews of included study designs • RCTs • Observational studies (cohort studies) • Mixed methods studies (quantitative evidence that matches the above study designs only) A stepped approach will be used to select quantitative studies: • Systematic reviews and RCTs will be prioritised. • Then, if there is insufficient evidence, observational studies (cohort studies) will be included as needed. <u>Qualitative review</u> • Systematic reviews of included study designs • Qualitative studies that collect data from focus groups and interviews. • Qualitative studies that collect data from open-ended questions from questionnaires • Mixed method study designs (qualitative evidence that matches the above study designs only) A stepped approach will be used to select qualitative studies: • UK studies will be prioritised • If there is insufficient UK evidence in some areas, studies based in Australia, Canada, Ireland, the Netherlands and Scandinavia (Denmark, Norway, and Sweden) will be included because they also have universal healthcare and similar populations to the UK. • Interview and focus group study designs will be prioritised. If there is insufficient evidence from interviews and focus groups, studies using questionnaires with open-ended questions will be included.
Other exclusion criteria	• Non-English language studies • Quantitative studies published prior to 2000 • Qualitative studies published prior to 2010 • Non-OECD • Conference abstracts • Narrative reviews • Systematic reviews of excluded study designs

	• Studies with samples who are already engaged in weight-loss interventions • Studies evaluating weight management programmes • Studies focusing on training needs. • Motivational interview only focusing on improving WM behaviours
Context	This review is part of an update of the NICE guideline for weight management: preventing, assessing and managing overweight and obesity (update). Specifically, the questions in this protocol seek to update elements from obesity: identification, assessment and management (2014) NICE guideline CG189, weight management: lifestyle services for overweight or obese adults (2014) NICE guideline PH53, weight management: lifestyle services for overweight or obese children and young people (2013) NICE guideline PH47 and obesity prevention (2006) NICE guideline CG43. Central adiposity is a risk factor for development of CVD, type 2 diabetes, hypertension, dyslipidaemia or some type of cancer in children and young people. Currently, people who are overweight, or living with obesity are identified through the healthcare system opportunistically. There is concern that relying on opportunistic identification, rather than active case finding, increases the likelihood that conditions such as type 2 diabetes will be under-diagnosed in black, Asian and other minority groups whose risk of these conditions is increased at a lower BMI and waist circumference than the general population. The questions in this protocol seek to investigate: 1) What approaches are effective and cost-effective in increasing uptake of weight management services in children and young people, particularly those in black, Asian and minority ethnic groups? 2) What approaches are effective and cost-effective in increasing uptake of weight management services in adults , particularly those in black, Asian and minority ethnic groups? 3) What are the barriers and facilitators to increasing uptake of and adherence to weight management services in children and young people, particularly those in black, Asian and minority ethnic groups? 4) What are the barriers and facilitators to increasing uptake of and adherence to weight management services in adults, particularly those in black, Asian and minority ethnic groups?
Primary outcomes (critical outcomes)	**Quantitative review** • Uptake of weight management interventions • Adherence and compliance with weight management intervention • Completion of weight management interventions • Health-related quality of life • Attendance and drop-out rates for weight management interventions **Qualitative review** **1.4c)** Barriers and facilitators to the uptake of weight management services in children and young people identified as overweight or obese • Thoughts, views and perceptions of individuals, parents or carers

	• Thoughts of staff involved in the uptake of WM services in children and young people • Issues relating to motivation • Issues relating to accessibility • Issues relating to infrastructure (resources, cost, location of services) • Issues relating to education • Issues relating to stigma • Issues relating to self-esteem • Issues relating to cultural sensitivities **1.4d)** Barriers and facilitators to the uptake of weight management services in people identified as overweight or obese • Thoughts, views and perceptions of individuals, carers or staff • Thoughts of staff undertaking identification of people who are living with overweight of obesity • Issues relating to motivation • Issues relating to accessibility • Issues relating to infrastructure (resources, cost, location of services) • Issues relating to education • Issues relating to stigma • Issues relating to self-esteem • Issues relating to cultural sensitivities

Secondary outcomes (important outcomes)	• Adverse events:
	  ○ Eating disorders or disordered eating
	  ○ Stigma (including self-stigma and negative body image as defined in studies)
	Secondary outcomes will only be extracted from studies that also report the critical outcomes.

Data extraction (selection and coding)	All references identified by the searches and from other sources will be uploaded into EPPI reviewer and de-duplicated. 10% of the abstracts will be reviewed by two reviewers, with any disagreements resolved by discussion or, if necessary, a third independent reviewer. This review will make use of the priority screening functionality within the EPPI-reviewer software. A stopping criteria will also be used. We will sift at least 60% of the database. After that we will stop screening if a further 5% (of the total records) of the records are sifted and not included.

	The full text of potentially eligible studies will be retrieved and will be assessed in line with the criteria outlined above. A standardised form will be used to extract data from studies (see Developing NICE guidelines: the manual section 6.4). Study investigators may be contacted for missing data where time and resources allow.
Risk of bias (quality) assessment	Risk of bias will be assessed using an preferred checklist as described in Developing NICE guidelines: the manual.
Strategy for data synthesis	A mixed methods approach with be used to address questions 1.4a and 1.4c as well as 1.4b and 1.4d in conjunction. The quantitative (RQ1.4a and b) and qualitative (RQ1.4c and d) reviews will be conducted separately (segregated study design) but at the same time. The evidence from the reviews will then be analysed in relation to each other (convergent synthesis of results). (See below for more details. The findings will not be integrated by transforming one type of evidence into the other (e.g. quantitative findings into qualitative findings). **Quantitative review:** For the quantitative component, data will be extracted from quantitative and mixed methods (quantitative component only) studies. Where possible, meta-analyses of outcome data will be conducted for all comparators that are reported by more than one study, with reference to the Cochrane Handbook for Systematic Reviews of Interventions (Higgins et al. 2011). Data will be separated into the groups identified in section 17. Continuous outcomes will be analysed as mean differences, unless multiple scales are used to measure the same factor. In these cases, standardised mean differences will be used instead. Pooled relative risks will be calculated for dichotomous outcomes (using the Mantel–Haenszel method) reporting numbers of people having an event. Absolute risks will be presented where possible. Fixed- and random-effects models (der Simonian and Laird) will be fitted for all comparators, with the presented analysis dependent on the degree of heterogeneity in the assembled evidence. Fixed-effects models will be deemed to be inappropriate if one or both of the following conditions is met: • Significant between study heterogeneity in methodology, population, intervention or comparator was identified by the reviewer in advance of data analysis. • The presence of significant statistical heterogeneity in the meta-analysis, defined as $I2 \geq 50\%$.

	In any meta-analyses where some (but not all) of the data comes from studies at high risk of bias, a sensitivity analysis will be conducted, excluding those studies from the analysis. Results from both the full and restricted meta-analyses will be reported. Similarly, in any meta-analyses where some (but not all) of the data comes from indirect studies, a sensitivity analysis will be conducted, excluding those studies from the analysis. GRADE will be used to assess the quality of the outcomes. Outcomes using evidence from RCTs, non-randomised trials and cohort studies will be rated as high quality initially and downgraded from this point. Controlled before and after studies and interrupted time series will be rated as low quality initially. Reasons for upgrading the certainty of the evidence will also be considered. Where 10 or more studies are included as part of a single meta-analysis, a funnel plot will be produced to graphically assess the potential for publication bias. Meta-analyses will be carried out separately for each study type per outcome, but the similarities and differences between the results obtained from the different study types will be noted. Critical quantitative outcomes will be prioritised for mixed method approach, depending on the evidence identified. **Qualitative review:** Where multiple qualitative studies are identified for a single question, information from the studies will be combined using a aggregate synthesis. By examining the findings of each included study, themes will be independently identified and coded in NVivo release 1.5.1. Once all of the included studies have been examined and coded, the resulting themes and (if necessary) sub-themes will be evaluated to examine their relevance to the review question, the importance given to each theme, and the extent to which each theme recurs across the different studies. The qualitative synthesis will use these themes to develop an analytical interpretation of the evidence with regard to the overarching review questions. CERQual will be used to assess the confidence we have in the summary findings of each of the identified themes and sub themes. Evidence from all qualitative study designs (interviews, focus groups etc.) is initially rated as high confidence and the confidence in the evidence for each theme will be downgraded from this initial point.

	If there are more than 20 studies included in the review, we will use the Ames et al. (2019) approach to prioritise evidence Synthesising the findings of mixed method reviews. Where mixed methods studies are identified that present data in a form that cannot be extracted and analysed separately as quantitative and qualitative data, the results of the studies will be reported separately for each study. Any correlations or discrepancies between the findings of the mixed methods studies and the syntheses of the quantitative and qualitative findings of the above analyses will be noted. Mixed method synthesis of findings from the quantitative and qualitative reviews A convergent segregated approach will be used the synthesise and integrate the qualitative and quantitative aspects of the reviews, where sufficient data has been identified to enable this. Where appropriate, a synthesis matrix will be produced to combine results from the two different analytical approaches. Findings from one analytical approach will be compared to findings from the second approach, and outcomes paired up if they provided relevant information on the same underlying topic for example, barriers to identification may be paired up with interventions that address these barriers. The agreement between the findings of the two approaches will be qualitatively assessed, with each paired set of findings put into categories relating to the strength of the identified correlation. The 5 questions required by JBI for convergent segregated integration approach will be systematically applied. The results may be presented as a concept diagram which will summarise the quantitative findings mapped onto the qualitative ones, if this is thought to be informative.
Analysis of sub-groups	Results will be separated into the following for analysis: System levels: • service provider level (for example GP practices, practitioners, WM service providers, other professionals) • individual level (individuals, parents and carers) • mixed levels

	Where possible stratification by the following sub-groups will be undertaken:
	
	• Ethnicity (as detailed in section 6)
	• Age:
	  ○ Children aged 2 up to 5 years (Early years)
	  ○ Children aged 6 up to 11 years (Primary school)
	  ○ Children and young people aged 12 up to 16 years (Secondary school)
	  ○ Young people aged 17 up to 18 years (post-16 education)
	  ○ Younger adults
	  ○ Older adults
	• Sex
	• People with learning and physical disabilities
	• People with chronic disease affecting mobility (e.g., neurological, musculoskeletal, and respiratory conditions)
	• People with serious mental illness
	• Socioeconomic group
	• Index of multiple deprivation
	• Intensity and/or duration of intervention
	• Setting of delivery (e.g., hospitals, GP practice, residential homes)
	• Severity of obesity
	• Women with previous gestational diabetes

Type and method of review	☒ Intervention ☐ Diagnostic ☐ Prognostic ☒ Qualitative ☐ Epidemiologic ☐ Service Delivery ☒ Other (mixed methods)
Language	English

Appendix B - Literature search strategies

Search design and peer review

A NICE information specialist conducted the literature searches for the evidence review. The clinical searches were run between the 17th January – 19th January 2022. The searches were rerun on 13th and 14th April 2023. The cost effective searches were run on 1st February. This search report is compliant with the requirements of PRISMA-S.

The MEDLINE strategy below was quality assured (QA) by a trained NICE information specialist. All translated search strategies were peer reviewed to ensure their accuracy. Both procedures were adapted from the 2016 PRESS Checklist.

The principal search strategy was developed in MEDLINE (Ovid interface) and adapted, as appropriate, for use in the other sources listed in the protocol, taking into account their size, search functionality and subject coverage.

Review management

The search results were managed in EPPI-Reviewer v5. Duplicates were removed in EPPI-R5 using a two-step process. First, automated deduplication is performed using a high-value algorithm. Second, manual deduplication is used to assess 'low-probability' matches. All decisions made for the review can be accessed via the deduplication history.

Prior work

A set of 13 test papers were supplied by the analysts and the committee.

Limits and restrictions

English language limits were applied in adherence to standard NICE practice and the review protocol.

Limits to exclude letters, editorials, news, conferences were applied in adherence to standard NICE practice and the review protocol.

The search was limited from 2000 to 2022, for systematic reviews, RCTs and observational studies. The search was limited from 2010 to 2022 for qualitative studies, as defined in the review protocol.

The limit to remove animal studies in the searches was the standard NICE practice, which has been adapted from: Dickersin, K., Scherer, R., & Lefebvre, C. (1994). Systematic Reviews: Identifying relevant studies for systematic reviews. *BMJ*, 309(6964), 1286.

Search filters

Clinical health searches

- RCT filters:
  - McMaster Therapy – Medline - "best balance of sensitivity and specificity" version.
    Haynes RB et al. (2005) Optimal search strategies for retrieving scientifically strong studies of treatment from Medline: analytical survey. *BMJ*, 330, 1179-1183.

  - McMaster Therapy – Embase "best balance of sensitivity and specificity" version.

    Wong SSL et al. (2006) Developing optimal search strategies for detecting clinically sound treatment studies in EMBASE. Journal of the Medical Library Association, 94(1), 41-47.

- Systematic reviews filters:
  - Lee, E. et al. (2012) An optimal search filter for retrieving systematic reviews and meta-analyses. *BMC Medical Research Methodology,* 12(1), 51.

    In MEDLINE, the standard NICE modifications were used: pubmed.tw added; systematic review.pt added from MeSH update 2019.

    In Embase, the standard NICE modifications were used: pubmed.tw added to line medline.tw.

- Observational filter:
  - The terms used for observational studies are standard NICE practice that have been developed in house.
  - The observational filter was adapted to remove controlled studies, cross-sectional studies, case series studies.

- OECD filter:
  - The OECD countries filters were used without modification:

  - Ayiku, L., Hudson, T., Williams, C., Levay, P., & Jacobs, C. (submitted for publication) The NICE OECD countries geographic search filters: Part 2 - Validation of the MEDLINE and Embase (Ovid) filters. *Journal of the Medical Library Association* (in peer review)

- Qualitative filter:
  - The terms used for qualitative studies are standard NICE practice that have been developed in house.

Cost effectiveness searches

The NICE cost utility (specific) filter was applied to the Medline and Embase searches to identify cost utility studies.

- Cost Utility filter is available via the ISSG search filters resource

Key decisions

For qualitative studies, the date limit was amended to 2010-2022. For systematic reviews, RCTs and observational studies, the search was limited from 2000-2022. Non-OECD countries were excluded from both sets of results, for Medline and Embase searches only.

The Medline and Embase searches were exported into three files, one for qualitative studies and one RCTs and one containing both SR an observational studies – this was to allow the analysts to limit by study type within EPPI.

The results for RQ1.4 were imported into the same EPPI review as RQ1.3, this was to reduce the number of duplicates between both sets of results.

The searches were translated from the Medline search strategy. If a MeSH term or alternative was not available, the term was not included in that translation. For instance, Obesity Management/ was not used in the Cochrane search.

The HMIC and SPP searches did not include any subject headings, instead heading words were searched using the method outlined in Finnegan, A and Levay, P (2021) Translated search strategies may require truncated subject headings for efficient public health retrieval. *Health Information and Libraries Journal*

DARE (CRD) was not searched as it contains historical information. This review question was interested in recently published evidence.

For the cost utility searches, a modified version of the searches was run in INAHTA and NHS EED. This decision was taken because the search strategy is complex and the search functionality in both databases would not be compatible.

Clinical/public health searches

Main search – Databases

Database	Date searched	Database platform	Database segment or version	No. of results downloaded
Medline	17/01/2022	OVID	1946 to January 14, 2022	5896
Medline in process	17/01/2022	OVID	1946 to January 14, 2022	48
Medline ePub ahead	17/01/2022	OVID	January 14, 2022	99
Embase	17/01/2022	OVID	1974 to 2022 January 14	6658
HMIC	18/01/2022	OVID	1979 to November 2021	397
SPP	18/01/2022	OVID	Social Policy and Practice 202110	195
PsycInfo	18/01/2022	OVID	1806 to January Week 2 2022	3748
Cochrane CDSR	19/01/2022	Wiley	Issue 1 of 12, January 2022	26
Cochrane CENTRAL	19/01/2022	Wiley	Issue 1 of 12, January 2022	2852

Re-run search – Databases

Database	Date searched	Database platform	Database segment or version	No. of results downloaded
Medline	13/04/2023	OVID	1946 to April 12, 2023	27
Medline in process	13/04/2023	OVID	1946 to April 12, 2023	1
Medline ePub ahead	13/04/2023	OVID	April 12, 2023	43
Embase	13/04/2023	OVID	1974 to 2023 April 1	968
HMIC	13/04/2023	OVID	1979 to January 2023	11
SPP	13/04/2023	OVID	202301	34
PsycInfo	13/04/2023	OVID	2002 to April Week 1 2023	286
Cochrane CDSR	14/04/2023	Wiley	Issue 4 of 12, April 2023	1
Cochrane CENTRAL	14/04/2023	Wiley	Issue 4 of 12, April 2023	240

Search strategy history

Database name: Medline

1 Weight Reduction Programs/ (2654)

2 exp *Obesity/ or overweight/ (186086)

3 (obes* or preobes* or overweight* or over-weight*).ti,ab. (309239)

4 or/2-3 (336503)

5 (weight* adj1 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (11419)

6 4 and 5 (8933)

7 ((obes* or preobes* or overweight* or over-weight*) adj2 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health* or prevent*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (3231)

8 1 or 6 or 7 (13075)

9 (uptake or take-up or takeup).ti,ab. (352318)

10 ((increas* or improv* or rais* or higher or decreas* or reduc* or poor* or low or lower or drop* or withdraw* or quit* or likely or unlikely or positiv* or negativ* or influen*) adj2 (rate* or participat* or refer* or usage or complian* or maintain* or attend* or engag* or disengag* or reach*)).ti,ab. (692859)

11 ((barrier* or facilitat* or hinder* or block* or obstacle* or restrict* or restrain* or obstruct* or inhibit* or impede* or delay* or constrain* or hindrance or enhance* or encourag* or support* or promot* or optimiz* or optimis* or motivat* or incentiv* or persuad* or persuasion or intend* or intention or counsel* or hesitan* or attrition) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (703157)

12 (("opt in" or "opt out" or "opting in" or "opting out" or "opted in" or "opted out" or "opts in" or "opts out") adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (359)

13 attitude/ or "attitude of health personnel"/ or exp Attitude to Health/ (597382)

14 ((adher* or nonadher* or non-adher* or cooperat* or co-operat* or dropout* or drop-out* or empower* or involv*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (160531)

15 Patient Acceptance of Health Care/ or Patient compliance/ or Treatment refusal/ (121747)

16 ((patient* or client*) adj3 (behaviour* or behavior* or habit* or choice* or acceptance* or unaccept* or refus* or comply* or compliance* or complie* or noncomply* or noncompliance* or noncomplie* or non-comply* or non-compliance* or non-complie* or cooperat* or uncooperat*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (16770)

17 exp patients/px or behavior/ or behavior Therapy/ or adolescent behavior/ or child behavior/ or feeding behavior/ or habits/ or health behavior/ or personal satisfaction/ or exp social behavior/ or exp emotions/ or exp motivation/ or exp personality/ or psychology, social/ or exp life style/ (1176706)

18 ((experience* or belief* or stress* or emotion* or anx* or fear* or concern* or uncertain* or unsure or thought* or feeling* or felt* or view* or opinion* or perception* or perspective* or attitud* or satisfact* or know* or understand* or aware* or sad* or enjoy*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (547144)

19 Health Services Accessibility/ (82144)

20 ((access* or availab* or usab* or convenien* or inaccess* or unavailab* or unusab* or inconvenien*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (197735)

21 exp "Delivery of Health Care"/ (1165955)

22 ((deliver* or equit* or inequit* or equal* or inequali* or fair* or disparit* or variab* or variation or varied) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (237062)

23 exp Socioeconomic Factors/ or exp sociological factors/ (878487)

24 ((socioeconomic* or socio-econom* or sociocultur* or socio-cultur* or sociolog*) adj1 (factor* or status*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (2127)

25 (poverty or poor* or rich* or low-income* or middle-income* or high-income*).ti,ab. (1161638)

26 ((social or middle or low* or working or upper or base*) adj1 (class* or status*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (2327)

27 ((advantag* or disadvantag* or underserve* or under-serve* or depriv*) adj2 (background* or communit* or area* or region* or neighbourhood* or neighborhood* or societ* or group* or people or person* or participant* or individual*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (1599)

28 Health Plan Implementation/ or Implementation Science/ (7564)

29 ((implement* or feasibil* or practical* or practicabil* or viab* or achievab*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (160222)

30 Culture/ or Cultural Characteristics/ or Cultural Diversity/ or Superstitions/ or Taboo/ (62893)

31 ((cultur* or custom*) adj2 (belief* or believe* or diverse or diversit* or characteristic*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (585)

32 ((Superstitio* or taboo*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (100)

33 Literacy/ or Communication Barriers/ or Limited English Proficiency/ (8238)

34 ((language* or nonfluen* or nonenglish* or "limited english" or literac*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (15167)

35 Telephone/ or Cell Phone/ or Smartphone/ or Computers, Handheld/ or Computers/ (83885)

36 ((telephone* or phone* or smartphone* or computer* or laptop* or "smart patient" or mhealth* or m-health* or ehealth* or e-health* or "push notification*" or digital* or internet* or web* or online* or video* or remote* or virtual*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (103587)

37 or/9-36 (5730519)

38 8 and 37 (8980)

39 animals/ not humans/ (4909831)

40 38 not 39 (8882)

41 limit 40 to english language (8643)

42 limit 41 to ed=20000101-20221231 (8026)

43 limit 41 to ed=20100101-20221231 (6638)

44 Qualitative Research/ (71002)

45 Nursing Methodology Research/ (16404)

46 Interview.pt. (29243)

47 exp Interviews as Topic/ (66645)

48 Questionnaires/ (523804)

49 Narration/ (9454)

50 Health Care Surveys/ (33810)

51 (qualitative$ or interview$ or focus group$ or questionnaire$ or narrative$ or narration$ or survey$).tw. (1473747)

52 (ethno$ or emic or etic or phenomenolog$ or grounded theory or constant compar$ or (thematic$ adj4 analys$) or theoretical sampl$ or purposive sampl$).tw. (95924)

53 (hermeneutic$ or heidegger$ or husser$ or colaizzi$ or van kaam$ or van manen$ or giorgi$ or glaser$ or strauss$ or ricoeur$ or spiegelberg$ or merleau$).tw. (10629)

54 (metasynthes$ or meta-synthes$ or metasummar$ or meta-summar$ or metastud$ or meta-stud$ or metathem$ or meta-them$).tw. (1615)

55 "critical interpretive synthes*".tw. (112)

56 (realist adj (review* or synthes*)).tw. (557)

57 (noblit and hare).tw. (74)

58 (meta adj (method or triangulation)).tw. (32)

59 (CERQUAL or CONQUAL).tw. (219)

60 ((thematic or framework) adj synthes*).tw. (1054)

61 or/44-60 (1686037)

62 Observational Studies as Topic/ (7360)

63 Observational Study/ (118709)

64 Epidemiologic Studies/ (8966)

65 exp Case-Control Studies/ (1272595)

66 exp Cohort Studies/ (2279684)

67 Comparative Study.pt. (1906689)

68 case control$.tw. (126284)

69 (cohort adj (study or studies)).tw. (220588)

70 cohort analy$.tw. (8453)

71 (follow up adj (study or studies)).tw. (48547)

72 (observational adj (study or studies)).tw. (110321)

73 longitudinal.tw. (240380)

74 prospective.tw. (564456)

75 retrospective.tw. (537920)

76 or/62-75 (4455058)

77 randomized controlled trial.pt. (555564)

78 randomi?ed.mp. (890907)

79 placebo.mp. (211639)

80 or/77-79 (945601)

81 (MEDLINE or pubmed).tw. (213773)

82 systematic review.tw. (168126)

83 systematic review.pt. (178426)

84 meta-analysis.pt. (150518)

85 intervention$.ti. (147314)

86 or/81-85 (476532)

87 76 or 80 or 86 (5287311)

88 42 and 87 (5044)

89 43 and 61 (2269)

90 88 or 89 (6097)

91 afghanistan/ or africa/ or africa, northern/ or africa, central/ or africa, eastern/ or "africa south of the sahara"/ or africa, southern/ or africa, western/ or albania/ or algeria/ or andorra/ or angola/ or "antigua and barbuda"/ or argentina/ or armenia/ or azerbaijan/ or bahamas/ or bahrain/ or bangladesh/ or barbados/ or belize/ or benin/ or bhutan/ or bolivia/ or borneo/ or "bosnia and herzegovina"/ or botswana/ or brazil/ or brunei/ or bulgaria/ or burkina faso/ or burundi/ or cabo verde/ or cambodia/ or cameroon/ or central african republic/ or chad/ or exp china/ or comoros/ or congo/ or cote d'ivoire/ or croatia/ or cuba/ or "democratic republic of the congo"/ or cyprus/ or djibouti/ or dominica/ or dominican republic/ or ecuador/ or egypt/ or el salvador/ or equatorial guinea/ or eritrea/ or eswatini/ or ethiopia/ or fiji/ or gabon/ or gambia/ or "georgia (republic)"/ or ghana/ or grenada/ or guatemala/ or guinea/ or guinea-bissau/ or guyana/ or haiti/ or honduras/ or independent state of samoa/ or exp india/ or indian ocean islands/ or indochina/ or indonesia/ or iran/ or iraq/ or jamaica/ or jordan/ or kazakhstan/ or kenya/ or kosovo/ or kuwait/ or kyrgyzstan/ or laos/ or lebanon/ or liechtenstein/ or lesotho/ or liberia/ or libya/ or madagascar/ or malaysia/ or malawi/ or mali/ or malta/ or mauritania/ or mauritius/ or mekong valley/ or melanesia/ or micronesia/ or monaco/ or mongolia/ or montenegro/ or morocco/ or mozambique/ or myanmar/ or namibia/ or nepal/ or nicaragua/ or niger/ or nigeria/ or oman/ or pakistan/ or palau/ or exp panama/ or papua new guinea/ or paraguay/ or peru/ or philippines/ or qatar/ or "republic of belarus"/ or "republic of north macedonia"/ or romania/ or exp russia/ or rwanda/ or "saint kitts and nevis"/ or saint lucia/ or "saint vincent and the grenadines"/ or "sao tome and principe"/ or saudi arabia/ or serbia/ or sierra leone/ or senegal/ or seychelles/ or singapore/ or somalia/ or south africa/ or south sudan/ or sri lanka/ or sudan/ or suriname/ or syria/ or taiwan/ or tajikistan/ or tanzania/ or thailand/ or timor-leste/ or togo/ or tonga/ or "trinidad and tobago"/ or tunisia/ or turkmenistan/ or uganda/ or ukraine/ or united arab emirates/ or uruguay/ or uzbekistan/ or vanuatu/ or venezuela/ or vietnam/ or west indies/ or yemen/ or zambia/ or zimbabwe/ (1192175)

92 "organisation for economic co-operation and development"/ (411)

93 australasia/ or exp australia/ or austria/ or baltic states/ or belgium/ or exp canada/ or chile/ or colombia/ or costa rica/ or czech republic/ or exp denmark/ or estonia/ or europe/ or finland/ or exp france/ or exp germany/ or greece/ or hungary/ or iceland/ or ireland/ or israel/ or exp italy/ or exp japan/ or korea/ or latvia/ or lithuania/ or luxembourg/ or mexico/ or netherlands/ or new zealand/ or north america/ or exp norway/ or poland/ or portugal/ or exp "republic of korea"/ or "scandinavian and nordic countries"/ or slovakia/ or slovenia/ or spain/ or sweden/ or switzerland/ or turkey/ or exp united kingdom/ or exp united states/ (3372729)

94 european union/ (17054)

95 developed countries/ (21036)

96 or/92-95 (3387919)

97 91 not 96 (1105653)

98 90 not 97 (5896)

99 90 not 98 (201)

Database name: Medline in process

1 Weight Reduction Programs/ (0)

2 exp *Obesity/ or overweight/ (0)

3 (obes* or preobes* or overweight* or over-weight*).ti,ab. (4056)

4 or/2-3 (4056)

5 (weight* adj1 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (129)

6 4 and 5 (92)

7 ((obes* or preobes* or overweight* or over-weight*) adj2 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health* or prevent*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (45)

8 1 or 6 or 7 (132)

9 (uptake or take-up or takeup).ti,ab. (3000)

10 ((increas* or improv* or rais* or higher or decreas* or reduc* or poor* or low or lower or drop* or withdraw* or quit* or likely or unlikely or positiv* or negativ* or influen*) adj2 (rate* or participat* or refer* or usage or complian* or maintain* or attend* or engag* or disengag* or reach*)).ti,ab. (7210)

11 ((barrier* or facilitat* or hinder* or block* or obstacle* or restrict* or restrain* or obstruct* or inhibit* or impede* or delay* or constrain* or hindrance or enhance* or encourag* or support* or promot* or optimiz* or optimis* or motivat* or incentiv* or persuad* or persuasion or intend* or intention or counsel* or hesitan* or attrition) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (10193)

12 (("opt in" or "opt out" or "opting in" or "opting out" or "opted in" or "opted out" or "opts in" or "opts out") adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (9)

13 attitude/ or "attitude of health personnel"/ or exp Attitude to Health/ (0)

14 ((adher* or nonadher* or non-adher* or cooperat* or co-operat* or dropout* or drop-out* or empower* or involv*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (1728)

15 Patient Acceptance of Health Care/ or Patient compliance/ or Treatment refusal/ (0)

16 ((patient* or client*) adj3 (behaviour* or behavior* or habit* or choice* or acceptance* or unaccept* or refus* or comply* or compliance* or complie* or noncomply* or noncompliance* or noncomplie* or non-comply* or non-compliance* or non-complie* or cooperat* or uncooperat*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (123)

17 exp patients/px or behavior/ or behavior Therapy/ or adolescent behavior/ or child behavior/ or feeding behavior/ or habits/ or health behavior/ or personal satisfaction/ or exp social behavior/ or exp emotions/ or exp motivation/ or exp personality/ or psychology, social/ or exp life style/ (0)

18 ((experience* or belief* or stress* or emotion* or anx* or fear* or concern* or uncertain* or unsure or thought* or feeling* or felt* or view* or opinion* or perception* or perspective* or

attitud* or satisfact* or know* or understand* or aware* or sad* or enjoy*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (6064)

19 Health Services Accessibility/ (0)

20 ((access* or availab* or usab* or convenien* or inaccess* or unavailab* or unusab* or inconvenien*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (2649)

21 exp "Delivery of Health Care"/ (0)

22 ((deliver* or equit* or inequit* or equal* or inequali* or fair* or disparit* or variab* or variation or varied) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (3041)

23 exp Socioeconomic Factors/ or exp sociological factors/ (0)

24 ((socioeconomic* or socio-econom* or sociocultur* or socio-cultur* or sociolog*) adj1 (factor* or status*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (23)

25 (poverty or poor* or rich* or low-income* or middle-income* or high-income*).ti,ab. (15378)

26 ((social or middle or low* or working or upper or base*) adj1 (class* or status*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (26)

27 ((advantag* or disadvantag* or underserve* or under-serve* or depriv*) adj2 (background* or communit* or area* or region* or neighbourhood* or neighborhood* or societ* or group* or people or person* or participant* or individual*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (26)

28 Health Plan Implementation/ or Implementation Science/ (0)

29 ((implement* or feasibil* or practical* or practicabil* or viab* or achievab*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (2189)

30 Culture/ or Cultural Characteristics/ or Cultural Diversity/ or Superstitions/ or Taboo/ (0)

31 ((cultur* or custom*) adj2 (belief* or believe* or diverse or diversit* or characteristic*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (8)

32 ((Superstitio* or taboo*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (1)

33 Literacy/ or Communication Barriers/ or Limited English Proficiency/ (0)

34 ((language* or nonfluen* or nonenglish* or "limited english" or literac*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (192)

35 Telephone/ or Cell Phone/ or Smartphone/ or Computers, Handheld/ or Computers/ (0)

36 ((telephone* or phone* or smartphone* or computer* or laptop* or "smart patient" or mhealth* or m-health* or ehealth* or e-health* or "push notification*" or digital* or internet* or web* or online* or video* or remote* or virtual*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (1109)

37 or/9-36 (43022)

38 8 and 37 (70)

39 animals/ not humans/ (0)

40 38 not 39 (70)

41 limit 40 to english language (70)

42 limit 41 to dt=20000101-20221231 (70)

43 limit 41 to dt=20100101-20221231 (70)

44 Qualitative Research/ (0)

45 Nursing Methodology Research/ (0)

46 Interview.pt. (62)

47 exp Interviews as Topic/ (0)

48 "Questionnaires"/ (0)

49 Narration/ (0)

50 Health Care Surveys/ (0)

51 (qualitative$ or interview$ or focus group$ or questionnaire$ or narrative$ or narration$ or survey$).tw. (14006)

52 (ethno$ or emic or etic or phenomenolog$ or grounded theory or constant compar$ or (thematic$ adj4 analys$) or theoretical sampl$ or purposive sampl$).tw. (1767)

53 (hermeneutic$ or heidegger$ or husser$ or colaizzi$ or van kaam$ or van manen$ or giorgi$ or glaser$ or strauss$ or ricoeur$ or spiegelberg$ or merleau$).tw. (42)

54 (metasynthes$ or meta-synthes$ or metasummar$ or meta-summar$ or metastud$ or meta-stud$ or metathem$ or meta-them$).tw. (25)

55 "critical interpretive synthes*".tw. (6)

56 (realist adj (review* or synthes*)).tw. (19)

57 (noblit and hare).tw. (3)

58 (meta adj (method or triangulation)).tw. (1)

59 (CERQUAL or CONQUAL).tw. (11)

60 ((thematic or framework) adj synthes*).tw. (31)

61 or/44-60 (14984)

62 Observational Studies as Topic/ (0)

63 Observational Study/ (2)

64 Epidemiologic Studies/ (0)

65 exp Case-Control Studies/ (0)

66 exp Cohort Studies/ (0)

67 Comparative Study.pt. (0)

68 case control$.tw. (1357)

69 (cohort adj (study or studies)).tw. (5073)

70 cohort analy$.tw. (198)

71 (follow up adj (study or studies)).tw. (276)

72 (observational adj (study or studies)).tw. (2082)

73 longitudinal.tw. (3385)

74 prospective.tw. (6326)

75 retrospective.tw. (8538)

76 or/62-75 (20714)

77 randomized controlled trial.pt. (0)

78 randomi?ed.mp. (7115)

79 placebo.mp. (1742)

80 or/77-79 (7616)

81 (MEDLINE or pubmed).tw. (4671)

82 systematic review.tw. (4535)

83 systematic review.pt. (181)

84 meta-analysis.pt. (42)

85 intervention$.ti. (1874)

86 or/81-85 (8038)

87 76 or 80 or 86 (32036)

88 42 and 87 (37)

89 43 and 61 (21)

90 88 or 89 (48)

Database name: Medline ePub ahead

1 Weight Reduction Programs/ (0)

2 exp *Obesity/ or overweight/ (0)

3 (obes* or preobes* or overweight* or over-weight*).ti,ab. (5848)

4 or/2-3 (5848)

5 (weight* adj1 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (257)

6 4 and 5 (182)

7 ((obes* or preobes* or overweight* or over-weight*) adj2 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health* or prevent*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (63)

8 1 or 6 or 7 (237)

9 (uptake or take-up or takeup).ti,ab. (4414)

10 ((increas* or improv* or rais* or higher or decreas* or reduc* or poor* or low or lower or drop* or withdraw* or quit* or likely or unlikely or positiv* or negativ* or influen*) adj2 (rate* or participat* or refer* or usage or complian* or maintain* or attend* or engag* or disengag* or reach*)).ti,ab. (14555)

11 ((barrier* or facilitat* or hinder* or block* or obstacle* or restrict* or restrain* or obstruct* or inhibit* or impede* or delay* or constrain* or hindrance or enhance* or encourag* or support* or promot* or optimiz* or optimis* or motivat* or incentiv* or persuad* or persuasion or intend* or intention or counsel* or hesitan* or attrition) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (17178)

12 (("opt in" or "opt out" or "opting in" or "opting out" or "opted in" or "opted out" or "opts in" or "opts out") adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (10)

13 attitude/ or "attitude of health personnel"/ or exp Attitude to Health/ (0)

14 ((adher* or nonadher* or non-adher* or cooperat* or co-operat* or dropout* or drop-out* or empower* or involv*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (3785)

15 Patient Acceptance of Health Care/ or Patient compliance/ or Treatment refusal/ (0)

16 ((patient* or client*) adj3 (behaviour* or behavior* or habit* or choice* or acceptance* or unaccept* or refus* or comply* or compliance* or complie* or noncomply* or noncompliance* or noncomplie* or non-comply* or non-compliance* or non-complie* or cooperat* or uncooperat*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (276)

17 exp patients/px or behavior/ or behavior Therapy/ or adolescent behavior/ or child behavior/ or feeding behavior/ or habits/ or health behavior/ or personal satisfaction/ or exp social behavior/ or exp emotions/ or exp motivation/ or exp personality/ or psychology, social/ or exp life style/ (0)

18 ((experience* or belief* or stress* or emotion* or anx* or fear* or concern* or uncertain* or unsure or thought* or feeling* or felt* or view* or opinion* or perception* or perspective* or

attitud* or satisfact* or know* or understand* or aware* or sad* or enjoy*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (13253)

19 Health Services Accessibility/ (0)

20 ((access* or availab* or usab* or convenien* or inaccess* or unavailab* or unusab* or inconvenien*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (5651)

21 exp "Delivery of Health Care"/ (0)

22 ((deliver* or equit* or inequit* or equal* or inequali* or fair* or disparit* or variab* or variation or varied) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (6568)

23 exp Socioeconomic Factors/ or exp sociological factors/ (0)

24 ((socioeconomic* or socio-econom* or sociocultur* or socio-cultur* or sociolog*) adj1 (factor* or status*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (59)

25 (poverty or poor* or rich* or low-income* or middle-income* or high-income*).ti,ab. (23844)

26 ((social or middle or low* or working or upper or base*) adj1 (class* or status*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (55)

27 ((advantag* or disadvantag* or underserve* or under-serve* or depriv*) adj2 (background* or communit* or area* or region* or neighbourhood* or neighborhood* or societ* or group* or people or person* or participant* or individual*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (58)

28 Health Plan Implementation/ or Implementation Science/ (0)

29 ((implement* or feasibil* or practical* or practicabil* or viab* or achievab*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (4800)

30 Culture/ or Cultural Characteristics/ or Cultural Diversity/ or Superstitions/ or Taboo/ (0)

31 ((cultur* or custom*) adj2 (belief* or believe* or diverse or diversit* or characteristic*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (22)

32 ((Superstitio* or taboo*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (1)

33 Literacy/ or Communication Barriers/ or Limited English Proficiency/ (0)

34 ((language* or nonfluen* or nonenglish* or "limited english" or literac*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (650)

35 Telephone/ or Cell Phone/ or Smartphone/ or Computers, Handheld/ or Computers/ (0)

36 ((telephone* or phone* or smartphone* or computer* or laptop* or "smart patient" or mhealth* or m-health* or ehealth* or e-health* or "push notification*" or digital* or internet* or web* or online* or video* or remote* or virtual*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (3252)

37 or/9-36 (76709)

38 8 and 37 (140)

39 animals/ not humans/ (0)

40 38 not 39 (140)

41 limit 40 to english language (139)

42 limit 41 to dt=20000101-20221231 (139)

43 limit 41 to dt=20100101-20221231 (138)

44 Qualitative Research/ (0)

45 Nursing Methodology Research/ (0)

46 Interview.pt. (1)

47 exp Interviews as Topic/ (0)

48 "Questionnaires"/ (0)

49 Narration/ (0)

50 Health Care Surveys/ (0)

51 (qualitative$ or interview$ or focus group$ or questionnaire$ or narrative$ or narration$ or survey$).tw. (40261)

52 (ethno$ or emic or etic or phenomenolog$ or grounded theory or constant compar$ or (thematic$ adj4 analys$) or theoretical sampl$ or purposive sampl$).tw. (4456)

53 (hermeneutic$ or heidegger$ or husser$ or colaizzi$ or van kaam$ or van manen$ or giorgi$ or glaser$ or strauss$ or ricoeur$ or spiegelberg$ or merleau$).tw. (271)

54 (metasynthes$ or meta-synthes$ or metasummar$ or meta-summar$ or metastud$ or meta-stud$ or metathem$ or meta-them$).tw. (112)

55 "critical interpretive synthes*".tw. (11)

56 (realist adj (review* or synthes*)).tw. (48)

57 (noblit and hare).tw. (2)

58 (meta adj (method or triangulation)).tw. (0)

59 (CERQUAL or CONQUAL).tw. (32)

60 ((thematic or framework) adj synthes*).tw. (94)

61 or/44-60 (41286)

62 Observational Studies as Topic/ (0)

63 Observational Study/ (1)

64 Epidemiologic Studies/ (0)

65 exp Case-Control Studies/ (0)

66 exp Cohort Studies/ (0)

67 Comparative Study.pt. (0)

68 case control$.tw. (2523)

69 (cohort adj (study or studies)).tw. (9233)

70 cohort analy$.tw. (327)

71 (follow up adj (study or studies)).tw. (638)

72 (observational adj (study or studies)).tw. (4328)

73 longitudinal.tw. (6883)

74 prospective.tw. (12494)

75 retrospective.tw. (18530)

76 or/62-75 (42094)

77 randomized controlled trial.pt. (1)

78 randomi?ed.mp. (13953)

79 placebo.mp. (2988)

80 or/77-79 (14906)

81 (MEDLINE or pubmed).tw. (9344)

82 systematic review.tw. (9478)

83 systematic review.pt. (158)

84 meta-analysis.pt. (86)

85 intervention$.ti. (4089)

86 or/81-85 (16905)

87 76 or 80 or 86 (64865)

88 42 and 87 (79)

89 43 and 61 (58)

90 88 or 89 (99)

Database name: Embase

1 weight loss program/ (2781)

2 exp *Obesity/ (263988)

3 (obes* or preobes* or overweight* or over-weight*).ti,ab. (521502)

4 or/2-3 (571456)

5 (weight* adj1 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (19669)

6 4 and 5 (14541)

7 ((obes* or preobes* or overweight* or over-weight*) adj2 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health* or prevent*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (4940)

8 1 or 6 or 7 (20243)

9 (uptake or take-up or takeup).ti,ab. (490379)

10 ((increas* or improv* or rais* or higher or decreas* or reduc* or poor* or low or lower or drop* or withdraw* or quit* or likely or unlikely or positiv* or negativ* or influen*) adj2 (rate* or participat* or refer* or usage or complian* or maintain* or attend* or engag* or disengag* or reach*)).ti,ab. (1132435)

11 ((barrier* or facilitat* or hinder* or block* or obstacle* or restrict* or restrain* or obstruct* or inhibit* or impede* or delay* or constrain* or hindrance or enhance* or encourag* or support* or promot* or optimiz* or optimis* or motivat* or incentiv* or persuad* or persuasion or intend* or intention or counsel* or hesitan* or attrition) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (1166115)

12 (("opt in" or "opt out" or "opting in" or "opting out" or "opted in" or "opted out" or "opts in" or "opts out") adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (730)

13 health personnel attitude/ or exp attitude to health/ or exp patient attitude/ (622216)

14 ((adher* or nonadher* or non-adher* or cooperat* or co-operat* or dropout* or drop-out* or empower* or involv*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (268959)

15 Patient Acceptance of Health Care/ or Patient compliance/ or Treatment refusal/ (216334)

16 ((patient* or client*) adj3 (behaviour* or behavior* or habit* or choice* or acceptance* or unaccept* or refus* or comply* or compliance* or complie* or noncomply* or noncompliance* or noncomplie* or non-comply* or non-compliance* or non-complie* or cooperat* or uncooperat*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (30503)

17 behavior/ or behavior therapy/ or adolescent behavior/ or child behavior/ or feeding behavior/ or habit/ or satisfaction/ or exp social behavior/ or exp emotion/ or exp motivation/ or exp personality/ or social psychology/ or exp lifestyle/ (3202089)

18 ((experience* or belief* or stress* or emotion* or anx* or fear* or concern* or uncertain* or unsure or thought* or feeling* or felt* or view* or opinion* or perception* or perspective* or

attitud* or satisfact* or know* or understand* or aware* or sad* or enjoy*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (887503)

19 health care access/ (72540)

20 ((access* or availab* or usab* or convenien* or inaccess* or unavailab* or unusab* or inconvenien*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (340094)

21 exp health care delivery/ (3704292)

22 ((deliver* or equit* or inequit* or equal* or inequali* or fair* or disparit* or variab* or variation or varied) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (401731)

23 exp socioeconomics/ or exp "social aspects and related phenomena"/ (2688275)

24 ((socioeconomic* or socio-econom* or sociocultur* or socio-cultur* or sociolog*) adj1 (factor* or status*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (3615)

25 (poverty or poor* or rich* or low-income* or middle-income* or high-income*).ti,ab. (1838111)

26 ((social or middle or low* or working or upper or base*) adj1 (class* or status*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (3641)

27 ((advantag* or disadvantag* or underserve* or under-serve* or depriv*) adj2 (background* or communit* or area* or region* or neighbourhood* or neighborhood* or societ* or group* or people or person* or participant* or individual*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (2515)

28 health care planning/ or implementation science/ (105599)

29 ((implement* or feasibil* or practical* or practicabil* or viab* or achievab*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (266368)

30 cultural anthropology/ or cultural factor/ or cultural diversity/ or superstition/ or taboo/ (118958)

31 ((cultur* or custom*) adj2 (belief* or believe* or diverse or diversit* or characteristic*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (875)

32 ((Superstitio* or taboo*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (162)

33 literacy/ or communication barrier/ or limited English proficiency/ (7140)

34 ((language* or nonfluen* or nonenglish* or "limited english" or literac*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (24285)

35 telephone/ or mobile phone/ or smartphone/ or personal digital assistant/ or computer/ (154105)

36 ((telephone* or phone* or smartphone* or computer* or laptop* or "smart patient" or mhealth* or m-health* or ehealth* or e-health* or "push notification*" or digital* or internet* or web* or online* or video* or remote* or virtual*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (168503)

37 or/9-36 (11703168)

38 8 and 37 (14989)

39 nonhuman/ not human/ (4915541)

40 38 not 39 (14840)

41 limit 40 to english language (14480)

42 (letter or editorial or conference abstract or conference paper or conference proceeding or "conference review").pt. (6987954)

43 41 not 42 (10137)

44 limit 43 to dc=20000101-20221231 (9489)

45 limit 43 to dc=20100101-20221231 (7828)

46 Qualitative Research/ (95430)

47 exp Interview/ (320732)

48 exp Questionnaire/ (809659)

49 exp Observational Method/ (7063)

50 Narrative/ (17150)

51 (qualitative$ or interview$ or focus group$ or questionnaire$ or narrative$ or narration$ or survey$).tw. (2245826)

52 (ethno$ or emic or etic or phenomenolog$ or grounded theory or constant compar$ or (thematic$ adj4 analys$) or theoretical sampl$ or purposive sampl$).tw. (142883)

53 (hermeneutic$ or heidegger$ or husser$ or colaizzi$ or van kaam$ or van manen$ or giorgi$ or glaser$ or strauss$ or ricoeur$ or spiegelberg$ or merleau$).tw. (14755)

54 (metasynthes$ or meta-synthes$ or metasummar$ or meta-summar$ or metastud$ or meta-stud$ or metathem$ or meta-them$).tw. (2192)

55 "critical interpretive synthes*".tw. (145)

56 (realist adj (review* or synthes*)).tw. (703)

57 (noblit and hare).tw. (96)

58 (meta adj (method or triangulation)).tw. (41)

59 (CERQUAL or CONQUAL).tw. (285)

60 ((thematic or framework) adj synthes*).tw. (1488)

61 or/46-60 (2495324)

62 Clinical study/ (157041)

63 Case control study/ (182467)

64 Family study/ (25370)

65 Longitudinal study/ (165991)

66 Retrospective study/ (1185239)

67 comparative study/ (932170)

68 Prospective study/ (738068)

69 Randomized controlled trials/ (218131)

70 68 not 69 (729547)

71 Cohort analysis/ (794487)

72 cohort analy$.tw. (15818)

73 (Cohort adj (study or studies)).tw. (373906)

74 (Case control$ adj (study or studies)).tw. (153739)

75 (follow up adj (study or studies)).tw. (68075)

76 (observational adj (study or studies)).tw. (207031)

77 (epidemiologic$ adj (study or studies)).tw. (114056)

78 (cross sectional adj (study or studies)).tw. (274064)

79 case series.tw. (124619)

80 prospective.tw. (971673)

81 retrospective.tw. (1053958)

82 or/62-67,70-81 (4672098)

83 random:.tw. (1742566)

84 placebo:.mp. (487343)

85 double-blind:.tw. (226576)

86 or/83-85 (2007799)

87 (MEDLINE or pubmed).tw. (326845)

88 exp systematic review/ or systematic review.tw. (392745)

89 meta-analysis/ (234349)

90 intervention$.ti. (229661)

91 or/87-90 (796712)

92 45 and 61 (2585)

93 44 and (82 or 86 or 91) (5737)

94 92 or 93 (6883)

95 afghanistan/ or africa/ or "africa south of the sahara"/ or albania/ or algeria/ or andorra/ or angola/ or argentina/ or "antigua and barbuda"/ or armenia/ or exp azerbaijan/ or bahamas/ or bahrain/ or bangladesh/ or barbados/ or belarus/ or belize/ or benin/ or bhutan/ or bolivia/ or borneo/ or exp "bosnia and herzegovina"/ or botswana/ or exp brazil/ or brunei darussalam/ or bulgaria/ or burkina faso/ or burundi/ or cambodia/ or cameroon/ or cape verde/ or central africa/ or central african republic/ or chad/ or exp china/ or comoros/ or congo/ or cook islands/ or cote d'ivoire/ or croatia/ or cuba/ or cyprus/ or democratic republic congo/ or djibouti/ or dominica/ or dominican republic/ or ecuador/ or el salvador/ or egypt/ or equatorial guinea/ or eritrea/ or eswatini/ or ethiopia/ or exp "federated states of micronesia"/ or fiji/ or gabon/ or gambia/ or exp "georgia (republic)"/ or ghana/ or grenada/ or guatemala/ or guinea/ or guinea-bissau/ or guyana/ or haiti/ or honduras/ or exp india/ or exp indonesia/ or iran/ or exp iraq/ or jamaica/ or jordan/ or kazakhstan/ or kenya/ or kiribati/ or kosovo/ or kuwait/ or kyrgyzstan/ or laos/ or lebanon/ or liechtenstein/ or lesotho/ or liberia/ or libyan arab jamahiriya/ or madagascar/ or malawi/ or exp malaysia/ or maldives/ or mali/ or malta/ or mauritania/ or mauritius/ or melanesia/ or moldova/ or monaco/ or mongolia/ or "montenegro (republic)"/ or morocco/ or mozambique/ or myanmar/ or namibia/ or nauru/ or nepal/ or nicaragua/ or niger/ or nigeria/ or niue/ or north africa/ or oman/ or exp pakistan/ or palau/ or palestine/ or panama/ or papua new guinea/ or paraguay/ or peru/ or philippines/ or polynesia/ or qatar/ or "republic of north macedonia"/ or romania/ or exp russian federation/ or rwanda/ or sahel/ or "saint kitts and nevis"/ or "saint lucia"/ or "saint vincent and the grenadines"/ or saudi arabia/ or senegal/ or exp serbia/ or seychelles/ or sierra leone/ or singapore/ or "sao tome and principe"/ or solomon islands/ or exp somalia/ or south africa/ or south asia/ or south sudan/ or exp southeast asia/ or sri lanka/ or sudan/ or suriname/ or syrian arab republic/ or taiwan/ or tajikistan/ or tanzania/ or thailand/ or timor-leste/ or togo/ or tonga/ or "trinidad and tobago"/ or tunisia/ or turkmenistan/ or tuvalu/ or uganda/ or exp ukraine/ or exp united arab emirates/ or uruguay/ or exp uzbekistan/ or vanuatu/ or venezuela/ or viet nam/ or western sahara/ or yemen/ or zambia/ or zimbabwe/ (1496488)

96 exp "organisation for economic co-operation and development"/ (1872)

97 exp australia/ or "australia and new zealand"/ or austria/ or baltic states/ or exp belgium/ or exp canada/ or chile/ or colombia/ or costa rica/ or czech republic/ or denmark/ or estonia/ or europe/ or exp finland/ or exp france/ or exp germany/ or greece/ or hungary/ or iceland/ or ireland/ or israel/ or exp italy/ or japan/ or korea/ or latvia/ or lithuania/ or luxembourg/ or exp mexico/ or netherlands/ or new zealand/ or north america/ or exp norway/ or poland/ or exp portugal/ or scandinavia/ or sweden/ or slovakia/ or slovenia/ or south korea/ or exp spain/ or switzerland/ or "Turkey (republic)"/ or exp united kingdom/ or exp united states/ or western europe/ (3524669)

98 european union/ (29001)

99 developed country/ (34333)

100 or/96-99 (3555308)

101 95 not 100 (1359026)

102 94 not 101 (6658)

103 94 and 101 (225)

Database name: PsycInfo

1 Weight Loss/ (4199)

2 exp overweight/ (28140)

3 (obes* or preobes* or overweight* or over-weight*).ti,ab. (46688)

4 or/2-3 (48290)

5 (weight* adj1 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (4216)

6 4 and 5 (3265)

7 ((obes* or preobes* or overweight* or over-weight*) adj2 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health* or prevent*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (1277)

8 1 or 6 or 7 (7329)

9 (uptake or take-up or takeup).ti,ab. (20590)

10 ((increas* or improv* or rais* or higher or decreas* or reduc* or poor* or low or lower or drop* or withdraw* or quit* or likely or unlikely or positiv* or negativ* or influen*) adj2 (rate* or participat* or refer* or usage or complian* or maintain* or attend* or engag* or disengag* or reach*)).ti,ab. (144917)

11 ((barrier* or facilitat* or hinder* or block* or obstacle* or restrict* or restrain* or obstruct* or inhibit* or impede* or delay* or constrain* or hindrance or enhance* or encourag* or support* or promot* or optimiz* or optimis* or motivat* or incentiv* or persuad* or persuasion or intend* or intention or counsel* or hesitan* or attrition) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (237023)

12 (("opt in" or "opt out" or "opting in" or "opting out" or "opted in" or "opted out" or "opts in" or "opts out") adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (147)

13 Health Attitudes/ or Attitudes/ or Health Personnel Attitudes/ (60886)

14 ((adher* or nonadher* or non-adher* or cooperat* or co-operat* or dropout* or drop-out* or empower* or involv*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (63519)

15 exp compliance/ (21379)

16 treatment refusal/ (830)

17 ((patient* or client*) adj3 (behaviour* or behavior* or habit* or choice* or acceptance* or unaccept* or refus* or comply* or compliance* or complie* or noncomply* or noncompliance* or noncomplie* or non-comply* or non-compliance* or non-complie* or cooperat* or uncooperat*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (4939)

18 Child Behavior/ or Eating Behavior/ or exp Social Behavior/ or Behavior/ or Behavior Therapy/ or Health Behavior/ or Adolescent Behavior/ (1276871)

19 Habits/ (4735)

20 exp Emotions/ (392256)

21 exp Motivation/ (153020)

22 exp Personality/ (489259)

23 Social Psychology/ (16383)

24 exp Lifestyle/ (12895)

25 ((experience* or belief* or stress* or emotion* or anx* or fear* or concern* or uncertain* or unsure or thought* or feeling* or felt* or view* or opinion* or perception* or perspective* or attitud* or satisfact* or know* or understand* or aware* or sad* or enjoy*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (270654)

26 Health Care Access/ (1673)

27 ((access* or availab* or usab* or convenien* or inaccess* or unavailab* or unusab* or inconvenien*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (52056)

28 exp Health Care Delivery/ (105925)

29 ((deliver* or equit* or inequit* or equal* or inequali* or fair* or disparit* or variab* or variation or varied) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (84214)

30 exp Socioeconomic Factors/ (90303)

31 ((socioeconomic* or socio-econom* or sociocultur* or socio-cultur* or sociolog*) adj1 (factor* or status*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (887)

32 (poverty or poor* or rich* or low-income* or middle-income* or high-income*).ti,ab. (267943)

33 ((social or middle or low* or working or upper or base*) adj1 (class* or status*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (1860)

34 ((advantag* or disadvantag* or underserve* or under-serve* or depriv*) adj2 (background* or communit* or area* or region* or neighbourhood* or neighborhood* or societ* or group* or people or person* or participant* or individual*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (868)

35 ((implement* or feasibil* or practical* or practicabil* or viab* or achievab*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (68436)

36 "culture (anthropological)"/ (21874)

37 Cultural Diversity/ or Cultural Sensitivity/ or Cultural Identity/ (11398)

38 superstitions/ (552)

39 taboos/ (627)

40 ((cultur* or custom*) adj2 (belief* or believe* or diverse or diversit* or characteristic*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (972)

41 ((Superstitio* or taboo*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (133)

42 exp literacy/ (20195)

43 communication barriers/ (904)

44 english as second language/ (8029)

45 ((language* or nonfluen* or nonenglish* or "limited english" or literac*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (19781)

46 exp telephone systems/ (8601)

47 computers/ (10487)

48 Tablet Computers/ (965)

49 ((telephone* or phone* or smartphone* or computer* or laptop* or "smart patient" or mhealth* or m-health* or ehealth* or e-health* or "push notification*" or digital* or internet* or web* or online* or video* or remote* or virtual*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (49192)

50 or/9-49 (2611680)

51 8 and 50 (5165)

52 limit 51 to english language (5049)

53 (2000* or 2001* or 2002* or 2003* or 2004* or 2005* or 2006* or 2007* or 2008* or 2009* or 2010* or 2011* or 2012* or 2013* or 2014* or 2015* or 2016* or 2017* or 2018* or 2019* or 2020* or 2021* or 2022*).up. (3519811)

54 52 and 53 (4424)

55 limit 54 to ("0200 book" or "0240 authored book" or "0280 edited book" or "0300 encyclopedia" or "0400 dissertation abstract") (676)

56 54 not 55 (3748)

Database name: HMIC

1 (weight* and reduction*).hw. (6)

2 (obes* or preobes* or overweight* or over-weight*).ti,ab. (4480)

3 (obes* or preobes* or overweight* or over-weight*).hw. (3716)

4 2 or 3 (5151)

5 (weight* adj1 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (265)

6 (weight* and (loss* or management* or reduc* or lifestyle* or life-style* or control* or health*) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (238)

7 5 or 6 (444)

8 4 and 7 (300)

9 ((obes* or preobes* or overweight* or over-weight*) adj2 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health* or prevent*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (115)

10 ((obes* or preobes* or overweight* or over-weight*) and (loss* or management* or reduc* or lifestyle* or life-style* or control* or health* or prevent*) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (463)

11 9 or 10 (550)

12 1 or 8 or 11 (728)

13 (uptake or take-up or takeup).ti,ab. (2837)

14 (uptake or take-up or takeup).hw. (101)

15 ((increas* or improv* or rais* or higher or decreas* or reduc* or poor* or low or lower or drop* or withdraw* or quit* or likely or unlikely or positiv* or negativ* or influen*) adj2 (rate* or participat* or refer* or usage or complian* or maintain* or attend* or engag* or disengag* or reach*)).ti,ab. (8129)

16 ((increas* or improv* or rais* or higher or decreas* or reduc* or poor* or low or lower or drop* or withdraw* or quit* or likely or unlikely or positiv* or negativ* or influen*) and (rate* or participat* or refer* or usage or complian* or maintain* or attend* or engag* or disengag* or reach*)).hw. (508)

17 ((barrier* or facilitat* or hinder* or block* or obstacle* or restrict* or restrain* or obstruct* or inhibit* or impede* or delay* or constrain* or hindrance or enhance* or encourag* or support* or promot* or optimiz* or optimis* or motivat* or incentiv* or persuad* or persuasion or intend* or intention or counsel* or hesitan* or attrition) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (18064)

18 ((barrier* or facilitat* or hinder* or block* or obstacle* or restrict* or restrain* or obstruct* or inhibit* or impede* or delay* or constrain* or hindrance or enhance* or encourag* or support* or promot* or optimiz* or optimis* or motivat* or incentiv* or persuad* or persuasion or intend* or intention or counsel* or hesitan* or attrition) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (5189)

19 (("opt in" or "opt out" or "opting in" or "opting out" or "opted in" or "opted out" or "opts in" or "opts out") adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (42)

20 (("opt in" or "opt out" or "opting in" or "opting out" or "opted in" or "opted out" or "opts in" or "opts out") and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (1)

21 ((adher* or nonadher* or non-adher* or cooperat* or co-operat* or dropout* or drop-out* or empower* or involv*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (5990)

22 ((adher* or nonadher* or non-adher* or cooperat* or co-operat* or dropout* or drop-out* or empower* or involv*) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (934)

23 ((patient* or client*) adj3 (behaviour* or behavior* or habit* or choice* or acceptance* or unaccept* or refus* or comply* or compliance* or complie* or noncomply* or noncompliance* or noncomplie* or non-comply* or non-compliance* or non-complie* or cooperat* or uncooperat*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (427)

24 ((patient* or client*) and (behaviour* or behavior* or habit* or choice* or acceptance* or unaccept* or refus* or comply* or compliance* or complie* or noncomply* or noncompliance* or noncomplie* or non-comply* or non-compliance* or non-complie* or cooperat* or uncooperat*) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (1735)

25 ((experience* or belief* or stress* or emotion* or anx* or fear* or concern* or uncertain* or unsure or thought* or feeling* or felt* or view* or opinion* or perception* or perspective* or attitud* or satisfact* or know* or understand* or aware* or sad* or enjoy*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (16634)

26 ((experience* or belief* or stress* or emotion* or anx* or fear* or concern* or uncertain* or unsure or thought* or feeling* or felt* or view* or opinion* or perception* or perspective* or attitud* or satisfact* or know* or understand* or aware* or sad* or enjoy*) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (10141)

27 ((access* or availab* or usab* or convenien* or inaccess* or unavailab* or unusab* or inconvenien*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (8050)

28 ((access* or availab* or usab* or convenien* or inaccess* or unavailab* or unusab* or inconvenien*) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (8641)

29 ((deliver* or equit* or inequit* or equal* or inequali* or fair* or disparit* or variab* or variation or varied) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (10868)

30 ((deliver* or equit* or inequit* or equal* or inequali* or fair* or disparit* or variab* or variation or varied) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (6755)

31 ((socioeconomic* or socio-econom* or sociocultur* or socio-cultur* or sociolog*) adj1 (factor* or status*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (83)

32 ((socioeconomic* or socio-econom* or sociocultur* or socio-cultur* or sociolog*) and (factor* or status*) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (783)

33 (poverty or poor* or rich* or low-income* or middle-income* or high-income*).ti,ab. (15466)

34 (poverty or poor* or rich* or low-income* or middle-income* or high-income*).hw. (2764)

35 ((social or middle or low* or working or upper or base*) adj1 (class* or status*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (100)

36 ((social or middle or low* or working or upper or base*) and (class* or status*) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (287)

37 ((advantag* or disadvantag* or underserve* or under-serve* or depriv*) adj2 (background* or communit* or area* or region* or neighbourhood* or neighborhood* or societ* or group* or people or person* or participant* or individual*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (257)

38 ((advantag* or disadvantag* or underserve* or under-serve* or depriv*) and (background* or communit* or area* or region* or neighbourhood* or neighborhood* or societ* or group* or people or person* or participant* or individual*) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (266)

39 ((implement* or feasibil* or practical* or practicabil* or viab* or achievab*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (6635)

40 ((implement* or feasibil* or practical* or practicabil* or viab* or achievab*) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (2489)

41 ((cultur* or custom*) adj2 (belief* or believe* or diverse or diversit* or characteristic*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (27)

42 ((cultur* or custom*) and (belief* or believe* or diverse or diversit* or characteristic*) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (97)

43 ((Superstitio* or taboo*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (2)

44 ((Superstitio* or taboo*) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (0)

45 ((language* or nonfluen* or nonenglish* or "limited english" or literac*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (501)

46 ((language* or nonfluen* or nonenglish* or "limited english" or literac*) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (228)

47 ((telephone* or phone* or smartphone* or computer* or laptop* or "smart patient" or mhealth* or m-health* or ehealth* or e-health* or "push notification*" or digital* or internet* or web* or online* or video* or remote* or virtual*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (3748)

48 ((telephone* or phone* or smartphone* or computer* or laptop* or "smart patient" or mhealth* or m-health* or ehealth* or e-health* or "push notification*" or digital* or internet* or web* or online* or video* or remote* or virtual*) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (3248)

49 or/13-48 (95435)

50 12 and 49 (397)

51 (2000* or 2001* or 2002* or 2003* or 2004* or 2005* or 2006* or 2007* or 2008* or 2009* or 2010* or 2011* or 2012* or 2013* or 2014* or 2015* or 2016* or 2017* or 2018* or 2019* or 2020* or 2021* or 2022*).up. (425108)

52 50 and 51 (397)

Database name: SPP

1 (weight* and reduction*).hw. (2)

2 (obes* or preobes* or overweight* or over-weight*).ti,ab. (1083)

3 (obes* or preobes* or overweight* or over-weight*).hw. (901)

4 2 or 3 (1286)

5 (weight* adj1 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (55)

6 (weight* and (loss* or management* or reduc* or lifestyle* or life-style* or control* or health*) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (26)

7 5 or 6 (78)

8 4 and 7 (53)

9 ((obes* or preobes* or overweight* or over-weight*) adj2 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health* or prevent*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (23)

10 ((obes* or preobes* or overweight* or over-weight*) and (loss* or management* or reduc* or lifestyle* or life-style* or control* or health* or prevent*) and (servic* or intervent* or

program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (256)

11 9 or 10 (272)

12 1 or 8 or 11 (304)

13 (uptake or take-up or takeup).ti,ab. (2172)

14 (uptake or take-up or takeup).hw. (1483)

15 ((increas* or improv* or rais* or higher or decreas* or reduc* or poor* or low or lower or drop* or withdraw* or quit* or likely or unlikely or positiv* or negativ* or influen*) adj2 (rate* or participat* or refer* or usage or complian* or maintain* or attend* or engag* or disengag* or reach*)).ti,ab. (6963)

16 ((increas* or improv* or rais* or higher or decreas* or reduc* or poor* or low or lower or drop* or withdraw* or quit* or likely or unlikely or positiv* or negativ* or influen*) and (rate* or participat* or refer* or usage or complian* or maintain* or attend* or engag* or disengag* or reach*)).hw. (1058)

17 ((barrier* or facilitat* or hinder* or block* or obstacle* or restrict* or restrain* or obstruct* or inhibit* or impede* or delay* or constrain* or hindrance or enhance* or encourag* or support* or promot* or optimiz* or optimis* or motivat* or incentiv* or persuad* or persuasion or intend* or intention or counsel* or hesitan* or attrition) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (26232)

18 ((barrier* or facilitat* or hinder* or block* or obstacle* or restrict* or restrain* or obstruct* or inhibit* or impede* or delay* or constrain* or hindrance or enhance* or encourag* or support* or promot* or optimiz* or optimis* or motivat* or incentiv* or persuad* or persuasion or intend* or intention or counsel* or hesitan* or attrition) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (12298)

19 (("opt in" or "opt out" or "opting in" or "opting out" or "opted in" or "opted out" or "opts in" or "opts out") adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (17)

20 (("opt in" or "opt out" or "opting in" or "opting out" or "opted in" or "opted out" or "opts in" or "opts out") and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (16)

21 ((adher* or nonadher* or non-adher* or cooperat* or co-operat* or dropout* or drop-out* or empower* or involv*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (7434)

22 ((adher* or nonadher* or non-adher* or cooperat* or co-operat* or dropout* or drop-out* or empower* or involv*) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (4929)

23 ((patient* or client*) adj3 (behaviour* or behavior* or habit* or choice* or acceptance* or unaccept* or refus* or comply* or compliance* or complie* or noncomply* or noncompliance* or noncomplie* or non-comply* or non-compliance* or non-complie* or cooperat* or uncooperat*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (148)

24 ((patient* or client*) and (behaviour* or behavior* or habit* or choice* or acceptance* or unaccept* or refus* or comply* or compliance* or complie* or noncomply* or noncompliance* or noncomplie* or non-comply* or non-compliance* or non-complie* or cooperat* or uncooperat*) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (276)

25 ((experience* or belief* or stress* or emotion* or anx* or fear* or concern* or uncertain* or unsure or thought* or feeling* or felt* or view* or opinion* or perception* or perspective* or attitud* or satisfact* or know* or understand* or aware* or sad* or enjoy*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (18791)

26 ((experience* or belief* or stress* or emotion* or anx* or fear* or concern* or uncertain* or unsure or thought* or feeling* or felt* or view* or opinion* or perception* or perspective* or attitud* or satisfact* or know* or understand* or aware* or sad* or enjoy*) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (15199)

27 ((access* or availab* or usab* or convenien* or inaccess* or unavailab* or unusab* or inconvenien*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (10915)

28 ((access* or availab* or usab* or convenien* or inaccess* or unavailab* or unusab* or inconvenien*) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (6881)

29 ((deliver* or equit* or inequit* or equal* or inequali* or fair* or disparit* or variab* or variation or varied) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (13913)

30 ((deliver* or equit* or inequit* or equal* or inequali* or fair* or disparit* or variab* or variation or varied) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (4334)

31 ((socioeconomic* or socio-econom* or sociocultur* or socio-cultur* or sociolog*) adj1 (factor* or status*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (21)

32 ((socioeconomic* or socio-econom* or sociocultur* or socio-cultur* or sociolog*) and (factor* or status*) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (105)

33 (poverty or poor* or rich* or low-income* or middle-income* or high-income*).ti,ab. (23136)

34 (poverty or poor* or rich* or low-income* or middle-income* or high-income*).hw. (14597)

35 ((social or middle or low* or working or upper or base*) adj1 (class* or status*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (84)

36 ((social or middle or low* or working or upper or base*) and (class* or status*) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (339)

37 ((advantag* or disadvantag* or underserve* or under-serve* or depriv*) adj2 (background* or communit* or area* or region* or neighbourhood* or neighborhood* or societ* or group* or people or person* or participant* or individual*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (279)

38 ((advantag* or disadvantag* or underserve* or under-serve* or depriv*) and (background* or communit* or area* or region* or neighbourhood* or neighborhood* or societ* or group* or people or person* or participant* or individual*) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (1202)

39 ((implement* or feasibil* or practical* or practicabil* or viab* or achievab*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (5916)

40 ((implement* or feasibil* or practical* or practicabil* or viab* or achievab*) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (891)

41 ((cultur* or custom*) adj2 (belief* or believe* or diverse or diversit* or characteristic*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (69)

42 ((cultur* or custom*) and (belief* or believe* or diverse or diversit* or characteristic*) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (163)

43 ((Superstitio* or taboo*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (7)

44 ((Superstitio* or taboo*) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (1)

45 ((language* or nonfluen* or nonenglish* or "limited english" or literac*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (616)

46 ((language* or nonfluen* or nonenglish* or "limited english" or literac*) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (590)

47 ((telephone* or phone* or smartphone* or computer* or laptop* or "smart patient" or mhealth* or m-health* or ehealth* or e-health* or "push notification*" or digital* or internet* or web* or online* or video* or remote* or virtual*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (2444)

48 ((telephone* or phone* or smartphone* or computer* or laptop* or "smart patient" or mhealth* or m-health* or ehealth* or e-health* or "push notification*" or digital* or internet* or web* or online* or video* or remote* or virtual*) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (2586)

49 or/13-48 (116959)

50 12 and 49 (210)

51 (2000* or 2001* or 2002* or 2003* or 2004* or 2005* or 2006* or 2007* or 2008* or 2009* or 2010* or 2011* or 2012* or 2013* or 2014* or 2015* or 2016* or 2017* or 2018* or 2019* or 2020* or 2021* or 2022*).up. (274312)

52 50 and 51 (195)

Database name: Cochrane: CDSR and CENTRAL

#1 MeSH descriptor: [Weight Reduction Programs] this term only 849

#2 MeSH descriptor: [Obesity] explode all trees 15271

#3 MeSH descriptor: [Overweight] explode all trees 18120

#4 (obes* or preobes* or overweight* or over-weight*):ti,ab 45929

#5 {or #2-#4} 48507

#6 (weight* NEAR/1 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health*) NEAR/2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)):ti,ab 6423

#7 #5 and #6 5092

#8 ((obes* or preobes* or overweight* or over-weight*) NEAR/2 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health* or prevent*) NEAR/2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)):ti,ab 1344

#9 #1 or #7 or #8 6557

#10 (uptake or take-up or takeup):ti,ab 17141

#11 ((increas* or improv* or rais* or higher or decreas* or reduc* or poor* or low or lower or drop* or withdraw* or quit* or likely or unlikely or positiv* or negativ* or influen*) NEAR/2 (rate* or participat* or refer* or usage or complian* or maintain* or attend* or engag* or disengag* or reach*)):ti,ab 108782

#12 ((barrier* or facilitat* or hinder* or block* or obstacle* or restrict* or restrain* or obstruct* or inhibit* or impede* or delay* or constrain* or hindrance or enhance* or encourag* or support* or promot* or optimiz* or optimis* or motivat* or incentiv* or persuad* or persuasion or intend* or intention or counsel* or hesitan* or attrition) NEAR/4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)):ti,ab 134203

#13 (("opt in" or "opt out" or "opting in" or "opting out" or "opted in" or "opted out" or "opts in" or "opts out") NEAR/4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)):ti,ab 148

#14 MeSH descriptor: [Attitude] this term only 1150

#15 MeSH descriptor: [Attitude of Health Personnel] this term only 2006

#16 MeSH descriptor: [Attitude to Health] explode all trees 37164

#17 ((adher* or nonadher* or non-adher* or cooperat* or co-operat* or dropout* or drop-out* or empower* or involv*) NEAR/4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)):ti,ab 44699

#18 MeSH descriptor: [Patient Acceptance of Health Care] this term only 3192

#19 MeSH descriptor: [Patient Compliance] this term only 9985

#20 MeSH descriptor: [Treatment Refusal] this term only 271

#21 ((patient* or client*) NEAR/3 (behaviour* or behavior* or habit* or choice* or acceptance* or unaccept* or refus* or comply* or compliance* or complie* or noncomply* or noncompliance* or noncomplie* or non-comply* or non-compliance* or non-complie* or cooperat* or uncooperat*) NEAR/4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)):ti,ab 4618

#22 MeSH descriptor: [Patients] explode all trees and with qualifier(s): [psychology - PX] 659

#23 MeSH descriptor: [Behaviorism] explode all trees 2

#24 MeSH descriptor: [Behavior Therapy] this term only 4831

#25 MeSH descriptor: [Adolescent Behavior] this term only 1466

#26 MeSH descriptor: [Child Behavior] this term only 1526

#27 MeSH descriptor: [Feeding Behavior] this term only 3451

#28 MeSH descriptor: [Habits] this term only 186

#29 MeSH descriptor: [Health Behavior] this term only 4357

#30 MeSH descriptor: [Personal Satisfaction] this term only 1008

#31 MeSH descriptor: [Social Behavior] explode all trees 7426

#32 MeSH descriptor: [Emotions] explode all trees 18827

#33 MeSH descriptor: [Motivation] explode all trees 9020

#34 MeSH descriptor: [Psychology, Social] explode all trees 25762

#35 MeSH descriptor: [Life Style] explode all trees 6074

#36 ((experience* or belief* or stress* or emotion* or anx* or fear* or concern* or uncertain* or unsure or thought* or feeling* or felt* or view* or opinion* or perception* or perspective* or attitud* or satisfact* or know* or understand* or aware* or sad* or enjoy*) NEAR/4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)):ti,ab 94694

#37 MeSH descriptor: [Health Services Accessibility] this term only 738

#38 ((access* or availab* or usab* or convenien* or inaccess* or unavailab* or unusab* or inconvenien*) NEAR/4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)):ti,ab 28507

#39 MeSH descriptor: [Delivery of Health Care] explode all trees 48645

#40 ((deliver* or equit* or inequit* or equal* or inequali* or fair* or disparit* or variab* or variation or varied) NEAR/4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)):ti,ab 51359

#41 MeSH descriptor: [Socioeconomic Factors] explode all trees 10473

#42 MeSH descriptor: [Sociological Factors] explode all trees 18771

#43 ((socioeconomic* or socio-econom* or sociocultur* or socio-cultur* or sociolog*) NEAR/1 (factor* or status*) NEAR/4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)):ti,ab 277

#44 (poverty or poor* or rich* or low-income* or middle-income* or high-income*):ti,ab 81034

#45 ((social or middle or low* or working or upper or base*) NEAR/1 (class* or status*) NEAR/4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)):ti,ab 679

#46 ((advantag* or disadvantag* or underserve* or under-serve* or depriv*) NEAR/2 (background* or communit* or area* or region* or neighbourhood* or neighborhood* or societ* or group* or people or person* or participant* or individual*) NEAR/4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)):ti,ab 395

#47 MeSH descriptor: [Health Plan Implementation] this term only 189

#48 MeSH descriptor: [Implementation Science] this term only 53

#49 ((implement* or feasibil* or practical* or practicabil* or viab* or achievab*) NEAR/4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)):ti,ab 33445

#50 MeSH descriptor: [Culture] this term only 501

#51 MeSH descriptor: [Cultural Characteristics] this term only 176

#52 MeSH descriptor: [Cultural Diversity] this term only 75

#53 MeSH descriptor: [Superstitions] this term only 8

#54 MeSH descriptor: [Taboo] this term only 6

#55 ((cultur* or custom*) NEAR/2 (belief* or believe* or diverse or diversit* or characteristic*) NEAR/4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)):ti,ab 51

#56 ((Superstitio* or taboo*) NEAR/4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)):ti,ab 6

#57 MeSH descriptor: [Literacy] this term only 41

#58 MeSH descriptor: [Communication Barriers] this term only 107

#59 MeSH descriptor: [Limited English Proficiency] this term only 5

#60 ((language* or nonfluen* or nonenglish* or "limited english" or literac*) NEAR/4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)):ti,ab 5395

#61 MeSH descriptor: [Telephone] this term only 2287

#62 MeSH descriptor: [Cell Phone] this term only 771

#63 MeSH descriptor: [Smartphone] this term only 591

#64 MeSH descriptor: [Computers, Handheld] this term only 305

#65 MeSH descriptor: [Computers] this term only 578

#66 ((telephone* or phone* or smartphone* or computer* or laptop* or "smart patient" or mhealth* or m-health* or ehealth* or e-health* or "push notification" or "push notifications" or digital* or internet* or web* or online* or video* or remote* or virtual*) NEAR/4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)):ti,ab 42200

#67 {or #10-#66} 510662

#68 #9 and #67 4343

#69 "conference":pt or (clinicaltrials or trialsearch):so 582582

#70 #68 NOT #69 with Cochrane Library publication date Between Jan 2000 and Jan 2022, in Cochrane Reviews 26

#71 #68 NOT #69 with Publication Year from 2000 to 2022, in Trials 2852

Re-run search – Databases

The guideline for weight management adopted a living guideline approach and published recommendations for each review question once they were made. Therefore, re-runs were not required for RQ1.3 and RQ1.4.

Cost-effectiveness searches

Main search – Databases

Database	Date searched	Database Platform	Database segment or version	No. of results downloaded
Medline	01/02/2022	OVID	1946 to January 31, 2022	253
Medline in process	01/02/2022	OVID	1946 to January 31, 2022	2
Medline ePub ahead	01/02/2022	OVID	January 31, 2022	4
Embase	01/02/2022	OVID	1974 to 2022 February 01	151
Econlit	01/02/2022	OVID	1974 to 2022 January 31>	8
NHS EED	01/02/2022	CRD	N/A	51
INAHTA	01/02/2022	INAHTA	N/A	61

Search strategy history

Database name: Medline

1 Weight Reduction Programs/ (2670)

2 exp *Obesity/ or overweight/ (186690)

3 (obes* or preobes* or overweight* or over-weight*).ti,ab. (310587)

4 or/2-3 (337898)

5 (weight* adj1 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (11461)

6 4 and 5 (8970)

7 ((obes* or preobes* or overweight* or over-weight*) adj2 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health* or prevent*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (3241)

8 1 or 6 or 7 (13129)

9 (uptake or take-up or takeup).ti,ab. (353371)

10 ((increas* or improv* or rais* or higher or decreas* or reduc* or poor* or low or lower or drop* or withdraw* or quit* or likely or unlikely or positiv* or negativ* or influen*) adj2 (rate* or participat* or refer* or usage or complian* or maintain* or attend* or engag* or disengag* or reach*)).ti,ab. (695396)

11 ((barrier* or facilitat* or hinder* or block* or obstacle* or restrict* or restrain* or obstruct* or inhibit* or impede* or delay* or constrain* or hindrance or enhance* or encourag* or support* or promot* or optimiz* or optimis* or motivat* or incentiv* or persuad* or persuasion or intend* or intention or counsel* or hesitan* or attrition) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (706519)

12 (("opt in" or "opt out" or "opting in" or "opting out" or "opted in" or "opted out" or "opts in" or "opts out") adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (361)

13 attitude/ or "attitude of health personnel"/ or exp Attitude to Health/ (598248)

14 ((adher* or nonadher* or non-adher* or cooperat* or co-operat* or dropout* or drop-out* or empower* or involv*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (161116)

15 Patient Acceptance of Health Care/ or Patient compliance/ or Treatment refusal/ (121925)

16 ((patient* or client*) adj3 (behaviour* or behavior* or habit* or choice* or acceptance* or unaccept* or refus* or comply* or compliance* or complie* or noncomply* or noncompliance* or noncomplie* or non-comply* or non-compliance* or non-complie* or cooperat* or uncooperat*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (16805)

17 exp patients/px or behavior/ or behavior Therapy/ or adolescent behavior/ or child behavior/ or feeding behavior/ or habits/ or health behavior/ or personal satisfaction/ or exp social behavior/ or exp emotions/ or exp motivation/ or exp personality/ or psychology, social/ or exp life style/ (1179582)

18 ((experience* or belief* or stress* or emotion* or anx* or fear* or concern* or uncertain* or unsure or thought* or feeling* or felt* or view* or opinion* or perception* or perspective* or attitud* or satisfact* or know* or understand* or aware* or sad* or enjoy*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (549375)

19 Health Services Accessibility/ (82309)

20 ((access* or availab* or usab* or convenien* or inaccess* or unavailab* or unusab* or inconvenien*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (198643)

21 exp "Delivery of Health Care"/ (1167922)

22 ((deliver* or equit* or inequit* or equal* or inequali* or fair* or disparit* or variab* or variation or varied) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (238143)

23 exp Socioeconomic Factors/ or exp sociological factors/ (880133)

24 ((socioeconomic* or socio-econom* or sociocultur* or socio-cultur* or sociolog*) adj1 (factor* or status*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (2131)

25 (poverty or poor* or rich* or low-income* or middle-income* or high-income*).ti,ab. (1166798)

26 ((social or middle or low* or working or upper or base*) adj1 (class* or status*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (2334)

27 ((advantag* or disadvantag* or underserve* or under-serve* or depriv*) adj2 (background* or communit* or area* or region* or neighbourhood* or neighborhood* or societ* or group* or people or person* or participant* or individual*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (1608)

28 Health Plan Implementation/ or Implementation Science/ (7588)

29 ((implement* or feasibil* or practical* or practicabil* or viab* or achievab*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (161015)

30 Culture/ or Cultural Characteristics/ or Cultural Diversity/ or Superstitions/ or Taboo/ (62942)

31 ((cultur* or custom*) adj2 (belief* or believe* or diverse or diversit* or characteristic*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (587)

32 ((Superstitio* or taboo*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (100)

33 Literacy/ or Communication Barriers/ or Limited English Proficiency/ (8270)

34 ((language* or nonfluen* or nonenglish* or "limited english" or literac*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (15259)

35 Telephone/ or Cell Phone/ or Smartphone/ or Computers, Handheld/ or Computers/ (84039)

36 ((telephone* or phone* or smartphone* or computer* or laptop* or "smart patient" or mhealth* or m-health* or ehealth* or e-health* or "push notification*" or digital* or internet* or web* or online* or video* or remote* or virtual*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (104017)

37 or/9-36 (5749083)

38 8 and 37 (9016)

39 animals/ not humans/ (4918000)

40 38 not 39 (8918)

41 limit 40 to english language (8679)

42 limit 41 to ed=20000101-20221231 (8061)

43 Cost-Benefit Analysis/ (88239)

44 (cost* and ((qualit* adj2 adjust* adj2 life*) or qaly*)).tw. (13141)

45 ((incremental* adj2 cost*) or ICER).tw. (13549)

46 (cost adj2 utilit*).tw. (5156)

47 (cost* and ((net adj benefit*) or (net adj monetary adj benefit*) or (net adj health adj benefit*))).tw. (1688)

48 ((cost adj2 (effect* or utilit*)) and (quality adj of adj life)).tw. (17922)

49 (cost and (effect* or utilit*)).ti. (30136)

50 or/43-49 (99896)

51 42 and 50 (253)

Database name: Medline in process

1 Weight Reduction Programs/ (0)

2 exp *Obesity/ or overweight/ (0)

3 (obes* or preobes* or overweight* or over-weight*).ti,ab. (3660)

4 or/2-3 (3660)

5 (weight* adj1 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (119)

6 4 and 5 (85)

7 ((obes* or preobes* or overweight* or over-weight*) adj2 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health* or prevent*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (46)

8 1 or 6 or 7 (125)

9 (uptake or take-up or takeup).ti,ab. (2634)

10 ((increas* or improv* or rais* or higher or decreas* or reduc* or poor* or low or lower or drop* or withdraw* or quit* or likely or unlikely or positiv* or negativ* or influen*) adj2 (rate* or participat* or refer* or usage or complian* or maintain* or attend* or engag* or disengag* or reach*)).ti,ab. (6472)

11 ((barrier* or facilitat* or hinder* or block* or obstacle* or restrict* or restrain* or obstruct* or inhibit* or impede* or delay* or constrain* or hindrance or enhance* or encourag* or support* or promot* or optimiz* or optimis* or motivat* or incentiv* or persuad* or persuasion or intend* or intention or counsel* or hesitan* or attrition) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (9299)

12 (("opt in" or "opt out" or "opting in" or "opting out" or "opted in" or "opted out" or "opts in" or "opts out") adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (7)

13 attitude/ or "attitude of health personnel"/ or exp Attitude to Health/ (0)

14 ((adher* or nonadher* or non-adher* or cooperat* or co-operat* or dropout* or drop-out* or empower* or involv*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (1626)

15 Patient Acceptance of Health Care/ or Patient compliance/ or Treatment refusal/ (0)

16 ((patient* or client*) adj3 (behaviour* or behavior* or habit* or choice* or acceptance* or unaccept* or refus* or comply* or compliance* or complie* or noncomply* or noncompliance* or noncomplie* or non-comply* or non-compliance* or non-complie* or cooperat* or uncooperat*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (121)

17 exp patients/px or behavior/ or behavior Therapy/ or adolescent behavior/ or child behavior/ or feeding behavior/ or habits/ or health behavior/ or personal satisfaction/ or exp social behavior/ or exp emotions/ or exp motivation/ or exp personality/ or psychology, social/ or exp life style/ (0)

18 ((experience* or belief* or stress* or emotion* or anx* or fear* or concern* or uncertain* or unsure or thought* or feeling* or felt* or view* or opinion* or perception* or perspective* or attitud* or satisfact* or know* or understand* or aware* or sad* or enjoy*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (5564)

19 Health Services Accessibility/ (0)

20 ((access* or availab* or usab* or convenien* or inaccess* or unavailab* or unusab* or inconvenien*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (2452)

21 exp "Delivery of Health Care"/ (0)

22 ((deliver* or equit* or inequit* or equal* or inequali* or fair* or disparit* or variab* or variation or varied) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (2762)

23 exp Socioeconomic Factors/ or exp sociological factors/ (0)

24 ((socioeconomic* or socio-econom* or sociocultur* or socio-cultur* or sociolog*) adj1 (factor* or status*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (25)

25 (poverty or poor* or rich* or low-income* or middle-income* or high-income*).ti,ab. (13954)

26 ((social or middle or low* or working or upper or base*) adj1 (class* or status*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (24)

27 ((advantag* or disadvantag* or underserve* or under-serve* or depriv*) adj2 (background* or communit* or area* or region* or neighbourhood* or neighborhood* or societ* or group* or people or person* or participant* or individual*) adj4 (servic* or intervent*

or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (23)

28 Health Plan Implementation/ or Implementation Science/ (0)

29 ((implement* or feasibil* or practical* or practicabil* or viab* or achievab*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (2036)

30 Culture/ or Cultural Characteristics/ or Cultural Diversity/ or Superstitions/ or Taboo/ (0)

31 ((cultur* or custom*) adj2 (belief* or believe* or diverse or diversit* or characteristic*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (6)

32 ((Superstitio* or taboo*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (1)

33 Literacy/ or Communication Barriers/ or Limited English Proficiency/ (0)

34 ((language* or nonfluen* or nonenglish* or "limited english" or literac*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (181)

35 Telephone/ or Cell Phone/ or Smartphone/ or Computers, Handheld/ or Computers/ (0)

36 ((telephone* or phone* or smartphone* or computer* or laptop* or "smart patient" or mhealth* or m-health* or ehealth* or e-health* or "push notification*" or digital* or internet* or web* or online* or video* or remote* or virtual*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (1070)

37 or/9-36 (39059)

38 8 and 37 (62)

39 animals/ not humans/ (0)

40 38 not 39 (62)

41 limit 40 to english language (62)

42 limit 41 to dt=20000101-20221231 (62)

43 Cost-Benefit Analysis/ (0)

44 (cost* and ((qualit* adj2 adjust* adj2 life*) or qaly*)).tw. (190)

45 ((incremental* adj2 cost*) or ICER).tw. (163)

46 (cost adj2 utilit*).tw. (71)

47 (cost* and ((net adj benefit*) or (net adj monetary adj benefit*) or (net adj health adj benefit*))).tw. (27)

48 ((cost adj2 (effect* or utilit*)) and (quality adj of adj life)).tw. (228)

49 (cost and (effect* or utilit*)).ti. (277)

50 or/43-49 (421)

51 42 and 50 (2)

Database name: Medline ePub ahead

1 Weight Reduction Programs/ (0)

2 exp *Obesity/ or overweight/ (0)

3 (obes* or preobes* or overweight* or over-weight*).ti,ab. (5844)

4 or/2-3 (5844)

5 (weight* adj1 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (249)

6 4 and 5 (169)

7 ((obes* or preobes* or overweight* or over-weight*) adj2 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health* or prevent*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (66)

8 1 or 6 or 7 (227)

9 (uptake or take-up or takeup).ti,ab. (4467)

10 ((increas* or improv* or rais* or higher or decreas* or reduc* or poor* or low or lower or drop* or withdraw* or quit* or likely or unlikely or positiv* or negativ* or influen*) adj2 (rate* or participat* or refer* or usage or complian* or maintain* or attend* or engag* or disengag* or reach*)).ti,ab. (14746)

11 ((barrier* or facilitat* or hinder* or block* or obstacle* or restrict* or restrain* or obstruct* or inhibit* or impede* or delay* or constrain* or hindrance or enhance* or encourag* or support* or promot* or optimiz* or optimis* or motivat* or incentiv* or persuad* or persuasion or intend* or intention or counsel* or hesitan* or attrition) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (17291)

12 (("opt in" or "opt out" or "opting in" or "opting out" or "opted in" or "opted out" or "opts in" or "opts out") adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (13)

13 attitude/ or "attitude of health personnel"/ or exp Attitude to Health/ (0)

14 ((adher* or nonadher* or non-adher* or cooperat* or co-operat* or dropout* or drop-out* or empower* or involv*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (3801)

15 Patient Acceptance of Health Care/ or Patient compliance/ or Treatment refusal/ (0)

16 ((patient* or client*) adj3 (behaviour* or behavior* or habit* or choice* or acceptance* or unaccept* or refus* or comply* or compliance* or complie* or noncomply* or noncompliance* or noncomplie* or non-comply* or non-compliance* or non-complie* or cooperat* or uncooperat*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (276)

17 exp patients/px or behavior/ or behavior Therapy/ or adolescent behavior/ or child behavior/ or feeding behavior/ or habits/ or health behavior/ or personal satisfaction/ or exp social behavior/ or exp emotions/ or exp motivation/ or exp personality/ or psychology, social/ or exp life style/ (0)

18 ((experience* or belief* or stress* or emotion* or anx* or fear* or concern* or uncertain* or unsure or thought* or feeling* or felt* or view* or opinion* or perception* or perspective* or attitud* or satisfact* or know* or understand* or aware* or sad* or enjoy*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (13292)

19 Health Services Accessibility/ (0)

20 ((access* or availab* or usab* or convenien* or inaccess* or unavailab* or unusab* or inconvenien*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (5690)

21 exp "Delivery of Health Care"/ (0)

22 ((deliver* or equit* or inequit* or equal* or inequali* or fair* or disparit* or variab* or variation or varied) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (6663)

23 exp Socioeconomic Factors/ or exp sociological factors/ (0)

24 ((socioeconomic* or socio-econom* or sociocultur* or socio-cultur* or sociolog*) adj1 (factor* or status*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (59)

25 (poverty or poor* or rich* or low-income* or middle-income* or high-income*).ti,ab. (23817)

26 ((social or middle or low* or working or upper or base*) adj1 (class* or status*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (63)

27 ((advantag* or disadvantag* or underserve* or under-serve* or depriv*) adj2 (background* or communit* or area* or region* or neighbourhood* or neighborhood* or societ* or group* or people or person* or participant* or individual*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (58)

28 Health Plan Implementation/ or Implementation Science/ (0)

29 ((implement* or feasibil* or practical* or practicabil* or viab* or achievab*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (4812)

30 Culture/ or Cultural Characteristics/ or Cultural Diversity/ or Superstitions/ or Taboo/ (0)

31 ((cultur* or custom*) adj2 (belief* or believe* or diverse or diversit* or characteristic*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (22)

32 ((Superstitio* or taboo*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (1)

33 Literacy/ or Communication Barriers/ or Limited English Proficiency/ (0)

34 ((language* or nonfluen* or nonenglish* or "limited english" or literac*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (641)

35 Telephone/ or Cell Phone/ or Smartphone/ or Computers, Handheld/ or Computers/ (0)

36 ((telephone* or phone* or smartphone* or computer* or laptop* or "smart patient" or mhealth* or m-health* or ehealth* or e-health* or "push notification*" or digital* or internet* or web* or online* or video* or remote* or virtual*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (3325)

37 or/9-36 (77116)

38 8 and 37 (135)

39 animals/ not humans/ (0)

40 38 not 39 (135)

41 limit 40 to english language (134)

42 limit 41 to dt=20000101-20221231 (134)

43 Cost-Benefit Analysis/ (0)

44 (cost* and ((qualit* adj2 adjust* adj2 life*) or qaly*)).tw. (469)

45 ((incremental* adj2 cost*) or ICER).tw. (406)

46 (cost adj2 utilit*).tw. (207)

47 (cost* and ((net adj benefit*) or (net adj monetary adj benefit*) or (net adj health adj benefit*))).tw. (57)

48 ((cost adj2 (effect* or utilit*)) and (quality adj of adj life)).tw. (637)

49 (cost and (effect* or utilit*)).ti. (631)

50 or/43-49 (1219)

51 42 and 50 (4)

Database name: Embase

1 weight loss program/ (2801)

2 exp *Obesity/ (264714)

3 (obes* or preobes* or overweight* or over-weight*).ti,ab. (523374)

4 or/2-3 (573454)

5 (weight* adj1 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (19721)

6 4 and 5 (14572)

7 ((obes* or preobes* or overweight* or over-weight*) adj2 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health* or prevent*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (4951)

8 1 or 6 or 7 (20289)

9 (uptake or take-up or takeup).ti,ab. (493190)

10 ((increas* or improv* or rais* or higher or decreas* or reduc* or poor* or low or lower or drop* or withdraw* or quit* or likely or unlikely or positiv* or negativ* or influen*) adj2 (rate* or participat* or refer* or usage or complian* or maintain* or attend* or engag* or disengag* or reach*)).ti,ab. (1136730)

11 ((barrier* or facilitat* or hinder* or block* or obstacle* or restrict* or restrain* or obstruct* or inhibit* or impede* or delay* or constrain* or hindrance or enhance* or encourag* or support* or promot* or optimiz* or optimis* or motivat* or incentiv* or persuad* or persuasion or intend* or intention or counsel* or hesitan* or attrition) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (1171719)

12 (("opt in" or "opt out" or "opting in" or "opting out" or "opted in" or "opted out" or "opts in" or "opts out") adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (734)

13 health personnel attitude/ or exp attitude to health/ or exp patient attitude/ (623977)

14 ((adher* or nonadher* or non-adher* or cooperat* or co-operat* or dropout* or drop-out* or empower* or involv*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (270034)

15 Patient Acceptance of Health Care/ or Patient compliance/ or Treatment refusal/ (216809)

16 ((patient* or client*) adj3 (behaviour* or behavior* or habit* or choice* or acceptance* or unaccept* or refus* or comply* or compliance* or complie* or noncomply* or noncompliance* or noncomplie* or non-comply* or non-compliance* or non-complie* or cooperat* or uncooperat*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (30567)

17 behavior/ or behavior therapy/ or adolescent behavior/ or child behavior/ or feeding behavior/ or habit/ or satisfaction/ or exp social behavior/ or exp emotion/ or exp motivation/ or exp personality/ or social psychology/ or exp lifestyle/ (3212560)

18 ((experience* or belief* or stress* or emotion* or anx* or fear* or concern* or uncertain* or unsure or thought* or feeling* or felt* or view* or opinion* or perception* or perspective* or attitud* or satisfact* or know* or understand* or aware* or sad* or enjoy*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (891107)

19 health care access/ (72906)

20 ((access* or availab* or usab* or convenien* or inaccess* or unavailab* or unusab* or inconvenien*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (341664)

21 exp health care delivery/ (3717646)

22 ((deliver* or equit* or inequit* or equal* or inequali* or fair* or disparit* or variab* or variation or varied) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (403694)

23 exp socioeconomics/ or exp "social aspects and related phenomena"/ (2696358)

24 ((socioeconomic* or socio-econom* or sociocultur* or socio-cultur* or sociolog*) adj1 (factor* or status*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (3631)

25 (poverty or poor* or rich* or low-income* or middle-income* or high-income*).ti,ab. (1846293)

26 ((social or middle or low* or working or upper or base*) adj1 (class* or status*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (3667)

27 ((advantag* or disadvantag* or underserve* or under-serve* or depriv*) adj2 (background* or communit* or area* or region* or neighbourhood* or neighborhood* or societ* or group* or people or person* or participant* or individual*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (2523)

28 health care planning/ or implementation science/ (105832)

29 ((implement* or feasibil* or practical* or practicabil* or viab* or achievab*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (267748)

30 cultural anthropology/ or cultural factor/ or cultural diversity/ or superstition/ or taboo/ (119148)

31 ((cultur* or custom*) adj2 (belief* or believe* or diverse or diversit* or characteristic*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (877)

32 ((Superstitio* or taboo*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (162)

33 literacy/ or communication barrier/ or limited English proficiency/ (7205)

34 ((language* or nonfluen* or nonenglish* or "limited english" or literac*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (24391)

35 telephone/ or mobile phone/ or smartphone/ or personal digital assistant/ or computer/ (154649)

36 ((telephone* or phone* or smartphone* or computer* or laptop* or "smart patient" or mhealth* or m-health* or ehealth* or e-health* or "push notification*" or digital* or internet* or web* or online* or video* or remote* or virtual*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (169406)

37 or/9-36 (11745850)

38 8 and 37 (15024)

39 nonhuman/ not human/ (4925095)

40 38 not 39 (14876)

41 limit 40 to english language (14518)

42 (letter or editorial or conference abstract or conference paper or conference proceeding or "conference review").pt. (7005180)

43 41 not 42 (10166)

44 limit 43 to dc=20000101-20221231 (9518)

45 cost utility analysis/ (10885)

46 (cost* and ((qualit* adj2 adjust* adj2 life*) or qaly*)).tw. (26078)

47 ((incremental* adj2 cost*) or ICER).tw. (26685)

48 (cost adj2 utilit*).tw. (9629)

49 (cost* and ((net adj benefit*) or (net adj monetary adj benefit*) or (net adj health adj benefit*))).tw. (2702)

50 ((cost adj2 (effect* or utilit*)) and (quality adj of adj life)).tw. (31801)

51 (cost and (effect* or utilit*)).ti. (51239)

52 or/45-51 (80827)

53 44 and 52 (151)

Database name: Econlit

1 (obes* or preobes* or overweight* or over-weight*).ti,ab. (2470)

2 (weight* adj1 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (18)

3 1 and 2 (12)

4 ((obes* or preobes* or overweight* or over-weight*) adj2 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health* or prevent*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (20)

5 3 or 4 (30)

6 (uptake or take-up or takeup).ti,ab. (2745)

7 ((increas* or improv* or rais* or higher or decreas* or reduc* or poor* or low or lower or drop* or withdraw* or quit* or likely or unlikely or positiv* or negativ* or influen*) adj2 (rate* or participat* or refer* or usage or complian* or maintain* or attend* or engag* or disengag* or reach*)).ti,ab. (36468)

8 ((barrier* or facilitat* or hinder* or block* or obstacle* or restrict* or restrain* or obstruct* or inhibit* or impede* or delay* or constrain* or hindrance or enhance* or encourag* or support* or promot* or optimiz* or optimis* or motivat* or incentiv* or persuad* or persuasion

or intend* or intention or counsel* or hesitan* or attrition) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (18469)

9 (("opt in" or "opt out" or "opting in" or "opting out" or "opted in" or "opted out" or "opts in" or "opts out") adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (62)

10 ((adher* or nonadher* or non-adher* or cooperat* or co-operat* or dropout* or drop-out* or empower* or involv*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (3417)

11 ((patient* or client*) adj3 (behaviour* or behavior* or habit* or choice* or acceptance* or unaccept* or refus* or comply* or compliance* or complie* or noncomply* or noncompliance* or noncomplie* or non-comply* or non-compliance* or non-complie* or cooperat* or uncooperat*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (70)

12 ((experience* or belief* or stress* or emotion* or anx* or fear* or concern* or uncertain* or unsure or thought* or feeling* or felt* or view* or opinion* or perception* or perspective* or attitud* or satisfact* or know* or understand* or aware* or sad* or enjoy*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (12536)

13 ((access* or availab* or usab* or convenien* or inaccess* or unavailab* or unusab* or inconvenien*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (5348)

14 ((deliver* or equit* or inequit* or equal* or inequali* or fair* or disparit* or variab* or variation or varied) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (9281)

15 ((socioeconomic* or socio-econom* or sociocultur* or socio-cultur* or sociolog*) adj1 (factor* or status*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (41)

16 (poverty or poor* or rich* or low-income* or middle-income* or high-income*).ti,ab. (87638)

17 ((social or middle or low* or working or upper or base*) adj1 (class* or status*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (99)

18 ((advantag* or disadvantag* or underserve* or under-serve* or depriv*) adj2 (background* or communit* or area* or region* or neighbourhood* or neighborhood* or societ* or group* or people or person* or participant* or individual*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (106)

19 ((implement* or feasibil* or practical* or practicabil* or viab* or achievab*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (6751)

20 ((cultur* or custom*) adj2 (belief* or believe* or diverse or diversit* or characteristic*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (32)

21 ((Superstitio* or taboo*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (4)

22 ((language* or nonfluen* or nonenglish* or "limited english" or literac*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (563)

23 ((telephone* or phone* or smartphone* or computer* or laptop* or "smart patient" or mhealth* or m-health* or ehealth* or e-health* or "push notification*" or digital* or internet* or web* or online* or video* or remote* or virtual*) adj4 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (3563)

24 or/6-23 (165951)

25 5 and 24 (9)

26 limit 25 to (yr="2000 -Current" and english) (8)

Database name: NHS EED

1 MeSH DESCRIPTOR weight reduction programs 39

2 MeSH DESCRIPTOR Obesity EXPLODE ALL TREES 1025

3 MeSH DESCRIPTOR overweight 172

4 MeSH DESCRIPTOR obesity management 0

5 (obes* or preobese* or overweight* or over-weight*) 1620

6 #2 OR #3 OR #4 OR #5 1625

7 (weight* adj1 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)) 255

8 #6 AND #7 200

9 ((obes* or preobes* or overweight* or over-weight*) adj2 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health* or prevent*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)) 161

10 #1 OR #8 OR #9 335

11 ((obes* or preobese* or overweight* or over-weight*) adj1 (detect* or identif* or diagnos*) adj3 (refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)) 2

12 (#10 OR #11) IN NHSEED FROM 2000 TO 2022 51

Database name: INAHTA

1 "Weight Reduction Programs"[mh] 9

2 "Obesity"[mhe] 232

3 "Overweight"[mh] 15

4 "Obesity Management"[mh] 8

5 (obes* or preobese* or overweight* or over-weight*) [Title] 263

6 #2 or #3 or #4 or #5 315

7 ((weight* AND (loss* or management* or reduc* or lifestyle* or life-style* or control* or health*) AND (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)))[Title] 32

8 #7 and #6 32

9 (((obes* or preobes* or overweight* or over-weight*) AND (loss* or management* or reduc* or lifestyle* or life-style* or control* or health* or prevent*) AND (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)))[Title] 64

10 #1 or #8 or #9 65

11 (((obes* or preobese* or overweight* or over-weight*) AND (detect* or identif* or diagnos*) AND (refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)))[Title] 2

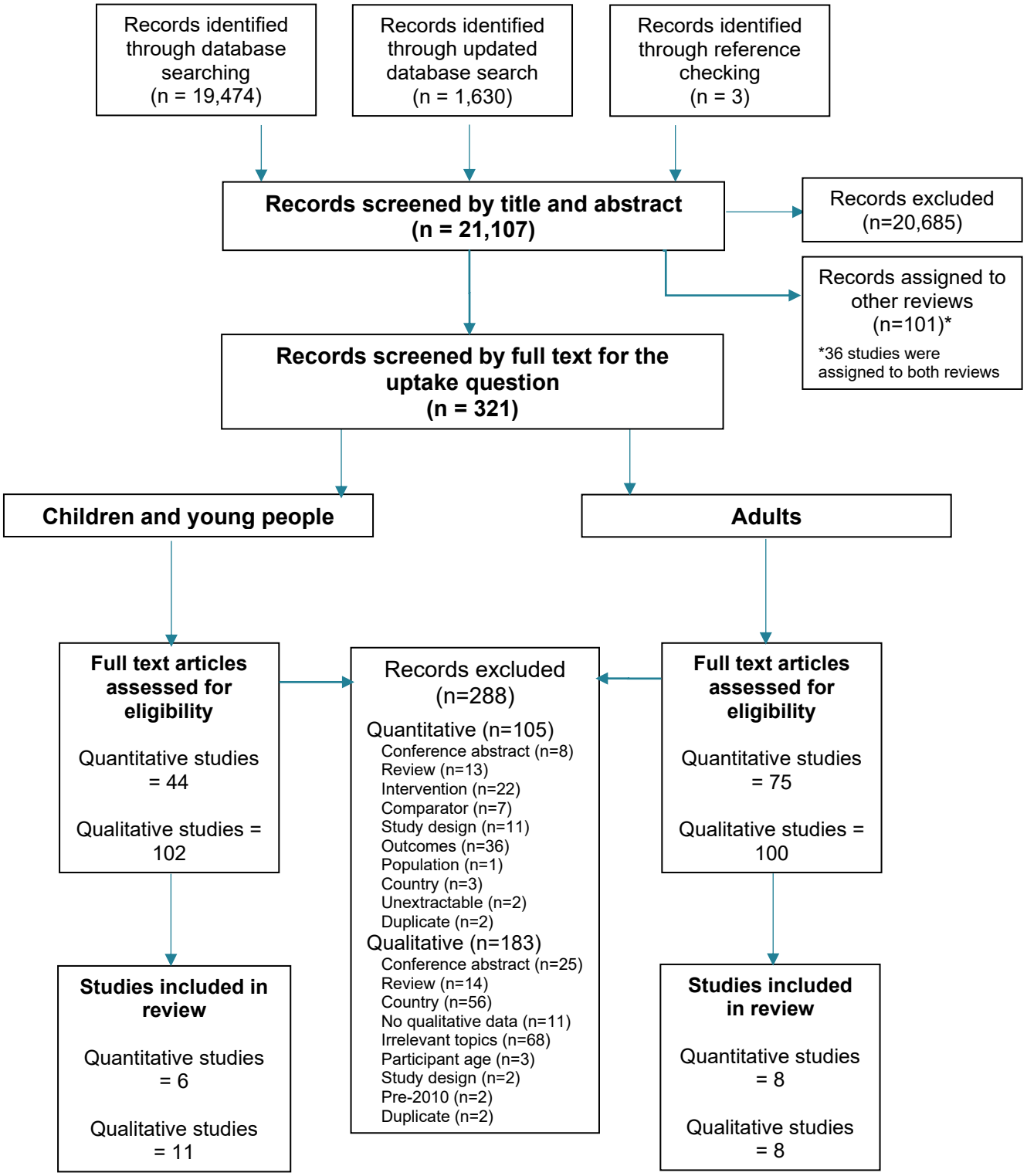
12 #10 or #11 67

13 #12 FROM 2000 TO 2022 65

14 #13 English Language 61

Appendix C - Quantitative and qualitative evidence study selection

A joint search was conducted for the 2 review questions on identification and uptake. The joint search also covered children, young people and adults.



Appendix D – Evidence tables

Quantitative evidence

Children and young people

Armstrong, 2018

Bibliographic Reference	Armstrong, Sarah; Mendelsohn, Alan; Bennett, Gary; Taveras, Elsie M; Kimberg, Amanda; Kemper, Alex R; Texting motivational interviewing: A randomized controlled trial of motivational interviewing text messages designed to augment childhood obesity treatment.; Childhood Obesity; 2018; vol. 14 (no. 1); 4-10

Study details

Trial registration number and/or trial name	Clinicaltrials.gov (NCT01989065)
Study type	Randomised controlled trial (RCT)
Study location	North Carolina, USA
Study setting	The Duke Healthy Lifestyles clinic is a referral-based paediatric weight management program
Study dates	September 3, 2014 - April 12, 2015
Sources of funding	Academic Pediatric Association’s Research Scholars Program. (Unclear if this is funding)
Inclusion criteria	BMI: 95th percentile for age

	Age range: 5-12 years Parents/guardians Children First appointment for weight
Exclusion criteria	Could not speak fluent English Underlying health issues as a cause of overweight Parents did not own a phone
Intervention(s)	Parent participants randomized to the intervention group received usual care plus daily (Monday– Friday) text messages on their designated mobile device for 12 weeks. This frequency was based on study team members' prior experience with most effective frequency (daily), and convenience of the person sending text messages (weekdays only) to model a clinical setting. We used a free third-party vendor (GoogleVoice) to deliver and receive text messages, and participants consented for potential loss of privacy through the vendor. The first prompt of the week encourages parents to identify and set a health goal for the family, by selecting a self-determined behavioural change. In a reply text, the investigators preferentially reinforce the goals that are most evidence based and likely to lead to child BMI reduction (sugar-sweetened beverage reduction, increased physical activity, eating meals at home, and increased vegetable consumption). The first texting conversation of the week includes three delivered text messages and three parent replies. Subsequent daily texts that week prompt parents to self-monitor adherence to the goal, reflecting the scaled confidence response. The subsequent texts of the week include one to two delivered text messages and one to two parent responses
Comparator	Participants randomized to the control group received standard care, which included monthly lifestyle counselling visits by a physician and dietician. Standard care participants received text message reminders for the 3-month study outcomes visit.

Outcome measures	WM attendance Adverse events
Number of participants	101 children randomised; 81 analysed
Duration of follow-up	3 months
Loss to follow-up	Intervention group = 11 (12? Numbers provided don't add up) Control group = 8
Methods of analysis	We analysed all available endpoints in the intention-to-treat population (all randomly assigned patients), except for the text message intervention feasibility and engagement analyses, which we performed in the intervention group only. We powered the study to detect a statistically significant and clinically meaningful between-group change in child zBMI, defined a priori as -0.1 units, based on existing literature suggesting that a 6-month zBMI change of -0.03 to -0.5 is associated with improvements in child blood pressure and blood lipids.19 We applied the Shapiro–Wilk test (IBM SPSS Statistics Version 22, 2013) to assess whether measures were normally distributed, and the paired sample t-test to compare baseline and follow-up data for the full sample. We used the independent samples t-test to compare mean between the intervention and control groups for change in child zBMI. We applied the Wilcoxon signed-rank test to compare baseline health behaviour and GSE data to follow-up data for the full sample. We applied the Mann–Whitney U test to compare the change between the control and intervention group for health behaviours and GSE.

Study arms

Intervention: Motivational text messages + standard care (N = 42)
standard care plus daily motivational interviewing-based text messages

Control: Standard care (N = 39)
Standard care

Characteristics

Arm-level characteristics

Characteristic	Intervention: Motivational text messages + standard care (N = 42)	Control: Standard care (N = 39)
% Female Nominal	63.8	59.3
Mean age (SD) Median (IQR)	10.7 (8.7 to 11.8)	9.4 (7.5 to 11)
BMI Median (IQR)	29.1 (24.7 to 32.8)	28.9 (23.3 to 32.7)
Parent BMI Median (IQR)	35.7 (29.9 to 40.9)	35.2 (26.8 to 42.6)

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0)

Section	Question	Answer
Overall bias and Directness	Risk of bias judgement	Low
Overall bias and Directness	Overall Directness	Indirectly applicable

Bean, 2019

Bibliographic Reference	Bean, M. K; Thornton, L. M; Jeffers, A. J; Gow, R. W; Mazzeo, S. E; Impact of motivational interviewing on engagement in a parent-exclusive paediatric obesity intervention: Randomized controlled trial of NOURISH+MI.; Pediatric Obesity; 2019; vol. 14 (no. 4); 1-9

Study details

Trial registration number and/or trial name	Trial was registered with clinicaltrials.gov (NCT01912989)
Study type	Randomised controlled trial (RCT)
Study location	Virginia, USA
Study setting	a parent-exclusive paediatric obesity intervention
Study dates	Not provided
Sources of funding	NOURISH+MI was funded by the American Heart Association 13CRP1457008 to Melanie K Bean; NOURISH+ was funded by the NIH R01HD066216 to Suzanne E Mazzeo.
Inclusion criteria	BMI: ≥85th percentile Age range: 5-11 years Child lives with parent who is participating
Exclusion criteria	Pregnant Could not speak fluent English

	Health issue/disability that restricts physical exercise No psychiatric illness
Intervention(s)	NOURISH+MI was designed as a brief, adjunctive MI intervention to examine the impact of MI on retention and adherence in NOURISH+. To increase internal validity, procedures for recruitment, assessments, screening, and group intervention were identical for NOURISH +MI and NOURISH+ participants (using trained interventionists, adhering to the Operations Manual, and monitoring fidelity), except for the addition of two brief MI sessions (versus reminder calls only) prior to treatment initiation in the NOURISH+MI arm. The dose of MI was selected due to prior research, which demonstrated that two sessions of MI, implemented adjunctive to an obesity treatment, were effective in enhancing engagement
Comparator	NOURISH+ was a RCT of an 8-session group-based PBT (6 core group sessions with two adjunctive experiential sessions [a group cooking class and an individual dietitian visit]). This treatment targeted parents as the agent of change for their child(ren) with overweight or obesity. NOURISH+ has a foundation in Social Cognitive Theory,28 emphasizes parental role modelling for health behaviour change, and is culturally sensitive for African American and lower income families; however families of all racial, ethnic, and socioeconomic backgrounds were eligible
Outcome measures	WM enrolment WM attendance
Number of participants	After telephone screening, 326 participants were randomized (N=112 to NOURISH+MI; N=214 to the main trial (who were subsequently randomized to NOURISH+ or Control). In the NOURISH+MI arm, 18 discontinued treatment prior to the first telephone MI session, leaving 94 participants for whom contact was attempted for completion of the first MI session. Of these, 93.6% (88/94) participated in MI session 1 prior to the baseline visit. Participants in the main trial received reminder calls only – one participant was lost to follow up. Of note, 9.9% of NOURISH+MI participants and 7.4% of NOURISH participants were ineligible at baseline (due to child BMI<85th percentile). These participants were excluded from the denominator in subsequent analyses. The second MI session was completed by 89.1% of consented, eligible participants (57/64). Both MI sessions (per protocol) were completed by 81.2% (52/64) of participants. See Figure 1 for the CONSORT diagram for the full trial and Table 1 for baseline characteristics by group. NOURISH+MI participants were mostly female (91% parents; 52% children) and African American (52% parents and children), with mean child BMI in the 97th percentile.

Duration of follow-up	4 months
Loss to follow-up	NOURISH + MI = 9 NOURISH+ = 4
Methods of analysis	Parent and child demographics and baseline anthropometrics were examined for each group (NOURISH+, NOURISH+MI, Control) and differences examined using t-tests, Chi square analyses, or ANOVAs, as appropriate. The primary outcomes for this study were retention and treatment adherence between NOURISH+ and NOURISH+MI groups. Chi-square analyses examined differential attendance at baseline, post-test, and follow up; t-tests assessed differences in treatment attendance (% initiated treatment [any visit] and mean % NOURISH+ session attendance) between conditions (NOURISH+ and NOURISH+MI). Post-hoc analyses examined outcomes for participants who received both MI sessions, per protocol, compared with NOURISH+. Analyses were conducted in SAS v.9.3 (Cary, NC). All tests were two-tailed with $p<.05$ used to determine significance. A priori power analyses using PROC POWER determined that 60 individuals per group (NOURISH+ and NOURISH +MI) would have 80% power ($\alpha=0.05$, two-sided) to detect a 0.21 difference in the proportion of participants completing post-intervention between groups.

Study arms

Intervention: NOURISH + motivational interviewing (N = 52)
: MI was implemented with parents as an adjunct to a larger randomized controlled trial of NOURISH+ (Nourishing Our Understanding of Role modelling to Improve Support and Health)

Control: NOURISH+ (N = 51)
NOURISH+ (Nourishing Our Understanding of Role modelling to Improve Support and Health)

Characteristics

Arm-level characteristics

Characteristic	Intervention: NOURISH + motivational interviewing (N = 52)	Control: NOURISH+ (N = 69)
% Female Sample size	n = 37 ; % = 52.1	n = 45 ; % = 66.2
Mean age (SD) Mean (SD)	9 (2.1)	8.8 (1.9)
BMI (BMI Percentile) Mean (SD)	96.8 (4)	97.1 (3)
Black or African American No of events	n = 36 ; % = 52.9	n = 45 ; % = 70.3
White or Caucasian No of events	n = 25 ; % = 36.7	n = 45 ; % = 70.3
Other / more than one race No of events	n = 7 ; % = 10.3	n = 2 ; % = 3.1

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0)

Section	Question	Answer
Overall bias and Directness	Risk of bias judgement	Low
Overall bias and Directness	Overall Directness	Indirectly applicable

Bryant, 2021

Bibliographic Reference	Bryant, Maria; Burton, Wendy; Collinson, Michelle; Farrin, Amanda; Nixon, Jane; Stevens, June; Roberts, Kim; Foy, Robbie; Rutter, Harry; Copsey, Bethan; Hartley, Suzanne; Tubeuf, Sandy; Brown, Julia; A cluster RCT and process evaluation of an implementation optimisation intervention to promote parental engagement enrolment and attendance in a childhood obesity prevention programme: results of the Optimising Family Engagement in HENRY (OFTEN) trial.; Trials; 2021; vol. 22 (no. 1); 773

Study details

Trial registration number and/or trial name	Trial registration: ClinicalTrials.gov NCT02675699. Registered on 4 February 2016
Study type	Cluster randomised controlled trial
Study location	Across the UK
Study setting	WM provided by local authorities
Study dates	Between 1 January 2016 and 30 March 2016

Sources of funding	The trial was funded by the NIHR Trainees Coordinating Programme awarded to the chief investigator (MB) (CDF-2014-07-052). The views expressed are those of the authors and not necessarily those of the NHS, the NIHR or the Department of Health.
Inclusion criteria	Engaged in existing trial
Exclusion criteria	Sites not planning to continue the WM program
Intervention(s)	The HENRY plus implementation optimisation arm delivered HENRY as standard, in addition to receiving components of the implementation optimisation intervention (see below). The Behaviour Change Wheel (BCW) framework [28] guided intervention development and was informed by the focused ethnography study [21], literature on promoting enrolment and attendance (e.g. [29, 30]), and experience and expertise of the implementation intervention development team. The development and final design of the intervention have been reported in full elsewhere [22]. The ethnography study [21] suggested that the starting point of an intervention to promote enrolment and attendance should begin at the organisational (local authority and children's centre) levels. Local authority commissioner buy-in had a 'spillover' effect on local implementation practices as it influenced their level of resource allocated to HENRY delivery. This, in turn, influenced how centre managers implemented HENRY; for example, the level to which HENRY was promoted (e.g. via posters, leaflets and displays) in centres and the number of staff that received training in HENRY. In centres not actively promoting HENRY, parents were not aware that programmes were running, limiting their opportunity to learn about and enrol on the programme. In centres where staff were not trained in the HENRY approach, their understanding of the programme was limited, further limiting information passed on to parents. Furthermore, centres seldom used simple strategies such as peer recruitment (i.e. word of mouth), yet it is known that parents are more likely to attend programmes if they are recommended by someone they trust [31, 32]. Facilitator skills also appeared important to promote enrolment and attendance, consistent with wider literature [33, 34]. Hence, the implementation optimisation intervention mainly aimed to change the behaviours of these multiple stakeholders— local authority commissioners, children's centre managers and staff, HENRY facilitators and previous participants of HENRY
Comparator	Local authorities randomised to the HENRY alone arm continued to deliver HENRY programmes as per standard practice. HENRY is an 8-week programme delivered in children's centres and aims to provide parents with skills, knowledge and confidence to support healthy behaviours among their preschool children. The theoretical underpinning combines evidenced-based models of behaviour change, including the Family Partnership Model, motivational interviewing and solution-focused support. Stage 1 training is designed to equip centre staff with the knowledge and skills to promote and provide healthy nutrition within early years settings and support parents to provide healthy family lifestyles and nutrition for

	their families. Stage 2 training supports practitioners to deliver the 8- week HENRY programme to families. This stage aims to build parents' skills, knowledge and confidence to change old habits; provide healthier nutrition for their young children; and encourage healthier lifestyles [26, 27]. Programme content includes sessions on lifestyle and eating habits (e.g., family meals), balancing healthy meals and snacks, child-appropriate portion sizes, parenting, physical activity and emotional well-being.
Outcome measures	WM enrolment WM attendance
Number of participants	6, 37 local authorities, supporting 317 children's centres, were screened for eligibility. Ten (27%) local authorities no longer commissioned HENRY and seven (19%) opted out. The remaining 20 (54%) local authorities (supporting 126 children's centres) were recruited and randomised into either HENRY + optimisation intervention (n = 10) or HENRY alone (n = 10) 881 participants in total
Duration of follow-up	12 months
Loss to follow-up	3 local authorities; 74 children's centres
Methods of analysis	Analyses based on intention-to-treat (ITT) were conducted in SAS software version 9.4 (SAS Institute Inc. Cary NC) according to a pre-specified analysis plan. To adjust for two primary endpoints, a Bonferroni correction was applied and a two-sided significance level of 2.5% was used for each comparison, thereby preserving the family-wise error rate of 5%. All other endpoints were tested at the two-sided 5% significance level and no adjustments for multiple comparisons were made. Where centres ran more than one programme in the trial follow-up period, data from the last programmes delivered (most recent to analysis) in each centre were used in the primary analysis. Due to the small number of clusters, a two-stage cluster-level analysis [40] of the primary outcomes was performed, adjusting for stratification factors (pre-randomisation levels of recruitment and attendance, proportion of centres delivering at least one HENRY programme in 2015, local authority size and area deprivation) [40]. Firstly, logistic regression models adjusted for stratification factors, but ignoring clustering of the data, were produced and residuals were summarised by cluster. A t-test was then performed on the cluster-level summaries of the covariate-adjusted residuals. If the distribution of the cluster-level summaries was skewed, the logarithm of the cluster-level summaries was used. Secondary outcomes were analysed using the same methods as the

	primary outcomes (with the exception of family eating behaviours and longitudinal impact on enrolment and attendance). Where applicable, secondary outcome models adjusted for the stratification factors, the change in the outcome at baseline (post-programme–pre-programme for the pre-randomisation programme) and the change in outcome at trial follow-up (i.e. for parent compliance, the model adjusted for the baseline change in parent-reported child intake of fruits and vegetables and parent-reported child intake of fruits and vegetables). ICCs were calculated using mixed effects models adjusted for the stratification factors. Missing item-level data was imputed for the self-efficacy measure using the half rule because this was the only continuous outcome measure where multiple items were summed to calculate a total score [48]. Missing data were not imputed for any other measures or for the primary outcomes [49]; if a children's centre did not deliver a HENRY programme during the trial (post-randomisation), they were still included in the analysis, under ITT, and classified as not having met the enrolment or attendance target.

Study arms

Intervention: HENRY + optimisation (N = 443)
We drew upon ethnographic work to develop a multi-level, theory-based implementation optimisation intervention. This intervention aimed to promote parental enrolment and attendance at HENRY (Health Exercise Nutrition for the Really Young)

Control: HENRY alone (N = 438)
HENRY (Health Exercise Nutrition for the Really Young), a UK community obesity prevention programme

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0) Cluster trials

Section	Question	Answer
Overall bias and Directness	Risk of bias judgement	Low

Section	Question	Answer
Overall bias and Directness	Overall Directness	Directly applicable

Naar-King, 2016

Bibliographic Reference	Naar-King, Sylvie; Ellis, Deborah A; Idalski Carcone, April; Templin, Thomas; Jacques-Tiura, Angela J; Brogan Hartlieb, Kathryn; Cunningham, Phillippe; Jen, Kai-Lin Catherine; Sequential Multiple Assignment Randomized Trial (SMART) to Construct Weight Loss Interventions for African American Adolescents.; Journal of clinical child and adolescent psychology : the official journal for the Society of Clinical Child and Adolescent Psychology, American Psychological Association, Division 53; 2016; vol. 45 (no. 4); 428-41

Study details

Trial registration number and/or trial name	Sequential Multiple Assignment Randomized Trial (SMART): ClinicalTrials.gov (identifier: NCT01350531)
Study type	Randomised controlled trial (RCT)
Study location	USA
Study setting	m community
Study dates	Not provided
Sources of funding	This work was funded by the National Heart, Lung, and Blood Institute and the Eunice Kennedy Shriver National Institute of Child Health and Human Development (U01HL097889)

Inclusion criteria	BMI: ≥95th percentile for age and gender, English language Age range: 12y0m-16y11m African American Within 30 miles of clinic
Exclusion criteria	Health issue/disability that restricts physical exercise No psychiatric illness Medication with possibility of weight loss/gain effects Developmental delay suicidal homicidal
Intervention(s)	Phase 1: HB-MIS and OB-MIS—The interventions delivered in first phase of the SMART were designed to be very similar except for delivery setting. In both cases, a community health worker (a paraprofessional counselor) delivered weekly 1-hour face-toface sessions, with the first session focusing engaging the family in treatment. The second two sessions were conjointly delivered with a registered dietitian to provide education in nutrition and physical activity and to develop a plan to either reduce their food intake by 500kcal or to consume a maximum of 1600–2000kcal per day. The remaining sessions focused on behavioural skills training integrated with MI. Content included self-monitoring food and physical activity/inactivity levels, stimulus control of food and activity/inactivity triggers both in and out of the home, managing hunger and food cravings, and parenting. Youth were also weighed weekly with a discussion of the factors that might have

	promoted weight loss or gain. A second session (15-45 minutes) was delivered each week in both conditions. Counsellors used this session to check-in with families (both groups), and to practice skills and trouble-shoot implementation barriers (HB-MIS). For HB-MIS this check-in was done in the home, and for OB-MIS it was done by phone. Phase 1 intervention lasted for three months. Families in OB-MIS received a $10 gift card per session for attendance. A parking voucher (valued at $2.50) or transportation via taxi was also provided. Phase 2: CS, CM and RP—The second phase of treatment was also three months. Adolescents who did not respond to treatment (i.e., did not lose ≥3% body weight) were rerandomized into CS or CM in the second phase of the SMART. Both CS and CM were implemented in participants' homes. In CM, a voucher-based system was used to provide incentives to the teen for weight loss and to the caregiver for adherence to CM. Caregivers and youth signed a CM contract with their counsellor describing the CM program. Each point was equivalent to $1. Youth and Naar-King et al. Page 8 J Clin Child Adolesc Psychol. Author manuscript; available in PMC 2017 July 01. Author Manuscript Author Manuscript Author Manuscript Author Manuscript parents could each earn up to $624 in vouchers for products available from amazon.com (except dietary supplements, food, weapons, alcoholic beverages, and cigarettes). Youth earned 20 points for losing at least one pound each week (calculated as an average between weight in session and a mid-week weigh-in). Youth earned 4 additional points each successive week they met their goal and 40 bonus points if they lost at least four pounds in one 4-week period. If youth missed more than one weekly goal in a 4-week period, the points available to earn was reset to 20. When caregivers missed any of their goals (delivering adolescent incentives, attending sessions, and ensuring that the youth recorded daily weights), their points were reset to 20, but they could still earn 40 bonus points every four weeks if they met their goals each week of that window. No points were deducted once earned. Rather than training in new skills during this part of treatment, the counsellor's role in CM was to guide the caregiver in administering the CM (one 40-minute session per week) and to lead discussions about barriers and facilitators of weight loss (second 40-minute session per week). Youth goals were discussed with the counsellor and the caregiver; whereas caregivers' goals were discussed without the youth present. If the caregiver did not administer the CM, the counsellor did so that the youth would still receive points for success. Youth who responded to the first phase interventions (i.e., lost at least 3% of their original weight) were all assigned to relapse prevention (RP) for the second phase. For RP, the location of treatment remained the same as it was for phase 1 (office-based or home-based), and session frequency was reduced to one face-to-face session per week. Treatment consisted of modules designed to explore values and commitment to treatment, managing slips, and maintenance of dietary and physical activity changes based on functional analysis. If families had not initiated changes in both nutrition and physical activity domains, they had the option of engaging in new skills training for this domain.

Comparator	In CS, the counsellor first conducted a functional assessment with the family and then together with the family selected which additional skills to focus on during the three months of treatment (possible modules included managing distorted thinking regarding weight loss, reducing emotional eating, increasing planning and organizational skills, and strengthening refusal skills). Families also had the option to repeat any session from the first phase HB-MIS, or to complete mini-modules (covering, for example, going out to eat or holiday planning) for 10–15 minutes based on assessed need. Consistent with Phase 1, planned dose was a weekly home-based 1-hour session with a second 15-minute home-based weekly refresher. All modules were integrated with MI strategies. No incentives for weight loss were provided.
Outcome measures	WM attendance
Number of participants	In total, 186 adolescents and their primary caregivers were enrolled in the study (86.9% of eligible families). Five families were removed from the study by the research team (2 because of interventionist error; 3 because of ineligibility discovered after initiation of the study), leaving 181 youth-caregiver pairs who were included in the current analyses. Among the youth, 67% (n=122) were girls; mean age was 13.75 years (SD=1.35) at baseline. Baseline weight ranged from 133.00 to 451.00 pounds (M=229.97, SD=51.13), BMI ranged from 25.70 to 60.50 (M=38.15, SD=7.45), and percent overweight ranged from 35.38% to 218.47% (M=96.81, SD=37.59). Among caregivers, 87.3% (n=158) were the youth' biological mothers; other caregivers included fathers, adoptive mothers, guardians, and others. Ninety-five percent (n=172) of caregivers indicated they were of African American race. Caregivers' past year personal income ranged from "less than $5,000" (n=33) to "$100,000 or greater" (n=2) (median= "$12,000-$15,999"). Caregivers' educational attainment varied from finished some high school (n=19) to Masters or Doctoral degree (n=11); median and modal education level was some college or associate degree. Just fewer than half of caregivers were employed outside the home (n=88, 48.6%). Caregivers' weight ranged from 133.00 to 625.00 pounds (M=245.29, SD=67.29), BMI ranged from 22.40 to 92.67 (M=40.90, SD=10.16), and 88.4% (n=160) were considered obese (i.e., BMI≥30.0
Duration of follow-up	P1=3m P2=7m
Loss to follow-up	P1 home based: 8 P1 office based: 7

Methods of analysis	The linear mixed effects (LME) model with a random intercept and fixed slopes was used to test the study hypotheses. A primary advantage of this approach is, under the assumption that the data are missing at random, all model parameters are estimated in the presence of missing data, thus, precluding the need for data estimation and avoiding casewise deletion. Different models for the within subject error covariance matrix were compared. The simple compound symmetry model, which assumes equal error variance at each data collection point had the best parsimony adjusted fit. We used SPSS, version 22, for the analyses. The one-tailed alpha was set at $p<.05$ for all analyses using the intent-to-treat sample. With a predicted sample size of 180 and a two-tailed alpha of .05, this study was powered ($1-\beta=.80$) to detect a change in percent overweight of 2.46%. Phase 1 treatment effects—There were two primary treatment effects of interest. Each treatment effect was represented by a single degree of freedom (df) interaction contrast defined as follows: C1 = Group x (T2-T1) and C2 = Group x (T3-T1). The group factor was the randomized treatment group (HB-MIS vs. OB-MIS). A significant C1 contrast indicates differential weight loss over the course of the 3-month intervention. A significant C2 contrast indicates differential weight loss over the duration of the study (3-month intervention plus 4-month follow-up). The C2 contrast is complicated by the fact that most of the participants (161 of 181) were randomly assigned to the Phase 2 intervention at T2. Thus the C2 contrast effect includes the net effect of the Phase 2 intervention on weight change from T2 to T3. Because the net effects are randomized across treatment groups, the test of the primary contrasts is not confounded. Plots of the simple effect means following a significant interaction were used to confirm or disconfirm the study hypothesis. However, only the C1 contrast is free of the Phase 2 net effect. Phase 2 treatment effects—In Phase 2, there was one treatment effect of interest, weight loss during the course of the Phase 2 treatment. This treatment effect was defined by one single df interaction contrast as follows: Group x (T3-T2). A significant interaction indicates differential weight loss between CM and CS groups. Plots of the simple effects means following a significant interaction were used to confirm or disconfirm study hypotheses. Treatment attendance—Because participants attended a variable number of treatment sessions (differential treatment dose), we compared dose received across treatment groups for each study phase and overall. We also examined demographic predictors of dose. This analysis included the randomization variable (Phase 1 and Phase 2 randomization in separate analyses) and an interaction term, demographic predictor x intervention group, in order to identify demographic variables that would explain differential treatment attendance (Rochon, 1999).

Study arms

Intervention: contingency management incentives (N = 78)
In CM, a voucher-based system was used to provide incentives to the teen for weight loss and to the caregiver for adherence to CM.

Control: Continued skills (N = 83)
In CS, the counsellor first conducted a functional assessment with the family and then together with the family selected which additional skills to focus on during the three months of treatment

Intervention: Home based MI (N = 90)
a community health worker (a paraprofessional counsellor) delivered weekly 1-hour face-to face sessions at the clients home

Control: office based MI (N = 91)
a community health worker (a paraprofessional counsellor) delivered weekly 1-hour face-to face sessions at their office

Characteristics

Arm-level characteristics

Characteristic	Intervention: contingency management incentives (N = 78)	Control: Continued skills (N = 83)	Intervention: Home based MI (N = 90)	Control: office based MI (N = 91)
% Female Sample size	n = 52 ; % = 71.2	n = 48 ; % = 66.7	n = 67 ; % = 74.4	n = 55 ; % = 60.4
Mean age (SD)	14.3 (1.42)	14.7 (1.39)	14.1 (1.36)	14.4 (1.52)

Characteristic	Intervention: contingency management incentives (N = 78)	Control: Continued skills (N = 83)	Intervention: Home based MI (N = 90)	Control: office based MI (N = 91)
Mean (SD)				
Caregiver age Mean (SD)	42.9 (9.05)	42.5 (7.1)	43.7 (8.36)	42.3 (7.49)
Caregivers - percentage overweight Mean (SD)	99.5 (42.51)	95.71 (38.28)	93.8 (36.1)	99.8 (38.97)

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0)

Section	Question	Answer
Overall bias and Directness	Risk of bias judgement	Low
Overall bias and Directness	Overall Directness	Indirectly applicable

Pallan, 2019

Bibliographic Reference	Pallan, Miranda; Griffin, Tania; Hurley, Kiya L; Lancashire, Emma; Blissett, Jacqueline; Frew, Emma; Griffith, Laura; Hemming, Karla; Jolly, Kate; McGee, Eleanor; Thompson, Janice L; Jackson, Louise; Gill, Paramjit; Parry, Jayne; Adab, Peymane; Cultural adaptation of an existing children's weight management programme: the CHANGE intervention and feasibility RCT.; Health technology assessment (Winchester, England); 2019; vol. 23 (no. 33); 1-166

Study details

Other publications associated with this study included in review	Pallan 2019 (qualitative)
Trial registration number and/or trial name	CHANGE: The trial is registered as ISRCTN81798055
Study type	Cluster randomised controlled trial
Study location	Birmingham, UK
Study setting	First Steps children’s weight management programme
Study dates	September 2015–April 2016
Sources of funding	Funding for this study was provided by the Health Technology Assessment programme of the National Institute for Health Research. Kate Jolly is part-funded by the Collaboration for Leadership in Applied Health Research and Care West Midlands
Inclusion criteria	Age range: 4-11 years Parents/guardians

	Children Referred to WM by a medical professional
Exclusion criteria	None
Intervention(s)	The adapted First Steps programme, as described in Phase I: children's weight management programme adaptation, was delivered in the intervention arm. A qualitative study was undertaken with Pakistani and Bangladeshi parents/carers of overweight children who had previously had contact with the First Steps children's weight management programme (n = 43) to explore their experiences of the programme, the barriers to and enablers of engaging with the programme and the elements that needed to change within the programme to ensure cultural suitability. The key messages that emerged from the resulting data concerning the programme were the logistical considerations of attending (location, timing, etc.), the language barriers to participation, the need for less focus on weight reduction and more focus on healthy behaviours, the need for children to attend all sessions with their parents, a desire for more physical activities and general interactivity within the programme, the value of sharing experiences and supporting each other within the group environment and a need for help with making behavioural changes in their children at home. The resulting adapted intervention programme comprised weekly 90-minute sessions that were delivered to both children and parents over 6 weeks. The key adaptations of the programme were greater provision of programmes at weekends; more interactivity; flexibility of delivery to enable responsiveness to each individual family context; encouragement of social interactions, sharing of experiences and peer support; greater physical activity content; and attractive materials and resources for use in sessions and for families to be able to take away for home use.
Comparator	The standard First Steps programme was delivered in the comparator arm. The standard programme consisted of weekly hour-long sessions, delivered to parents over a school half-term (5–7 weeks) and children attended with their parents at the first and last sessions only. The standard programme was delivered predominantly within school time, but there was some provision on Saturdays
Outcome measures	WM program completion
Number of participants	The primary outcome of the feasibility study was the proportion of Pakistani and Bangladeshi families completing the programme (defined as attendance at ≥ 60% of the programme), and a secondary outcome was the proportion of families of all ethnicities completing the programme. Anonymised data on programme attendance were used to estimate these

	outcomes. These data were collected for all families attending a children's weight management programme in Birmingham within the study period. To assess the feasibility of trial processes and collection of outcome data, we aimed to recruit 80 children aged 4–11 years and their families. Families who were referred to the children's weight management service in the study period were invited to participate. Families of all ethnicities were included in the study sample. Informed consent from parents and assent from children was obtained from all participating families In the intervention arm, of the Pakistani and Bangladeshi families attending at least one programme session (n = 80), 78.8% completed the programme [95% confidence interval (CI) 64.8% to 88.2%]. Of all families attending at least one session (n = 169), 76.3% completed the programme (95% CI 67.0% to 83.6%). In the comparator arm, of all families attending at least one session (n = 74), 58.1% completed the programme (95% CI 46.5% to 68.8%).
Duration of follow-up	6 weeks
Loss to follow-up	Loss is the outcome measure

Study arms

Intervention: culturally adapted program (N = 169)
The adapted First Steps programme, as described in Phase I: children's weight management programme adaptation

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0)

Section	Question	Answer
Overall bias and Directness	Risk of bias judgement	Moderate

Section	Question	Answer
Overall bias and Directness	Overall Directness	Directly applicable

Sallis, 2019

Bibliographic Reference	Sallis, A; Porter, L; Tan, K; Howard, R; Brown, L; Jones, A; Ells, L; Adamson, A; Taylor, R; Vlaev, I; Chadborn, T; Improving child weight management uptake through enhanced National Child Measurement Programme parental feedback letters: A randomised controlled trial.; Preventive medicine; 2019; vol. 121; 128-135

Study details

Trial registration number and/or trial name	The trial is registered at the ISRCTN registry, number ISRCTN13304533
Study type	Cluster randomised controlled trial
Study location	Leicester City, Leicester County and Rutland, UK
Study setting	Schools
Study dates	During 2015
Sources of funding	This trial was funded by PHE who acted as the Chief Investigator for the project, drafted the proposal and conducted the research, analysis and report writing
Inclusion criteria	Age range: 10-11 years Parents/guardians

Intervention(s)	Intervention letters (supplementary files 2,3) included the same weight-feedback information, PA options flyer and Change4Life tips as control letters but additionally included three key components. 3.4.1.2.1. Body image scales. MapMe body image scales (developed by Jones et al., 2017b) were included as colour-printed, sex-specific pictorial scales showing computer-generated images of children at known weight statuses for children aged 10–11 years, ranging from underweight (UW) to VOW. The scales correspond to the UK90 BMI centiles used by the NCMP. The scales did not specifically indicate where the child would be placed on the scale, however the weight category labels on the scale matched the weight categories described in the letter. 3.4.1.2.2. Social norms message. A social norms statement was included to facilitate recognition that as most children are not OW/ VOW (NHS Digital Stats Team, 2017), their child was heavier than the majority of children of a similar age living in the same LGA. Statements included the child's name and LGA. 3.4.1.2.3. Behavioural prompts Letters to parents of VOW children included a personalised statement informing them that their child had been reserved a place at WMS and a pre-populated booking form (with child's name and address) with freepost envelope (supplementary file 4). The letters are coded according to the Behaviour Change Technique Taxonomy V1 (BCT-T V1; Michie et al., 2013); see Table 1. In total, 12 versions of the intervention letter were developed, representing both weight categories, both sexes and each of the three LGAs.
Comparator	Letters (supplementary file 1) followed the national template at the time and informed parents of their child's height, weight, measurement date and weight category. Parents were invited to enrol at local WMS and, for VOW children only, attend a one-to-one dietitian appointment via the same service. Letters included a local physical activity (PA) flyer, tips from the national Change4Life campaign run by PHE, and a WMS leaflet with contact details
Outcome measures	WM enrolment WM attendance
Number of participants	Two-hundred and eighty three schools were randomised to the intervention (n = 141) or control arms (n = 142). Two-thousand-sixhundred-and-forty-two children were identified as OW or VOW, of which 1270 (48.07%) were sent the Intervention letter and 1372 (51.93%) were sent the control letter. Two-hundred-and-sixty-eight (10.14%) parents completed and returned the questionnaire (Fig. 1). Participant distributions across LGA, urban/rural, IMD and ethnicity varied significantly between the trial arms (Table 2) due to stratification and randomisation occurring pre-measurements (when the actual distribution of OW/VOW children across demographic groups was unknown)
Duration of follow-up	4 weeks

Loss to follow-up	n/a
Methods of analysis	Power was calculated using Stata version 12.0 (College Station TX: Stata Corp) to determine the minimum detectable difference in WMS enrolment between the intervention and control arms, given estimated numbers of OW/VOW families and baseline WMS uptake rates from LPT's 2013/14 data. A minimum detectable increase in uptake of 1.39% in the intervention group compared to the control group would be required to obtain statistical significance at 90% power (supplementary file 6). Main analyses were conducted using Stata version 13.1 (College Station TX: StataCorp). Chi-square and t-tests compared baseline characteristics between the two arms. For all outcomes, mixed-effects logistic regression models (binary/ordinal for some questionnaire outcomes) explored intervention effects. Bonferroni corrections resulted in adjusted alpha levels of 0.016 recurring for behavioural outcomes and 0.005 recurring for questionnaire outcomes. Adjusted models were also calculated including sex, clinical weight status, LGA, IMD, urban/rural location of residence classification, and ethnicity. Schools were included in models as a random effect. Intraclass correlation coefficients (ICCs) >0.05 (representing a small to medium effect) were considered sufficient evidence that mixed effects models were appropriate. Post-hoc exploratory analyses investigated intervention effects by weight category separately. Splitting the data resulted in small sample sizes, affecting model convergence in mixed-effects regressions. Therefore chi-square tests explored data trends. Complete case analyses were conducted. The control group was used as the reference group for all analyses.

Study arms

Intervention: Parental feedback letters (N = 1270)
Intervention letters included (i) a visual tool to help weight status recognition, (ii) a social norms statement, and for very overweight children, (iii) a prepopulated booking form for weight management services

Control: Standard letters (N = 1372)
letter informing them of their child's weight status

Characteristics

Arm-level characteristics

Characteristic	Intervention: Parental feedback letters (N = 1270)	Control: Standard letters (N = 1372)
% Female Sample size	n = 587 ; % = 46.22	n = 632 ; % = 46.06
Overweight Sample size	n = 698 ; % = 54.96	n = 768 ; % = 55.98
Very overweight Sample size	n = 572 ; % = 45.04	n = 604 ; % = 44.02

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0) Cluster trials

Section	Question	Answer
Overall bias and Directness	Risk of bias judgement	Low
Overall bias and Directness	Overall Directness	Directly applicable

Adults

Aveyard, 2016

Bibliographic Reference	Aveyard, Paul; Lewis, Amanda; Tearne, Sarah; Hood, Kathryn; Christian-Brown, Anna; Adab, Peymane; Begh, Rachna; Jolly, Kate; Daley, Amanda; Farley, Amanda; Lycett, Deborah; Nickless, Alecia; Yu, Ly-Mee; Retat, Lise; Webber, Laura; Pimpin, Laura; Jebb, Susan A; Screening and brief intervention for obesity in primary care: a parallel, two-arm, randomised trial.; Lancet (London, England); 2016; vol. 388 (no. 10059); 2492-2500

Study details

Trial registration number and/or trial name	ISRCTN Registry, number ISRCTN26563137.
Study type	Randomised controlled trial (RCT)
Study location	south of England, UK
Study setting	Primary care
Study dates	Between June 4, 2013, and Dec 23, 2014
Sources of funding	The trial was funded by the NPRI of the UK, administered by the MRC. The funding partners are Alzheimer's Research UK, Alzheimer's Society, Biotechnology and Biological Sciences Research Council, British Heart Foundation, Cancer Research UK, Chief Scientist Office, Scottish Government Health Directorate, Department of Health, Diabetes UK, Economic and Social Research Council, Engineering and Physical Sciences Research Council, Health and Social Care Research Division, Public Health Agency, Northern Ireland, MRC, Stroke Association, Wellcome Trust, Welsh Government, and World Cancer Research Fund
Inclusion criteria	BMI: >30 or 25 if Asian Over 18

Exclusion criteria	Previous WM program within last 3 months Pregnant or planning to be Could not speak fluent English Seeing GP to manage weight Had bariatric surgery
Intervention(s)	The aims for the active intervention were that it would be effective, acceptable, and could be delivered in less than 30 s, to meet physicians' concerns about implementation. The design of the intervention was informed by evidence that an offer of help to change is more motivating than advice to do so. We therefore encouraged physicians to offer referral to a weight loss service that has proven effective. Such programmes are widely available to primary-care physicians in England, are usually provided by commercial weight loss companies, and are the recommended first-line intervention for obesity, having been shown to be effective. In this trial, these programmes were provided mainly by Slimming World (Alfreton, UK). When patients are referred for free through the NHS, the programme offers 12 sessions consisting of 1 h of behavioural group support, once per week. Second, we drew on the results of a trial for smoking cessation that showed that brief opportunistic interventions encouraging patients to use a behavioural programme have a ten-times higher uptake when the referral is enacted by the system rather than leaving patients to instigate it. We ensured that patients who agreed to referral left the practice with an appointment. Finally, we drew on evidence that external accountability is an important component of behavioural programmes and we trained physicians to ask the participant to return in 4 weeks to assess their progress
Comparator	p. In the control intervention, the physician advised the patient that their health would benefit from weight loss. We considered and decided against using a control condition that offered no intervention. Such a control would have compromised our ability to assess feelings about the intervention and compromised blinding. Instead, for the control, we used an intervention that physicians typically use when intervening on behavioural risk factors: advice to change behaviour to benefit health. Physicians were allowed to personalise this advice on the basis of their patient's medical or family history
Outcome measures	WM enrolment

	WM attendance
Number of participants	2256 (83%) individuals agreed to participate, of whom 1882 (83%) of these were eligible and enrolled. Researchers excluded 259 (11%) individuals, the main reason being that the patient was already taking action on weight, and physicians excluded 122 (5%) individuals, but mostly did not record the reason. 940 participants were assigned to the support (active) intervention and 942 to the advice (control) intervention.
Duration of follow-up	12 months
Loss to follow-up	25%
Methods of analysis	We summarised the appropriateness and helpfulness data separately and combined them to give the proportion of participants who thought the intervention was both inappropriate and unhelpful or appropriate and helpful to any degree, and we used a mixed-effects ordinal logistic regression model to compare between treatment groups. We analysed participants' actions to manage their weight at 3 months and 12 months, which we categorised as no action, self-help, and effective action, with a similar ordinal logistic model. We present fidelity data descriptively by item. All statistical analyses were done in accordance with a prespecified analysis plan, which is available from the authors on request. We used Stata Software version 13·1 for all analyses and we defined statistical significance as a p value less than 0·05 (2 sided). T

Study arms

Intervention: Active referral (N = 940)
In the active intervention, the physician offered referral to a weight management group (12 sessions of 1 h each, once per week) and, if the referral was accepted, the physician ensured the patient made an appointment and offered follow-up

Control: advice (N = 942)
In the control intervention, the physician advised the patient that their health would benefit from weight loss

Characteristics

Arm-level characteristics

Characteristic	Intervention: Active referral (N = 940)	Control: advice (N = 942)
% Female Sample size	n = 539 ; % = 57.3	n = 537 ; % = 57
Mean age (SD) Mean (SD)	55.8 (16.5)	56.2 (15.6)
BMI Mean (SD)	34.8 (4.6)	35.1 (5.1)
Weight (kg) Mean (SD)	97.1 (15.5)	98.3 (17.6)
Percentage body fat Mean (SD)	40.4 (7.5)	40.9 (7.6)

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0) Normal RCT

Section	Question	Answer
Overall bias and Directness	Risk of bias judgement	Moderate
Overall bias and Directness	Overall Directness	Directly applicable

Befort, 2008

Bibliographic Reference	Befort, Christie A; Nollen, Nicole; Ellerbeck, Edward F; Sullivan, Debra K; Thomas, Janet L; Ahluwalia, Jasjit S; Motivational interviewing fails to improve outcomes of a behavioral weight loss program for obese African American women: a pilot randomized trial.; Journal of behavioral medicine; 2008; vol. 31 (no. 5); 367-77

Study details

Trial registration number and/or trial name	None
Study type	Randomised controlled trial (RCT)
Study location	Missouri, USA
Study setting	Community health centre
Study dates	April 2006 to October 2006
Sources of funding	This study was supported by an American Cancer Society Grant

Inclusion criteria	BMI: 30-50 Over 18 Physically able to engage in exercise; walking continuously for 10 minutes Approval from medical provider
Exclusion criteria	Previous WM program Pregnant No psychiatric illness Substance abuse Moving away from area within 6 months
Intervention(s)	MI is a directive counselling method that elicits self-motivational statements (‘‘change talk’’) and provides information only after the person has expressed an openness and readiness to change (Miller and Rollnick 2002). Participants randomized to MI received four 30-min individual MI sessions with an advanced doctoral clinical psychology student. The same individual counsellor provided all four sessions for a given participant. Individual counsellors did not facilitate group sessions with their given participants. We chose this design, as have other studies (e.g., West et al. 2007), because it ensured that that the group program was the same across conditions by allowing both MI and HE participants to be in a given group, while at the same time preventing contamination due to discussion of individual sessions during the group meetings. Individual counsellors co-facilitated a group that did not include their individual participants so that they were up-to-date on the content of the group program. MI sessions occurred at weeks 0 (in-person), 3 (by phone), 8 (in-person), and 13 (by phone). We chose a mixed in-person and phone delivery of MI sessions based on our previous experience (Ahluwalia et al. 2007; Ahluwalia et al. 2006) indicating that participants prefer some in-person contact but also like the reduced travel and time burden offered by phone sessions. MI sessions followed a semi-structured format. The first session focused on building motivation and commitment for attending the program and changing behaviours by discussing relevant

	past experiences and clarifying connections between core values and motivation to lose weight. The remaining three sessions focused on relevant target behaviours (e.g., problem foods, barriers to being physically active) that were identified by asking participants, ‘‘What would be the most helpful thing to focus on, perhaps something that you are struggling to change?’’ For participants who had not been attending the group program, counsellors probed about attendance if the participant did not raise the issue first. Consistent with MI, the majority of each session was spent eliciting change talk by exploring participants’ motivation and confidence for changing the target behaviour, linking the behaviour to core values, and/or discussing the pros and cons of change. Sessions ended with a global summary and, if appropriate, development of a behavioural action plan based on participants self-identified goals
Comparator	HE is a standard counselling technique which, contrary to MI, focuses on providing didactic information and advice. HE sessions were conducted by the same counsellors who provided the MI sessions, were structured using handouts and flip-charts, occurred at the same study time points, were of the same duration, and followed the same in-person and phone delivery schedule. Because the HE sessions served only as an attention control, we intentionally avoided topics that were directly relevant to weight loss. Participants chose four topics from six options: breast, colon, or cervical cancer screening, smoking cessation, helping others quit smoking, and improving sleep. HE tapes were also reviewed in weekly supervision to ensure fidelity to the HE approach
Outcome measures	WM adherence Session logs completed WM attendance
Number of participants	Randomised: 44 in total. MI group: 21 randomised, 20 analysed. HE group: 23 randomised, 23 analysed
Duration of follow-up	16 weeks

Loss to follow-up	MI group: 6, HE group = 4
Methods of analysis	Baseline differences between MI and HE conditions and participants retained and those lost to follow-up were tested using two-sample t tests and chi-square analyses. Twosample t tests were used to compare MI and HE conditions on satisfaction and adherence variables. Main effects of Baseline differences between MI and HE conditions and participants retained and those lost to follow-up were tested using two-sample t tests and chi-square analyses. Twosample t tests were used to compare MI and HE conditions on satisfaction and adherence variables. Main effects of

Study arms

Intervention: motivational interviewing (N = 20)
four individual sessions of MI as an adjunct to a 16-week culturally-targeted behavioural weight loss program

Control: health education (N = 23)
four individual sessions of health education (HE; attention control) as an adjunct to a 16-week culturally-targeted behavioural weight loss program

Characteristics

Study-level characteristics

Characteristic	Study (N =)
% Female Nominal	100

Arm-level characteristics

Characteristic	Intervention: motivational interviewing (N = 20)	Control: health education (N = 23)
Mean age (SD) Mean (SD)	41.6 (12.3)	47.2 (10.4)
BMI Mean (SD)	39.4 (7.1)	40.4 (5.8)

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0) Normal RCT

Section	Question	Answer
Overall bias and Directness	Risk of bias judgement	High *(Study concluded that efficacy of MI is lower for African American women compared to Caucasian women, rather than concluding that their implementation of MI had failed. There is a risk of racial bias in this interpretation.)*

Section	Question	Answer
Overall bias and Directness	Overall Directness	Indirectly applicable

Heredia, 2019

Bibliographic Reference	Heredia, Natalia I; Lee, MinJae; Hwang, Kevin O; Reininger, Belinda M; Fernandez, Maria E; McNeill, Lorna H; Health coaching to encourage obese adults to enroll in commercially-available weight management programs: The path to health study.; Contemporary clinical trials; 2019; vol. 83; 1-9

Study details

Trial registration number and/or trial name	Path to Health study
Study type	Randomised controlled trial (RCT)
Study location	Texas, USA
Study setting	Clinical practice
Study dates	2015– 2016
Sources of funding	This research was funded by the National Center for Advancing Translational Sciences (NCATS), Centers for Translational Science Award (UL1 TR000371), the National Cancer Institute at the National Institutes of Health through The University of Texas MD Anderson''s Cancer Center Support Grant (CA016672), the Cancer Prevention and Research Institute of Texas (RP170259) and by the Duncan Family Institute through the Center for Community-Engaged Translational Research

Inclusion criteria	BMI: between 30 and 45 Over 18 year English language Contactable by phone and post Physically able to engage in exercise Internet access
Exclusion criteria	Previous WM program within last 6 months Recent weight loss: >5% body weight in last 6 months Weight loss medication Pregnant or planning to be Another household member has enrolled
Intervention(s)	To help patients select and adopt a weight management program, intervention group patients received support from a health coach. The coaches were trained to help patients understand the commercially-available weight management programs recommended by the study, and then help them choose the program that was most appropriate based on cost, structure of the program, available features and other considerations important to the individual participant. In addition to program selection, health coaches also helped to motivate patients to utilize the program and reduce barriers to program use. The coaching component was based on core tenets of motivational interviewing (MI) [22]. MI is a client-centred non-confrontational therapeutic approach, focused on achieving goals set by the client while enhancing the client's motivation for change. For individuals who selected a program, patients worked with the health coach to resolve ambivalence, explore

	their attitudes and values with respect to healthy lifestyles, reduce barriers, and set goals/develop action plans [23]. The interaction with the health coach was via telephone. Calls typically lasted between 20 and 30 min and patients could receive up to 6 calls from the coaches over the 6 month period. Coaches were master's level trained with at least 2 years of clinical experience. Coaches received 20 h of training on motivational interviewing and additional cognitive behavioural approaches, accompanied by additional booster trainings. The coaches were also trained on cultural competency and cultural factors related to obesity, diet and physical activity
Comparator	Control group participants received printed material on the various weight management programs recommended. They were provided this printed material upon study enrolment, which encouraged them to review and adopt one of the recommended weight management programs.
Outcome measures	WM enrolment at 6 months follow up
Number of participants	168 in total: 84 in intervention 84 in control
Duration of follow-up	6 months
Loss to follow-up	Intervention: 21 Control: 12
Methods of analysis	We first carried out univariable comparisons of demographic information and clinical characteristics for patients between the two study arms using Chi-squared-tests for categorical data, Student's t-test for continuous data. Logistic regression analyses were conducted to assess the intervention effect on the enrolment in weight management programs, while controlling for potential confounders which were evaluated and determined based on univariable regression analyses.

Study arms

Intervention: Health coaching (N = 84)
Intervention participants received phone health coaching to help them select and enroll in WMPs

Control: printed materials (N = 84)
Control group participants received printed material on the various weight management programs recommended

Characteristics

Arm-level characteristics

Characteristic	Intervention: Health coaching (N = 84)	Control: printed materials (N = 84)
% Female Nominal	59.5	58
Mean age (SD) Mean (SD)	53.79 (13.45)	55.68 (12.21)
Comorbidities (%) Nominal	76.19	78.31
White Nominal	48.19	49.4

Characteristic	Intervention: Health coaching (N = 84)	Control: printed materials (N = 84)
Black/African-American Nominal	42.17	43.37
Hispanic Nominal	11.9	11.9
Other Nominal	9.64	7.22

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0) Normal RCT

Section	Question	Answer
Overall bias and Directness	Risk of bias judgement	Moderate
Overall bias and Directness	Overall Directness	Directly applicable

McVay, 2021

Bibliographic Reference	McVay, Megan A; Yancy, William S; Bennett, Gary G; Levine, Erica; Jung, Seung-Hye; Jung, Soyeon; Anton, Steve; Voils, Corrine I; A web-based intervention to increase weight loss treatment initiation: results of a cluster randomized feasibility and acceptability trial.; Translational behavioral medicine; 2021; vol. 11 (no. 1); 226-235

Study details

Trial registration number and/or trial name	Clinicaltrials.gov identifier: NCT02708121.
Study type	Cluster randomised controlled trial
Study location	North Carolina, USA
Study setting	Primary care providers
Study dates	May 2017 to August 2017
Sources of funding	This work was funded by a career development award to Dr. McVay (K23 HL127334) from the National Heart, Lung, and Blood Institute, and a Research Career Scientist award to Dr. Voils (RCS 14-443) from Veteran's Affairs Health Services Research & Development
Inclusion criteria	BMI: >=30 Contactable by email; Internet access Minimum practice: 20 hours per week Patients are mostly adults Employed in clinic minimum: 1 year Primary care providers Patients

	Age range: 18-75 years Scheduled appointment 21-18 days from query Previous appointments at clinic >1 in last 2 years
Exclusion criteria	Previous WM program
Intervention(s)	Participants who clicked the mobilization tool link were immediately directed to the mobilization tool. The mobilization tool was hosted on a Qualtrics platform with a custom graphical appearance to make the experience visually engaging (see Supplementary Material for walkthrough video). The tool content was developed using a conceptual model of treatment initiation that was adapted from the Health Belief Model, chosen due to its strength in explaining one-time behaviours [20,21]. A data-informed adaptation of the Health Belief Model was developed that incorporated qualitative data from participants describing their reasons for choosing to initiate or not initiate treatment [22]. The adapted model (see Fig. 1 columns B and C) includes perceived health threat of weight [21] and perceived psychosocial benefits of weight loss [23]. Together, these are hypothesized to influence desire to weigh less. The other components of this model are specific to a particular approach to weight loss and include (a) perceived effectiveness of an approach, (b) self-efficacy for engaging in an approach's prescribed behaviours, and (c) perceived barriers to approach
Comparator	In line with the mobilization tool arm participants, comparator tool arm participants received an email 4–14 days prior to their PCP appointment informing them of free access to weight loss treatment and providing a link to follow in order to learn more information. In this email, the names and number of treatments available were not mentioned. If they clicked on the link, participants were directed to a webpage containing the same basic information about the weight loss treatments that was provided in the mobilization tool (e.g., types of foods and exercise recommendations). They were then given the option to select a treatment to begin the treatment enrolment process. There was no mention of their providers in the comparator tool or email, as that was considered an active element of the mobilization tool arm. The weight loss treatments offered and the process for initiating treatments were the same for comparator tool and mobilization tool participants.
Outcome measures	WM enrolment

	WM adherence attended ≥8 sessions
Number of participants	Study staff attended a PCP meeting in February 2017. All six providers present were eligible and consented to participate. All enrolled providers had doctorates of medicine, with an average of 11 years since completing their medical training. Four providers were women and two were men. Three providers identified as white, two as Black, and one as Asian. The final patient analytic sample was 60 participants (34 mobilization tool arm and 26 comparator tool arm; see Table 1). The patient sample had a mean age of 55 (SD = 12.7) years, with slightly more females (n = 34; 57.6%) than males a white individuals (n = 39; 66.1%). Mean BMI based on self-report was 37.1 kg/m2 , and 84.7% of participants reported at least one obesity-related medical comorbidity diagnosis
Duration of follow-up	2 months for WM initiation, 6 months for sustained attendance
Loss to follow-up	at 6 months: mobilisation tool group: 12 comparator tool group = 5
Methods of analysis	Analyses were conducted using SAS software versions 9.4. Descriptive data are presented in means and standard deviations for continuous variables or portion for count variables. Data are presented separately for the mobilization and comparator study arms

Study arms

Intervention: mobilisation tool (N = 34)
The online mobilization tool asks patients to answer questions about a variety of weight-related topics and then provides automated, tailored feedback that addresses psychosocial determinants of weight loss treatment initiation

Control: comparator tool (N = 26)
The comparator tool provided a nontailored description of treatments

Characteristics

Arm-level characteristics

Characteristic	Intervention: mobilisation tool (N = 34)	Control: comparator tool (N = 26)
% Female Nominal	55.9	57.7
Mean age (SD) Mean (SD)	54.4 (14)	54.9 (10.9)
BMI Mean (SD)	37.3 (6.2)	36.9 (6.7)
White Nominal	67.7	64

Characteristic	Intervention: mobilisation tool (N = 34)	Control: comparator tool (N = 26)
Black/African American Nominal	29.4	36
Other Nominal	2.9	0

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0) Cluster trials

Section	Question	Answer
Overall bias and Directness	Risk of bias judgement	Moderate
Overall bias and Directness	Overall Directness	Indirectly applicable

Moss, 2017

Bibliographic Reference	Moss, Erin L; Tobin, Leah N; Campbell, Tavis S; von Ranson, Kristin M; Behavioral weight-loss treatment plus motivational interviewing versus attention control: lessons learned from a randomized controlled trial.; Trials; 2017; vol. 18 (no. 1); 351

Study details

Trial registration number and/or trial name	ClinicalTrials.gov, Identifier: NCT02649634
Study type	Randomised controlled trial (RCT)
Study location	Calgary, Canada
Study setting	Gym based WM
Study dates	September 2007 to January 2010
Sources of funding	This study was unfunded; however, ELM was supported by dissertation scholarships from the Social Sciences and Humanities Research Council of Canada, the Alberta Heritage Foundation for Medical Research, the Killam Trusts, the Canadian Psychological Association (CPA Foundation), and the University of Calgary
Inclusion criteria	BMI: >=25 Over 18
Exclusion criteria	Previous WM program Pregnant or planning to be Health issue/disability that restricts physical exercise
Intervention(s)	The semi-structured MI protocol was a 45-min intervention developed by the first author based on general MI principles and guidelines [23], MI strategies specific to health care practice [34], and MI principles for obesity treatment [35]. The MI protocol included the following components: (1) eliciting concerns about weight, (2) exploring ambivalence, (3) assessing importance and confidence for change, (4) writing a decisional balance, (5) bolstering self-efficacy, (6) looking towards the future, nts.
Comparator	The attention control interview was a semi-structured interview addressing health history, weight history, diet history, and dietary and physical activity habits. Most questions were drawn from the TrymGym intake application. It was designed to be

	structurally equivalent to the MI session in length of session, timing of sessions, and treatment modality. The goal was to provide a pseudo-intervention that controlled for factors common to attending treatment (e.g., attending treatment sessions, having personal contact with a therapist, discussing weight-related issues)
Outcome measures	WM attendance
Number of participants	135 randomised in total: MI group: 69 randomised, 66 followed up Attention group: 66 randomised, 60 followed up
Duration of follow-up	6 months
Loss to follow-up	MI group: 2 did not complete intervention, 1 lost at follow up Attention group: 4 did not complete, 2 lost at follow up
Methods of analysis	Treatment adherence was analysed via an independent samples t test comparing the treatment groups on mean number of BWLP sessions missed.

Study arms

Intervention: motivational interviewing (N = 69)
two MI sessions in addition to behavioural weight loss treatment

Control: attentional control (N = 66)
two attentional control sessions in addition to behavioural weight loss treatment

Characteristics

Study-level characteristics

Characteristic	Study (N =)
% Female Nominal	66
Mean age (SD) Mean (SD)	45.16 (11.3)
BMI Mean (SD)	33.58 (6.26)

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0) Normal RCT

Section	Question	Answer
Overall bias and Directness	Risk of bias judgement	Low
Overall bias and Directness	Overall Directness	Directly applicable

Tudor, 2020

Bibliographic Reference	Tudor, Kate; Jebb, Susan A; Manoharan, Indrani; Aveyard, Paul; Brief interventions for obesity when patients are asked to pay for weight loss treatment: an observational study in primary care with an embedded randomised trial.; The British journal of general practice : the journal of the Royal College of General Practitioners; 2020; vol. 70 (no. 694); e348-e355

Study details

Trial registration number and/or trial name	The Brief Intervention for Weight Loss trial (BWeL)
Study type	Randomised controlled trial (RCT)
Study location	West Midlands, UK
Study setting	GP practices
Study dates	between 16 October 2018 and 30 November 2018
Sources of funding	National Institute for Health Research (NIHR) Oxford Biomedical Research Centre.
Inclusion criteria	BMI: <=30, or 25 if they were Asian Over 18 Raised body fat percentage
Exclusion criteria	Previous WM program within 3 months Pregnant Could not speak fluent English

	Seeing GP to manage weight
Intervention(s)	The BWeL-B intervention closely followed the BWeL script but GPs were asked to replace the statement about the referral being free on the NHS with the cost of the weight loss programme. They encouraged attendance at Weight Watchers and Slimming World, which provided ample programmes locally with evidence that they are effective. In the cost comparison group, GPs were asked to say: '… It costs about the same amount as a couple of cups of coffee per week
Comparator	The BWeL-B intervention closely followed the BWeL script but GPs were asked to replace the statement about the referral being free on the NHS with the cost of the weight loss programme. They encouraged attendance at Weight Watchers and Slimming World, which provided ample programmes locally with evidence that they are effective. In the basic cost group, GPs were asked to say: 'While you're here, I just wanted to talk about your weight. You know the best way to lose weight is to go to a weight loss programme, such as Slimming World or Weight Watchers. It costs about £5/6 per week. I can refer you now if you are willing to give it a try?
Outcome measures	WM enrolment
Number of participants	60 in total: 30 in basic cost group 30 in cost comparison group
Duration of follow-up	Immediate
Loss to follow-up	No loss
Methods of analysis	The proportions of patients accepting and attending the referral were compared using a $\chi 2$ test. In BWeL, appropriateness and helpfulness scores were highly correlated; therefore, these scores were combined and compared across the two trials using t-tests

Study arms

Intervention: Cost comparison (N = 30)
Participants were told the cost of WM compared to other costs

Control: Basic cost (N = 30)
Participants were told the basic cost of WM

Characteristics

Arm-level characteristics

Characteristic	Intervention: Cost comparison (N = 30)	Control: Basic cost (N = 30)
% Female Nominal	57	47
Mean age (SD) Mean (SD)	55.5 (17.9)	54.6 (16.1)
BMI Mean (SD)	35.6 (5.4)	33.9 (5.4)
White Nominal	60	53

Characteristic	Intervention: Cost comparison (N = 30)	Control: Basic cost (N = 30)
Black Nominal	7	7
South Asian Nominal	27	40
Other Asian Nominal	0	7

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0) Normal RCT

Section	Question	Answer
Overall bias and Directness	Risk of bias judgement	Moderate
Overall bias and Directness	Overall Directness	Directly applicable

West, 2022

Bibliographic Reference	West, Delia S.; Stansbury, Melissa L.; Krukowski, Rebecca A.; Monroe, Courtney M.; Carpenter, Chelsea A.; Finkelstein, Eric A.; Naud, Shelly; Ogden, Doris; Harvey, Jean R.; Randomized controlled trial of financial incentives during weight-loss induction and maintenance in online group weight control; Obesity; 2022; vol. 30 (no. 1); 106-116

Study details

Trial registration number and/or trial name	CinicalTrials.gov identifier NCT02688621
Study type	Randomised controlled trial (RCT)
Study location	South Carolina and Vermont, USA
Study setting	Online WM
Study dates	February 2016 and July 2019
Sources of funding	This research was supported in part by grant R01DK056746 from the NIH through the NIDDK.
Inclusion criteria	BMI: 25-50 Over 18 years Contactable; Internet access complete 3 consecutive days of dietary self-monitoring
Exclusion criteria	Previous WM program Recent weight loss Weight loss medication had bariatric surgery Health issue/disability that restricts physical exercise

Intervention(s)	Individuals randomized to Internet+Incentives received the same online, group-based behavioural intervention as the Internet-Only condition, with the same behavioural goals, lesson content, Webbased platform, and contact schedule. Only the availability of financial incentives differed between conditions. Overall incentive scheme Both behavioural (process) incentives and weight-loss (outcome) incentives were offered in an incentive scheme that traversed weight-loss induction and weight-loss maintenance (Figure 1). Incentives for achieving clinically meaningful weight-loss milestones at Months 2 and 6 were offered. Process incentives were offered for performing key self-regulatory behaviours during the early stages of weight-loss induction; specifically, individuals were rewarded weekly for consistent self-weighing and dietary self-monitoring. Importantly, self-monitoring behaviours were reinforced rather than caloric intake. After Month 6, incentive targets shifted from weight loss to weight stability; participants were paid at Month 12 if their weight was the same (or lower) than their Month 6 weight, and process incentives were offered for self-weighing and physical activity engagement (i.e., step targets). Incentives were discontinued during the final 6 months of maintenance (Months 12-18), allowing for observation of the durability of self-management behaviours and weight trajectory in the absence of financial incentives. Thus, the incentive scheme combined both outcome and process incentive targets and spanned the full range of weight-loss induction and weight-loss maintenance, including a period after incentives terminated. Incentives were paid out using electronic gift cards, with weekly payouts for process incentives and immediate payment for outcome incentives
Comparator	The 18-month, manualized online intervention reflected approaches used in other evidence-based interventions (18-21) (see online Supporting Information for a detailed description of the intervention). All participants were given access to a password-protected website that provided dynamic components, including behavioural lessons, a bulletin board for private group communications, personalized real-time progress graphs, and educational resources. One-hour, online, synchronous, text-based chat sessions focused on reinforcing behavioural skills and cultivating group support were facilitated by an experienced behavioural weight-control interventionist. Group sessions were offered weekly during weight-loss induction (Months 1-6) and monthly during weight maintenance (Months 7-18), providing facilitated, synchronous group chat sessions focused first on achieving weight loss and then on cultivating weight stability skills. All participants were instructed to weigh themselves daily and record their weight on the study website each day; if they did not have a scale, the study provided one. Participants were prescribed a daily calorie goal ranging from 1,200 to 1,800 kcal based on baseline weight. Participants were also given graded moderate-to-vigorous physical activity (MVPA) goals that progressed to 200 min/wk and graded step goals that progressed to 10,000 steps/d (22). They were instructed to monitor dietary intake, minutes of physical activity, and number of steps daily using the MyFitnessPal smartphone app and to record calorie intake, minutes of MVPA, total steps, and body weight on the study website daily. The interventionist emailed tailored feedback based on participant self-monitoring

Outcome measures	WM attendance
Number of participants	A total of 418 participants were randomized (Figure 2). Participants were predominantly female, most had obesity, and 28% self-identified as African American or another racial minority group. There were no significant differences between conditions with respect to baseline characteristics Internet + incentives = 206 Internet only = 212
Duration of follow-up	6 months, 12 months, and 18 months
Loss to follow-up	6 months = 91% internet + incentives follow up, 81% internet only follow up. 12 months = 79% internet + incentives follow up, 70% internet only follow up. 18 months = 74% internet + incentives follow up, 69% internet only follow up.
Methods of analysis	The primary focus of this analysis was to explore whether an integrated incentive scheme targeting both weight-loss induction and weight maintenance, with both outcome and process incentives, would improve weight stability and total weight loss at Month 12 compared with the online program alone. Additionally, we examined weight-loss outcomes in the final 6 months of the maintenance period when no incentives were offered. Missing weight data were imputed by the fully conditional specification method (FCS option in SAS PROC MI, SAS Institute). Multiple imputation was used to create 100 complete data sets that were analysed separately, and then the results were combined. Month 2 values were imputed with baseline weight, chat group, age, baseline BMI, sex, and race as covariates (35). Subsequent outcome points followed the same process, using the same covariates, as well as weight from previous assessments (both observed and imputed). Imputation was done separately for each arm (36). Weight-change analyses were conducted using a mixed-effects linear model, with repeated measures nested within participants and participants nested within randomized clusters (i.e., online chat groups). Sensitivity analyses were conducted in similar fashion using only those with weight data available (completers). Similar analyses were run to evaluate adherence measures (e.g., number of days reporting weight, number of

	steps per day). Missing adherence data were treated as indicating nonadherence. All analyses were conducted using SAS version 9.4 (SAS Institute). Statistical significance was defined as $p < 0.05$ (two-tailed)

Study arms

Intervention: financial incentives (N = 206)
18-month, online, group-based behavioural weight-control program with financial incentives provided for 12 months

Control: internet WM only (N = 212)
18-month, online, group-based behavioural weight-control program

Characteristics

Arm-level characteristics

Characteristic	Intervention: financial incentives (N = 206)	Control: internet WM only (N = 212)
% Female Nominal	91	92
Mean age (SD) Mean (SD)	50 (11)	48 (11)
BMI	35.5 (5.5)	35.8 (5.9)

Characteristic	Intervention: financial incentives (N = 206)	Control: internet WM only (N = 212)
Mean (SD)		
White Nominal	68	77
African American Nominal	21	30
Other Nominal	2	2

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0) Normal RCT

Section	Question	Answer
Overall bias and Directness	Risk of bias judgement	Moderate
Overall bias and Directness	Overall Directness	Indirectly applicable

West, 2016

Bibliographic Reference	West, Delia Smith; Harvey, Jean R; Krukowski, Rebecca A; Prewitt, T Elaine; Priest, Jeffrey; Ashikaga, Takamaru; Do individual, online motivational interviewing chat sessions enhance weight loss in a group-based, online weight control program?.; Obesity (Silver Spring, Md.); 2016; vol. 24 (no. 11); 2334-2340

Study details

Trial registration number and/or trial name	ClinicalTrials.gov identifer NCT01232699.
Study type	Randomised controlled trial (RCT)
Study location	Arkansas and Vermont, USA
Study setting	Online chat-based WM
Study dates	Not provided
Sources of funding	This project was supported in part by NIDDK R01DK056746
Inclusion criteria	BMI: 25-50 Over 18 General good health
Exclusion criteria	Previous WM program Recent weight loss Weight loss medication

	had bariatric surgery Health issue/disability that restricts physical exercise
Intervention(s)	The online MI intervention has been described in detail previously (14). Briefly, six individual MI sessions using an interactive, synchronous form of private chat integrated within the same website as the group weight loss program were offered to participants randomized to the BT 1 MI condition. The text-based chat was selected because many participants lived in rural areas without consistent access to the technology required to support alternatives like video chat. Chats were designed to last approximately 30 min, followed a protocol which allowed flexibility in session flow, and provided content tailored to the participant's treatment engagement and weight change experience, while standardizing the session across individuals. The first MI session was conducted before the group program started. The second MI session was after session 5 of the weekly group program, when early indications that individuals may be struggling with behaviour change efforts or weight loss can emerge (17,18). The next five MI chats were offered at 3-month intervals. There are no empirical data examining different patterns of MI delivery in obesity treatment to guide the number or timing of MI sessions; therefore, we mirrored the approach taken in successful in-person programs
Comparator	The 18-month manual intervention focused on changing dietary and physical activity patterns using self-management skills and other behavioural strategies. One-hour online, synchronous chat sessions of 12 to 19 participants were moderated by experienced behavioural weight control counsellors. Chats were offered weekly during the first 6 months and monthly for 12 additional months and combined participants from both clinical sites. Participants had access to a secure, password-protected, dynamic website with behavioural lessons posted to accompany each chat session, a bulletin board for group communications, educational resources, regularly updated weight loss tips and healthy recipes, and notices of local physical activity events (16). A self-monitoring tool with a personalized dietary monitoring feature and a weight graphing feature and a compendium of physical activities with associated caloric expenditure information were also available on the website. Participants were instructed to record dietary intake, minutes of physical activity, and weight daily in the online journal. Group counsellors provided a weekly email with tailored feedback to participants based on this online journaling. A calorie-restricted diet and dietary fat goal corresponding to 25% of calories from fat were prescribed, and graded exercise goals that progressed to 200 min/week of moderate to vigorous exercise were provided. Pedometers were given to assist in self monitoring steps and a goal of 10,000 steps/day was provided. Behavioural strategies to assist in making habit changes included self monitoring, goal setting, problem solving, and relapse prevention. Weekly homework corresponding to the lesson topic and facilitating enactment of the featured behavioural strategy was assigned.

Outcome measures	WM attendance
Number of participants	A total of 398 participants were randomized (n 5 197 from AR; n 5 201 from VT). Participants were predominantly female, had obesity, and were well educated, with 24% African Americans.
Duration of follow-up	6 months and 18 months
Loss to follow-up	Follow-up data were provided by 90% of randomized participants at 6 months and 81% at 18 months, with no difference between conditions in retention rates
Methods of analysis	e study was designed to detect a 1.72 kg group weight loss difference with a standard deviation (SD) of 5.2 kg, a 5% type I error rate, and 80% power. Group comparisons used v2 tests for contingency tables and Wilcoxon rank-sum tests for continuous variables. Group-specific multiple imputations (k 5 6) were implemented for missing weight data using baseline covariates, including sex, race, education, age, and obesity status (BMI 30 kg/m2). Comparison of imputed and complete case data averages at each time point and longitudinally appeared consistent. All analyses of weight changes at each time point were conducted with imputed data using a mixed linear model with repeated measures nested within participants and participants nested within randomized clusters (online chat groups). All models included treatment and clinical site as fixed effects. To gain insight into the potential joint impact of group behavioural weight control and individual MI chats on weight loss, a mediational analysis of MI engagement was conducted for the BT 1 MI treatment arm (20). Linear regression models between measures characterized direct effects and 95% confidence intervals (CIs) for slopes. Mediation effects were considered directional. Interpretation of regression-based mediation effects was assisted using median splits for attendance at group chats and MI sessions to define four engagement subgroups and their weight loss estimates. All analyses were conducted using SAS Version 9.4 (SAS Institute: Cary, NC). Across all tests, statistical significance was defined as P < 0.05 (two-tailed

Study arms

Intervention: behavioural WM + motivational interviewing (N = 199)
36-session group Internet behavioural weight control treatment (BT) plus six individual MI chat sessions

Control: behavioural WM only (N = 199)
36- session group Internet behavioural weight control treatment (BT)

Characteristics

Arm-level characteristics

Characteristic	Intervention: behavioural WM + motivational interviewing (N = 199)	Control: behavioural WM only (N = 199)
% Female Nominal	89.5	90
Mean age (SD) Mean (SD)	47.9 (9.5)	48.9 (10.7)
BMI Mean (SD)	35.9 (6)	36.1 (6.1)
African American (%) This was the only ethnic group listed Nominal	26.6	21.6

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0) Normal RCT

Section	Question	Answer
Overall bias and Directness	Risk of bias judgement	Moderate
Overall bias and Directness	Overall Directness	Indirectly applicable

Qualitative evidence

Children and young people

Banks, 2014

Bibliographic Reference	Banks, Jonathan; Cramer, Helen; Sharp, Deborah J; Shield, Julian Ph; Turner, Katrina M; Identifying families' reasons for engaging or not engaging with childhood obesity services: A qualitative study.; Journal of child health care : for professionals working with children in the hospital and community; 2014; vol. 18 (no. 2); 101-10

Study Characteristics

Study type	Semi structured interviews
Theoretical approach	None stated
Study location	Bristol, South Gloucestershire and North Somerset, UK
Study setting	childhood obesity clinics

Study dates	Interviews took place between one and seven weeks after completing treatment, but no dates provided
Sources of funding	e National Institute for Health Research (NIHR) under its Research for Patient Benefit (RfPB) Programme
Data collection	Author 2 undertook 15 semi-structured interviews with parents whose children had completed the trial's 12-month treatment. 'Completers' were defined as attending at least three appointments and providing final outcome measures for the trial. Families were purposively selected for interview using maximum variation sampling to ensure a balance of age, gender and clinic type (Table 1; numbers in parentheses indicate the number participating in the main trial). Children were invited to participate in the interviews alongside their parents and nine agreed (Table 2). Interviews took place between one and seven weeks after completing treatment, were conducted in the families' homes and lasted between 30 and 60 min. A topic guide was used. It covered the following key areas: clinic expectations; experience of the clinic and practitioner advice; changes made to lifestyle and diet following clinic advice; practical aspects of attending the clinic; and elements missing from the clinic. It also included simplified questions for participating children along with prompts, such as asking them about their favourite activities, designed to engage them in the interviews. Interviews were audio recorded, transcribed and anonymised. Data collection ended when data saturation had been achieved. Author 1 undertook telephone interviews with families who withdrew from treatment (Table 1). 'Withdrawers' were classified as those families who asked to withdraw from treatment and/or failed to attend two successive appointments without prior notification. Of the 29 families who withdrew, 17 agreed to participate in an interview. We were unable to contact six families, two declined an interview, and we did not contact four families either because of family issues or because they had indicated they did not want any further contact with the trial. The interviews were semi-structured. The same topic guide that had been used with completers was employed, but with an additional section on reasons for withdrawing from treatment. Interviews lasted between 5 and 20 minutes. The data were recorded using handwritten notes, which were then typed and analysed alongside the completers' data.
Method and process of analysis	The data were analysed thematically so that comparisons could be made within and across interviews, and the views individuals held towards particular issues were highlighted. We aimed to identify factors that had facilitated and inhibited clinical engagement. Using this approach, interview transcripts and notes were read by the research team and an initial coding frame was developed. Authors 1 and 5 then independently coded a number of transcripts to ensure consistency of coding. Once the coding frame had been agreed, author 1 electronically coded the full data set in Atlas.ti to aid in data analysis. Within this article, quotes have been tagged as completers or withdrawers along with patient study ID, age and trial arm (SC ¼ secondary care, PC ¼ primary care). Data from the withdrawer interviews are primarily reported in the third

	person as they were recorded by the interviewer. All names have been replaced with pseudonyms. All parents gave informed consent for themselves and their children to participate in interviews, and participating children gave verbal assent
Population and sample collection	The trial recruited 68 children aged 5–16 who had been identified by their general practitioner (GP) as obese (BMI 98th centile based on UK growth reference data). Participants were referred by GPs in Bristol, South Gloucestershire and North Somerset, England. . Families were purposively selected for interview using maximum variation sampling to ensure a balance of age, gender and clinic type Interviews = 15 completer parents and 16 children, 17 withdrawer parents and children
Inclusion Criteria	Referred to WM by a medical professional Age group: 5-11 and 11-16 BMI >= 98th centile for age/sex
Exclusion criteria	Unsuitable health conditions
Relevant themes	1. Building engagement 2. Maintaining engagement 3. Disengaging

Critical appraisal - CASP qualitative checklist V2

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	High *(Not audio recording half the interviews is a major concerns for the validity of the data)*
Overall risk of bias and relevance	Relevance	Highly relevant

Cyril, 2016

Bibliographic Reference	Cyril, Sheila; Green, Julie; Nicholson, Jan M; Agho, Kingsley; Renzaho, Andre M N; Exploring Service Providers' Perspectives in Improving Childhood Obesity Prevention among CALD Communities in Victoria, Australia.; PloS one; 2016; vol. 11 (no. 10); e0162184

Study Characteristics

Study type	Focus Groups Semi structured interviews
Aim of study	1. to explore service providers' perceptions of the key factors influencing the participation of CALD communities in the existing obesity prevention services and the service requirements needed to improve CALD communities' participation in these services. 2. to examine the level of readiness of disadvantaged communities to engage with childhood obesity prevention initiatives 3. to examine the barriers and facilitators to the engagement of CALD communities in obesity prevention initiatives
Theoretical approach	Agency-structure sociological theory. The community readiness model
Study location	Victoria, Australia
Study setting	Culturally and linguistically diverse communities
Study dates	Not provided
Sources of funding	Australian Research Council as a Linkage Grant

Data collection	Focus groups: Data were collected using eight heterogeneous focus groups (two per geographical area) comprising approximately eight participants (group number ranging from 6 to 9). Each focus group was constructed to include a mix of service providers across a range of community and early years' services in order to obtain diverse views on the topics discussed. Across all the four study areas, care was taken to ensure the similar composition of groups. Written informed consent was obtained from all participants prior to data collection. Focus groups were conducted by the lead author (SC) and co-facilitated by another member of the research team, in centrally situated locations including community centres, city council offices, and public libraries in each study area, which were convenient and accessible to study participants. Each focus group was around 2 hours long and was audio-recorded and transcribed verbatim. Field notes were taken describing the group dynamics and participant interactions. The focus group discussions were guided by a schedule of four topics identified from the existing literature on childhood obesity among CALD communities Interviews: Data were collected using five NGTs in Vietnamese, Burmese, Hindi, Dari and Swahili using trained interpreters. Each nominal group consisted of about eight participants (range: 6–9). Study participants provided written informed consent on translated forms prior to the nominal groups. All groups were conducted by the lead author and co-facilitated by a research staff member in locations convenient to study participants, including public libraries, playgroups and community centres. Research staff including bilingual facilitators received two days of training on the NGT methodology from an NGT expert and co-author AR. Each nominal group lasted about 2.5 hours. The nominal groups sought to answer the research question, "What are the barriers and facilitators for your community to engage in childhood obesity prevention initiatives?" The development of the NGT schedule was confirmed by the study steering committee comprising study investigators, maternal and child health (MCH) team leaders, city council staff, primary school wellbeing officers and community health centre managers. Data were collected until the study steering committee was satisfied that no new information emerged from the nominal group discussions (data saturation)
Method and process of analysis	Analysis of community readiness interviews was conducted separately for each of the four study areas and followed the guidelines described by Plested et al.18 Two researchers independently read each interview in detail and assigned scores for each of the six dimensions, based on an anchored rating scale ranging from 1 to 9 (Supplementary Material File 2) and recorded the individual scores on scoring sheets (Supplementary Material File 3). Interscorer reliability was achieved by using a process similar to that used in other CRM studies,15,16 which is described below. Consensus scores were recorded following discussion on statements with differing scores from each researcher, including explanations for the

	decisions made. The consensus scores were then averaged across the interviews for each dimension. The average of the six dimension scores gave the final readiness score which indicated the corresponding stage of readiness of the community (Table 1). Descriptive analysis using Stata version 12 (Stata Corporation) summarised the demographic characteristics of study participants and their readiness scores. Paired t-tests were undertaken to compare the readiness scores of community members and service providers. Based on current evidence stating the importance of using qualitative data to enhance the interpretation of the quantitative findings, we undertook qualitative analysis of the interview data.33 Thematic analyses of the interview transcripts were performed by two researchers (SC and AR) who adopted an inductive approach and independently scrutinised the data and created theme-based codes.34 Codes which were similar in thematic content constituted the creation of categories, followed by the identification of emergent themes. Quotations from the transcript data were selected to exemplify the unique characteristics of the participants' perceptions. To enhance the interpretation of the quantitative findings, we undertook qualitative analysis of the interview data.33 Thematic analyses of the interview transcripts were performed by two researchers (SC and AR) who adopted an inductive approach and independently scrutinised the data and created theme-based codes.34 Codes which were similar in thematic content constituted the creation of categories, followed by the identification of emergent themes. Quotations from the transcript data were selected to exemplify the unique characteristics of the participants' perceptions. and consolidate them in areas of similarity; Step 4: Voting on Ideas where participants independently selected 10 ideas they saw as "most important" and gave votes to each idea (ranging from 1 vote for least important to 10 votes for most important), which were totalled to identify the most important ideas for each group; Step 5: Tallying Ideas where the researchers tallied the overall rankings for each idea and presented these back to the group as the list of ranked priorities.21 Bilingual interpreters facilitated the translation of ideas to enable the research team with the tallying and ranking process.
Population and sample collection	Fifty-nine service providers participated in the study. Participant characteristics are summarised in Table 1. About one-third of the total sample (36%) were service providers from early years' services including schools, kindergartens and playgroups; 32% were service providers from MCH services and city councils; and 32% were from community health centres (nurses, dieticians and health promotion officers). Purposive sampling was used to identify service providers who are actively involved in the health and wellbeing of children and have the potential to influence healthy lifestyle behaviours among children, as identified by the existing literature

	95 semi-structured interviews were conducted among communities in four disadvantaged areas of Victoria, Australia. Using purposeful sampling, we recruited community members (CALD parents) as well as professional stakeholders from schools, health centres, early learning services, community centres, and h.ealth services in the four study areas Thirty-nine participants from African, Afghan, Indian, Burmese and Vietnamese backgrounds participated in five NGTs. We used convenience sampling to recruit CALD community members in the four study areas.
Inclusion Criteria	Low SES Age group: Under 12 Parents/guardians Born outside of Australia Language other than English at home Staff working with CALD communities
Exclusion criteria	Not a stakeholder
Relevant themes	1. Focus groups 1. community-level barriers to the engagement of CALD communities in childhood obesity prevention services 2. service-level barriers to the delivery of childhood obesity prevention services 3. proposed changes to current childhood obesity prevention approaches 2. Interviews on readiness to engage 1. Gaps in readiness between professional stakeholders and CALD parents 2. Dimensions A and B: community efforts and community knowledge of efforts 3. Dimension C: leadership 4. Dimension D: community climate towards childhood obesity and its prevention 5. Dimension E: community knowledge of childhood obesity

	6. Dimension F: resources for tackling childhood obesity 3. Interviews on barriers and facilitators 1. Competing priorities and lifestyle barriers 2. Resource and support issues 3. Language and cultural barriers 4. Health information/health literacy 5. Environmental influences on healthy lifestyle 6. Systemic and policy barriers

Critical appraisal - CASP qualitative checklist V2

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	Low
Overall risk of bias and relevance	Relevance	Relevant

Gillespie, 2015

Bibliographic Reference	Gillespie, J; Midmore, C; Hoeflich, J; Ness, C; Ballard, P; Stewart, L; Parents as the start of the solution: a social marketing approach to understanding triggers and barriers to entering a childhood weight management service.; Journal of human nutrition and dietetics : the official journal of the British Dietetic Association; 2015; vol. 28suppl1; 83-92

Study Characteristics

Aim of study	to use social marketing insight gathering to further understand potential barriers and triggers for parents accessing the Tayside childhood weight management service
Theoretical approach	Drummond's Model of Motivators of Personal Action
Study location	Dundee, UK
Study setting	childhood weight management service
Study dates	March 2010
Sources of funding	NHS Health Scotland
Data collection	Four extended focus group discussions were undertaken in three locations across Tayside: two in Dundee (n = 6, n = 8) and one each in Arbroath (n = 7) and Perth (n = 6). Groups were conducted in a comfortable setting within the local community by a trained and experienced commercial research practitioner (CM) and each was observed (by JG, IR, CF or JH); all were unknown to the parents. All four group discussions followed a semi-structured topic guide and lasted up to 2 h. The topic guide, shown in Appendix 1 included general context on health, fitness, weight and nutrition, as well as specific question areas. Stimuli in the form of visual images of children with a range of BMI levels, verbatim comments from parents of users of similar services and blob tree visuals (Wilson & Long, 2009) were used to encourage debate and locate perceived weight norms. The blob tree uses images of nonspecific cartoon figures in a range of situations and asks the respondent to consider which one they most identify with. Recordings were fully transcribed and thematic analysis, based on the Framework method of content matrix data
Method and process of analysis	analysis, was undertaken (Ritchie & Spencer, 1994; Armstrong et al., 1997). Themes were identified both deductively, using predefined themes drawn from the topic guide and research questions, as well as inductively (i.e. derived from the data itself). Themes were mapped and interpreted using the charts to define concepts and find associations (Pope et al., 2006). The themes, associations and concepts were tested with all authors. To ensure a transparent audit trail, all of the audio tapes, paperwork, coding charts and mapping data are available for review
Population and sample collection	Participants were recruited to the study and subsequently interviewed by an experienced interviewer (CM) in March 2010. Parents were categorised by their child being of primary or secondary school age rather than the specific age of the child. Parent/carer socioeconomic status was classified based on self-reported occupation. Respondents were recruited from

	areas local to the venues by commercial market research recruiters. Sampling was purposive (Miles & Huberman, 1994) in an attempt to recruit parents whose child's weight was above a healthy level but, importantly, who had not accessed the local POST childhood weight management service. Recruitment was based on observation of child weight status by the recruiter plus parents answering 'true' or probably true' to screening questions, including parents' own report of child's weight
Inclusion Criteria	Local to WM service Parents/guardians High score on lifestyle questionnaire
Exclusion criteria	Previously used WM service
Relevant themes	1. At the point of needing help – feelings 2. Triggers – why seek help? 3. Barriers – what prevents parents/carers seeking help? 4. The ideal service – the start of the solution
Additional information	a social marketing study

Critical appraisal - CASP qualitative checklist V2

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	High

Section	Question	Answer
Overall risk of bias and relevance	Relevance	Highly relevant

Jones, 2021

Bibliographic Reference	Jones, Helen M; Oyebode, Oyinlola; Melendez-Torres, G J; Al-Khudairy, Lena; Professional stakeholder's views of adolescent weight management programmes: a qualitative study.; BMC research notes; 2021; vol. 14 (no. 1); 125

Study Characteristics

Study type	Semi structured interviews
Aim of study	to gather the views of professional stakeholders in a UK weight management programme to identify potential areas to target to improve engagement and success for such programmes
Theoretical approach	None stated
Study location	Wolverhampton, UK
Study setting	Hearty Lives programme
Study dates	May to August 2018.
Sources of funding	e National Institute for Health Research (NIHR) Collaboration for Leadership in Applied Health Research and Care West Mid- lands (
Data collection	Semi-structured interviews were conducted with those involved with the Hearty Lives programme from May to August 2018. Purposive sampling was used to obtain perspectives of information-rich participants relevant to the setting. Interviews took

	place by telephone or face-to-face in a private room at the participants place of work. All interviews were completed by one trained female researcher, undertaking a PhD, who had significant experience in weight management programmes and previous experience with qualitative methods (HMJ). Due to this prior experience, the researcher was known to some participants involved; this may have been advantageous in developing rapport and receiving honest views from stakeholders. Written consent was gained either electronically or in person. The interview guide was informed partly by a qualitative systematic review looking at the views of adolescents with overweight and obesity attending obesity treatment interventions [17]. Themes from this review were used to create a semi-structured interview guide, with an open mind for new themes emerging in the interviews. The interview guide was checked with two authors (GJM-T, LA-K), piloted prior to data collection and sent to stakeholders before the interviews commenced. Interviews were continued until data saturation was reached.
Method and process of analysis	Data were transcribed verbatim and exported into NVivo 11 software anonymously. Data were approached using inductive qualitative content analysis [18]. Following open coding, codes were grouped together to form subcategories, which were abstracted into categories. Categories were then named using words that closely linked to the data. Analysis was audited by another author (OO) to improve reliability. A draft version of the results was provided to stakeholders to allow member checking
Population and sample collection	Semi-structured interviews were conducted with those involved in the commissioning, referral, coordination or delivery of a weight management programme (n=11). Hearty Lives programme workers N=2 School nurses N=3 Dietitians N=2 Hearty Lives programme manager N=1 Public health consultant N=1

	PE and school partner manager N=1 Health advisor N=1
Inclusion Criteria	WM facilitators and staff
Exclusion criteria	None reported

Relevant themes	1. support
	  1. Professional support
	  2. Characteristics of successful professional's support
	  3. Peer support
	  4. Family support
	2. tailoring
	  1. Tailored to age group and individual
	  2. Delivery mode
	3. intervention content
	  1. Easing prior fears
	  2. Weight loss vs Health
	  3. Emotional and psychological support
	  4. Responsibility
	  5. Physical activity
	  6. Technology
	  7. Longer term support

Critical appraisal - CASP qualitative checklist V2

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	Moderate

Section	Question	Answer
Overall risk of bias and relevance	Relevance	Highly relevant

Lucas, 2014

Bibliographic Reference	Lucas, Patricia J; Curtis-Tyler, Katherine; Arai, Lisa; Stapley, Sally; Fagg, Jamie; Roberts, Helen; What works in practice: user and provider perspectives on the acceptability, affordability, implementation, and impact of a family-based intervention for child overweight and obesity delivered at scale.; BMC public health; 2014; vol. 14; 614

Study Characteristics

Study type	Interviews
Aim of study	Not explicitly stated. Investigated user and provider perspectives on the acceptability, affordability, implementation, and impact of a family-based intervention for child overweight and obesity delivered at scale
Theoretical approach	None stated
Study location	London, the North East and the South West UK
Study setting	The MEND 7–13 programme is a family-based, 10 week behaviour change intervention for children aged 7–13 who are overweight or obese
Study dates	February 2011
Sources of funding	e National Institute for Health Research Public Health Research programme
Data collection	Families were invited to take part in group interviews comprising the index child, the parent or carer who had attended MEND sessions and, if they wished, up to two other family members or friends they considered important to the child's weight management, for example siblings or relatives who provided childcare. We chose to use group interviews reflecting

	the family approach and experience of the MEND programme. In some cases, family interviews were followed up with individual interviews designed to generate accounts which might have been unvoiced in a group interview, possibly offering an alternative narrative or prioritising voices sometimes muted in group (as children's sometimes are [10,11]). Most families chose to be interviewed at home, one chose a public space. All participants were given age appropriate written and verbal information about the study prior to commencing interviews. Parents and children were asked for, and provided, written consent with the exception of one young child, who gave verbal consent. Our topic guides were informed by the literature, our project management group and advisory groups, providers and services users including a young people's group convened by the National Children's Bureau. Interviews with providers covered their professional background, and role in commissioning or delivering MEND and their experiences of this, their perceptions of levers and barriers to participating in MEND (for families and providers), their local health context, and their views about the value and costs of MEND in their area. Interviews with families included; their experience of MEND, referral routes and experience of being in the programme, their views of barriers and levers to participation for families and children, their perceptions of changes to diet or health during or since MEND participation, their beliefs and feelings about weight control, and their perceptions of the costs and benefits to families and children of taking part in MEND. Initial interviews were used to pilot and refine the topic guides, which were tools rather than rules; designed to map rather than constrain discussions. Interviews were audio recorded, and sent for transcription using encrypted files and a secure file transfer system. Verbatim transcriptions were returned to the qualitative research team after removal of identifying features
Method and process of analysis	Interviews were analysed using framework analysis [12], which involves familiarisation with the data; summarising data in tables by case and low-level theme (largely drawn from interview questions); exploring emerging patterns and disconfirming data within and across cases in tabulated summaries and original transcripts; from this identifying and indexing higher order themes.
Population and sample collection	We interviewed those responsible for purchasing services (commissioners) and those delivering MEND (delivery partners) together referred to as "providers" here. Our recruitment target was up to 30 providers in the expectation that we would be unlikely to generate a significant increase to our understanding after that point. A shortlist was drawn from MEND contract holders (n = 151) to achieve a maximum variation sample based on the socio-demographics of the local population (index of multiple deprivation and area ethnic composition), the type of organisation (PCT or not), and contracting details (number of programmes contracted and current contracting status. We first wrote to, and then telephoned 54 providers using contact details in the MEND database (42 in a first wave and 12 in a second wave). There were few refusals (see Figure 1), but many telephone or other contact details no longer led in the direction of the relevant person. During this period of

	organisational change in the NHS, we would find that people had moved on or changed post. Interviews were conducted at places or work, over the phone, or elsewhere at the request of interviewees. Our 'user' sample was based on family units since a parent or carer is required to accompany each child in MEND 7–13. We aimed to recruit 30 families; 10 high attenders (>75% attendance), 10 less frequent attenders (≤25%) and 10 who expressed an interest but did not take part. Anonymised MEND records (n = 657) were used to purposively select a sample of families drawn to achieve maximum variation by ethnicity, housing tenure, family structure, MEND attendance and local deprivation. Anticipating a 50% response rate, MEND Central wrote on our behalf to 68 families. Families were sent information about the study and given a 21 day opt out period after which they were telephoned up to 3 times to secure recruitment. Follow-up letters were sent to those with no working telephone number or voicemail. We subsequently introduced three supplementary methods to recruit low and non-attenders; 'snowballing' from the families interviewed; advertising in centres where MEND had been offered; and advertising on parent web forums. Figure 2 shows the recruitment flow for families. We contacted 66 providers and recruited 29 interviewees to 26 interviews (twenty four were individual interviews, with one group of 2, and one group of 3, see Figure 1). These included health and wellbeing development officers, strategic leads for obesity, medically qualified public health consultants and local programme managers or co-ordinators. We contacted 68 families through initial sampling, interviewing 22 (32%) plus 1 additional family recruited through snowballing (see Figure 2). The 23 families interviewed comprised 64 individuals; 22 mothers (including 1 foster mother), 6 fathers, 2 grandmothers, 2 aunts, 12 male and 10 female MEND attendees, 5 brothers and 4 sisters of attendees, and one family friend.
Inclusion Criteria	WM facilitators and staff Age group: Children Parents/guardians
Exclusion criteria	None reported
Relevant themes	1. Costs and affordability of MEND for providers and families 2. Provider implementation decisions 3. Training and motivation of staff

	4. Family engagement 5. The context and wider environment 6. Perceived impact and maintaining change

Critical appraisal - CASP qualitative checklist V2

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	Moderate
Overall risk of bias and relevance	Relevance	Highly relevant

Newson, 2013

Bibliographic Reference	Newson, Lisa; Povey, Rachel; Casson, Abigail; Grogan, Sarah; The experiences and understandings of obesity: families' decisions to attend a childhood obesity intervention.; Psychology & health; 2013; vol. 28 (no. 11); 1287-305

Study Characteristics

Study type	Semi structured interviews
Aim of study	to explore why families choose to attend or not attend a childhood obesity programme, and to examine the beliefs and experiences which influenced these decisions

Theoretical approach	Theory of Planned Behaviour
Study location	UK (Location not provided)
Study setting	NHS weight management service
Study dates	Not provided
Sources of funding	Not provided
Data collection	Digitally-recorded semi-structured interviews were conducted by the interviewer, who was previously unknown to the families and was not part of the clinical intervention team. The interviewer was therefore considered neutral and held an independent relationship with participants, which would not impact in any way on their current or future healthcare services. Participants were informed that the interviews aimed to seek their experiences of the services received so far and to collect their views about attending the programme. Interviews lasted an average of 57 minutes; the digital recordings were transcribed verbatim with all names replaced by pseudonyms. Participants were offered the opportunity to read the transcribed interviews to check for readability of data, and if required to clarify comments. No participants requested to amend or clarify their original interview transcripts. a semi-structured interview schedule was devised utilising open ended questions. The interview was structured in two parts: firstly to introduce the families to the study and gain their demographic information; secondly to ask questions about their experiences and reasons for choosing to attend or not to attend. For example some of the questions included: “Can you tell me when you were invited/referred to the childhood obesity service - How did you feel?” “Why did you decide to (not) attend the programme?” “What reasons do you think other families might give for (not) attending?” The interview process allowed for flexibility in wording/ordering and expansion of questions depending on the interview flow. So to explore the psychological world of the participants, the questions for the interview were loosely based upon the Theory of Planned Behaviour (Ajzen, 1991). Structuring the interview in this way aided the extraction of how participants’ thoughts and beliefs regarding obesity and its treatment affected their decisions to attend the intervention, and with the flexibility of the semi-structured interview, this approach allowed the participants to tell their stories and for the interview to uncover potentially novel areas for interpretation
Method and process of analysis	The data was examined using Interpretative Phenomenological Analysis (IPA) as described by Smith, Flower, and Larkin (2009). The process was conducted by two authors (author and author) who read the transcripts several times and initial

	comments and interpretations were noted. Subsequently coding for meaning, similarities, differences, and contradictions were highlighted in the left hand margin of each script. Once completed the scripts were re-read with emerging themes (based upon these initial codes) noted in the right hand column. The coding and themes were mapped, clustered and then discussed, reviewed and defined by researchers before creating full definitions and interpretations. The process of interpretation aimed to explore the responses of the participants to specific questions and to look for emerging commonalities/differences. The construction and reliability of themes was carefully discussed between the authors, so that any interpretation was representative and not skewed by any underlying preconceived perceptions. Care was taken to ensure that emerging themes fitted the data rather than forcing the data to fit into the themes. As a consequence the descriptions were written based upon these analytical discussions. This process was idiographic, looking in detail at one interview, before examining subsequent interviews
Population and sample collection	Families were provided with an initial information sheet explaining the purpose and requirements of the study. Consent to pass participants' contact details onto the research team were ascertained during the initial clinical assessment. The researcher contacted the families and provided further information about the study, explaining the process and agreeing the location and time of the interview. Interviews were conducted at the participants' homes, an NHS clinic, or a local children's centre, depending on their preference. Due to the nature of the study, it was important that the participants felt comfortable expressing their experiences honestly and openly, and that they were given the opportunity to provide feedback as they deemed necessary. The study therefore concentrated on the responses of parents (as parents were the main decision makers), however children were asked if they would like to participate and contribute to the research investigation. Twenty-one families were invited to participate, of which fourteen families agreed to take part, and eleven participated (reasons for non-participation were: 1 incorrect phone number; 1 onset of family illness so withdrew; 1 no suitable date). All participants were white Caucasian; and included working full/part-time and unemployed parents or guardians. All families lived in an area of high deprivation. It was deemed that this cohort was a representative sample of the local population. For three interviews the guardian(s) was/were the child's grandparent(s) (families 1, 8 & 11). The children's ages ranged from 5 to 15 years old, with a mean age of 10 years old. Four children participated in the research interviews (families 1, 2, 8 and 11). Of the seven other families, four parents requested that the children were not interviewed and in three cases the parents were happy for the child to participate; however, two children declined participation and one child was not able to participate due to parenting arrangements after school. Participants were categorised as either programme "attendees"

	(families 2, 3, 4, 5, and 11) or “non-attendees” (families 1, 6, 7, 8, 9 and 10). Attendees were the families who attended the programme for at least the first two sessions.
Inclusion Criteria	Referred to WM by a medical professional BMI >= 98th centile for age/sex
Exclusion criteria	None reported
Relevant themes	Theme 1: Perceptions of childhood obesity Theme 1: Perceptions of childhood obesity Theme 3: Practical barriers and overcoming hurdles to attending Theme 4: Availability and suitability of local facilities

Critical appraisal - CASP qualitative checklist V2

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	Low
Overall risk of bias and relevance	Relevance	Highly relevant

Pallan, 2019

Bibliographic Reference	Pallan, Miranda; Griffin, Tania; Hurley, Kiya; Lancashire, Emma; Blissett, Jacqueline; Frew, Emma; Gill, Paramjit; Griffith, Laura; Jolly, Kate; McGee, Eleanor; Parry, Jayne; Thompson, Janice L; Adab, Peymane; Cultural adaptation of a children's weight management programme: Child weigHt mANaGement for Ethnically diverse communities (CHANGE) study.; BMC public health; 2019; vol. 19 (no. 1); 848

Study Characteristics

Study type	Focus Groups Interviews
Aim of study	to culturally adapt an existing children's weight management programme for children aged 4–11 years so that the programme was more able to meet the needs of families from South Asian communities.
Theoretical approach	Behaviour Change Wheel framework and Typology of Cultural Adaptation
Study location	Birmingham, UK
Study setting	First Steps WM program
Study dates	September 2013 to July 2014.
Sources of funding	National Institute for Health Research Health Technology Assessment Programme
Data collection	Community Researchers from Pakistani and Bangladeshi communities in Birmingham with qualitative research experience (AA; female and of Pakistani heritage, and MB and SK; both female and of Bangladeshi heritage) were recruited to assist the core research team (TG (research fellow in Public Health with mixed methods research experience) and LG (lecturer in healthcare anthropology with extensive qualitative research experience); both female and of white British heritage) in undertaking this qualitative data collection. The Community Researchers did not have pre-existing relationships with participants prior to the study, but were able to communicate in Urdu, Bengali or Sylheti where necessary, and understand the cultural context of participating families. Interviews took place in the participant's home and FGs at a convenient community location. Participants gave written informed consent and completed a short questionnaire before the interview or

	FG commenced. The interviews and FGs were conducted either by a core researcher or Community researcher in the participant's preferred language. An additional researcher was present as an observer at the FGs. Semi-structured interview and focus group schedules, informed by literature and input from the study Parent Advisory Panel, were used to guide discussions. The research questions that were explored are shown in Tabl
Method and process of analysis	Interviews and FGs were audio-recorded and transcribed. Community researchers translated and transcribed interviews and FGs that were not conducted in English. A sample of translated transcripts was checked using the audio-recording by an independent researcher with the relevant language skills. Data analysis was conducted using NVivo 10 (QSR International Pty Ltd. Version 10, 2012) and was guided by thematic analysis approaches [29]. Two researchers (TG and LG) reviewed 50% each of the transcripts independently and identified codes to apply to the data. The researchers discussed their coding and agreed on a final coding framework, which they then applied to all transcripts. Overarching themes were identified, which included commonalities and differences between the three participant groups.
Population and sample collection	The First Steps programme provider (Birmingham Community Healthcare NHS Trust) identified all Pakistani and Bangladeshi families who had been invited to take part in the programme from September 2013 to July 2014. The families were categorised into either: (i) attended 60% or more of the First Steps programme ('completers'); (ii) started the First Steps programme but attended less than 60% ('non-completers'); or (iii) did not attend the programme ('non-attenders'). Parents from completing families were invited to participate in a focus group (FG) at a community venue. We aimed to recruit 15 'non-completers' and 15 'non-attenders' to participate in interviews, and to hold 3–5 FGs with 'completers', with a contingency of recruiting more participants if data saturation was not felt to be achieved.
Inclusion Criteria	Age group: 4-11 Local to WM service Children Parents/guardians BMI over the 91st centile of the UK 1990 growth reference charts
Exclusion criteria	None reported

Relevant themes	1. Logistical issues with programme attendance
	  1. Close location
	  2. Familiar venue
	  3. Programme timing
	  4. Programme in school time
	  5. Siblings
	2. Language barriers
	  1. Initial contact
	  2. Programme sessions
	3. Programme structure and delivery
	  1. Programme and session duration
	  2. Children attending
	  3. Programme interactivity
	  4. Group sessions and shared experiences
	4. Programme content
	  1. Focus on weight status
	  2. Nutritional knowledge and skills
	  3. South Asian and Western foods
	  4. Cooking of traditional foods
	  5. 'Junk' foods and takeaways
	  6. Physical activity content
	  7. Barriers and facilitators to physical activity
	  8. Parental behaviours and influence over child

Critical appraisal - CASP qualitative checklist V2

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	Low
Overall risk of bias and relevance	Relevance	Highly relevant

Povey, 2020

Bibliographic Reference	Povey, R C; Cowap, L J; Scholtens, K; Forshaw, M J; 'She's not obese, she's a normal 5-year-old and she keeps up with the other kids': families' reasons for not attending a family-based obesity management programme.; Perspectives in public health; 2020; vol. 140 (no. 3); 148-152

Study Characteristics

Study type	Semi structured interviews
Aim of study	To discover the reasons behind invited families' lack of engagement with a family-based childhood obesity programme in a deprived area.
Theoretical approach	None stated
Study location	in a deprived area of North West England, UK
Study setting	family-based childhood obesity management programme
Study dates	Not provided
Sources of funding	This piece of work was commissioned by a National Health Service (NHS) Foundation Trust

Data collection	A semi-structured interview schedule was used which contained 22 items and several potential prompts for the researcher to use. Fourteen of these were parent-specific items; the remaining eight items were child-specific. All interviews were audio-recorded. After ethical approval was received, 23 potential families were identified and approached by the National Health Service (NHS) obesity programme team who passed on their contact details to the University researcher. Participants were then directly contacted and recruited to the study by the researcher via telephone to organize a suitable interview time. Ten families agreed to take part and were interviewed in their own homes. Once written consent was obtained, the recording device was turned on and the interview was started. Families were asked in detail about the programme, including gaining their thoughts and feelings of the service, how they heard about it, the positive and negative outcomes of attendance, and any barriers towards attending (mean time of interviews was 33.52min). Post-interview, all families were debriefed and given a £10 voucher. All participants were made aware that their interview responses were anonymous, and that pseudonyms would be used. Procedures were in accordance with the ethical standards of the British Psychological Society's Code of Human Research Ethics
Method and process of analysis	An inductive thematic analysis of the interviews was conducted independently by the first and second authors. Following Braun and Clarke's5 guidance, the data set was reviewed systematically by each researcher, and initial codes were generated, with notes written next to the text to highlight patterns. Once all data had been coded, the different codes were analysed and sorted into possible sub-themes and overall themes. The themes were then refined, ensuring that data within each theme were coherent and meaningful. A realist approach was taken. Independent findings were then corroborated through discussion by the researchers to finalize and confirm the themes
Population and sample collection	All families (n=23) who were potential service users of a family-based childhood obesity programme, but had declined to engage with the service and were therefore eligible for the purpose of this study, were approached to take part in an interview to investigate the underlying reasons regarding their lack of attendance. Results Ten families chose to take part in the study. Upon analysis of the data, two distinct subgroups emerged: five families declined to have any involvement with the programme ('no interest' families) and five attended one or two sessions but then declined to continue ('initial interest' families).
Inclusion Criteria	Children Parents/guardians

	Potential WM service users Declined WM
Exclusion criteria	None reported
Relevant themes	1. 'No interest' families 1. Communication 2. Negative emotional reactions 3. 'I didn't think my son was overweight 4. Programme not needed 5. Approach too generic 6. 'It's a big worry to a 4-year-old 2. Initial interest' families 1. Positive perception of programme 2. Already changing 3. Growing into their size 4. Individual barriers

Critical appraisal - CASP qualitative checklist V2

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	Low
Overall risk of bias and relevance	Relevance	Highly relevant

Renzaho, 2018

Bibliographic Reference	Renzaho, Andre M N; Green, Julie; Smith, Ben J; Polonsky, Michael; Exploring Factors Influencing Childhood Obesity Prevention Among Migrant Communities in Victoria, Australia: A Qualitative Study.; Journal of immigrant and minority health; 2018; vol. 20 (no. 4); 865-883

Study Characteristics

Study type	Semi structured interviews
Aim of study	to investigate the views and beliefs of CALD parents from collectivist cultures on childhood obesity and its prevention, the cultural factors affecting their adoption of a healthy lifestyle, and their preparedness to participate in obesity prevention initiatives.
Theoretical approach	Community Energy Balance framework (CEBF) [38] and the Community Readiness Model
Study location	Melbourne, Australia
Study setting	Community
Study dates	Not provided
Sources of funding	Australian Research Council Linkage grant L
Data collection	Individual semi-structured interviews were used to account for poor literacy and language barriers, in order to gain an insight into migrant parents' perceptions on childhood obesity prevention in a fairly open and focused two-way communication [47]. Bilingual workers were given a training manual as a reference during data collection to assist with the process of conducting interviews. Interviews were conducted face-to-face by trained bilingual workers in ethnic languages including Arabic, Swahili, Hindi and Vietnamese, using an interview guide which was informed by the CEBF and CRM. The interview guide examined the following topics: parental perceptions of environmental, community-level and cultural factors that either help or prevent them from adopting and maintaining a healthy lifestyle following migration to Australia; understanding of childhood obesity as a problem in their community; and awareness of and participation in childhood obesity prevention initiatives. The study was overseen by a committee comprising of community representatives and

	service providers who reviewed the interview guide for suitability, clarity, comprehension and cultural appropriateness. Prior to the interviews, all study participants were given translated copies of the plain language statement outlining the study and its benefits and the fact that participation in the study was voluntary. Participation in the study was by written consent. Each interview lasted approximately 60 minutes. All interviews were recorded and transcribed verbatim, complemented by field notes. The audio files were transcribed by experienced bilingual workers and shown to the study participants who verified and approved the content. The transcripts were then translated into English and verified by NAATI-accredited interpreters who listened to the audio file while checking the transcripts to confirm the accuracy and authenticity of the transcription. Data were collected until the study steering committee was satisfied that the interview schedule topics were sufficiently covered with no emergence of new information (data saturation).
Method and process of analysis	Data analysis occurred concurrent to interviews to enable the exploration of emerging issues and integration of new data into the analysis [48]. Adopting an inductive approach, manual thematic analysis of the translated transcripts was performed with themes arising from the data. Two researchers independently scrutinised the interview data, created theme-based codes, and systematically analysed the data based on these codes. Codes that were similar constituted the creation of categories, followed by the identification of emergent themes [48]. In case of any difference of opinion regarding a theme, the researchers referred to the original transcripts and verified the thematic composition by thoroughly reading and discussing them until consensus was reached. The researchers identified excerpts of the data to exemplify the unique characteristics of the parents' experiences and perceptions
Population and sample collection	This study adopted an exploratory qualitative design to gain an understanding of the beliefs and attitudes of migrant parents towards childhood obesity and its prevention. Study participants included migrant parents living in four socioeconomically disadvantaged, local government areas in greater Melbourne, Victoria, Australia, namely Maribyrnong, Hume, Brimbank and Greater Dandenong having an Index of Relative Socioeconomic Disadvantage score of <1000 (a cut-off point used to define socioeconomic disadvantage) per area and a high proportion of migrants [46]. The study was approved by the Monash University Human Research Ethics Committee, approval no. CF 14/1443–2014000678. Participants were recruited using a convenience sample through community structures in the four areas of greater Melbourne. Translated fliers and posters in Arabic, Vietnamese, Swahili and Hindi, describing the study were displayed in the local council venues, community centres, playgroups, early learning centres and ethnic community organisation notice boards. Community bilingual workers accredited for their language skills by the National Accreditation Authority for Translators and Interpreters (NAATI) took details of those interested in participating in the study and scheduled the interview appointment, at a time and place convenient to the participant. Prior to participant recruitment, the bilingual workers received training on conducting

	individual interviews, the ethical conduct of the research including the informed consent process, participant eligibility criteria and data integrity issues. In order to effectively study childhood obesity prevention among disadvantaged migrant populations, participants were included in the study, if they (a) were born overseas; (b) spoke a language other than English at home; (c) had one or more children aged <15 years; and (d) were living in one of the four specified disadvantaged areas in Victoria Asia (21%). These proportions are representative of the migrant population profile in the four targeted areas
Inclusion Criteria	Low SES Age group: Under 15 Parents/guardians Born outside of Australia Language other than English at home
Exclusion criteria	None reported
Relevant themes	1. obesity literacy and childhood obesity prevention; 1. Low pre-migration obesity literacy 2. Parental perception of childhood obesity risk 3. Parental perceptions on the relationship between unhealthy eating and childhood obesity 4. Lack of parental knowledge on childhood obesity prevention concepts 2. Changes in food habits and food choices post-migration 1. Change in dietary patterns 2. Competing priorities 3. Affordability of food 3. barriers to engage in physical activity programs 1. Lack of transport 2. Parental concerns about the safety of their children's outdoor physical activity 3. Affordability of sports club participation 4. perceived gaps in the role of schools in addressing childhood obesity prevention

	1. Role of school canteens 2. Parental education on childhood obesity prevention 5. barriers to accessing childhood obesity prevention services 1. Maternal fear of travelling alone 2. Paternal resistance to access obesity prevention services 3. Influence of grandmother on family diet and utilisation of obesity prevention services 6. parental views on culturally appropriate obesity prevention services 1. Culturally varying perceptions of healthy lifestyle concepts 2. Perceived role of community leaders and bicultural workers in childhood obesity prevention

Critical appraisal - CASP qualitative checklist V2

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	Moderate
Overall risk of bias and relevance	Relevance	Relevant

Twiddy, 2012

Bibliographic Reference	Twiddy, Maureen; Wilson, Inga; Bryant, Maria; Rudolf, Mary; Lessons learned from a family-focused weight management intervention for obese and overweight children.; Public health nutrition; 2012; vol. 15 (no. 7); 1310-7

Study Characteristics

Study type	Focus Groups Interviews
Aim of study	to explore the views of parents, children and health trainers to identify issues which can inform the development of more effective programme
Theoretical approach	Bandura's Social Cognitive Theory
Study location	Leeds and Birmingham, UK
Study setting	WATCH-IT, a UK-based community child weight management programme
Study dates	Not provided
Sources of funding	This research was funded by NHS Leeds, UK
Data collection	Semi-structured interviews were conducted with parents (and the child, if present and willing to participate). Interviews ranged in length from 20 to 45 min. The interviews were conducted by a researcher independent of the programme and unknown to the interviewees prior to interview. A topic guide was devised for the study drawn from the literature(4,14,16). The guide included questions about the content of the programme, parents' reasons for attendance, how attendance affected their family life as well as suggestions for improvement. For families who withdrew from the study, additional questions were asked to ascertain their reasons for withdrawing. Focus groups followed a topic guide, including questions related to trainers' views of programme content and delivery, and the impact the programme had on the families they work with. Both were facilitated by the first and second authors. Families provided written consent prior to participating and were compensated for their time (£15 voucher). Trainers provided written informed consent before taking part in the focus group session
Method and process of analysis	Interviews and focus groups were recorded and transcribed verbatim. The analytical approach adopted was template analysis, in which a list of codes is produced representing themes identified in the text(17). The first four transcripts were read and coded independently by two members of the research team, resulting in the development of an initial coding frame. The transcripts and initial coding frame were discussed by the authors and modified through consensus. Each broad theme was then subjected to a more detailed analysis by the same two team members, resulting in the formation of more

	specific categories within themes. Development and refining of the coding frame were achieved through discussion with the team, until consensus was reached. At least half of the families discussed each of the topics presented in the current analysis but the decision to include a topic as a theme was also influenced by the salience of the topic to families, determined by the time dedicated to its discussion. The initial stages of the analysis were conducted manually. Once the initial themes were identified in the data, the qualitative analysis package NVivo version 8 (QSR International, Melbourne, Australia) was used to manage the data.
Population and sample collection	We aimed to conduct fifteen to thirty interviews with families, up to the point of data saturation. Families were purposefully recruited from the WATCH-IT database to ensure an adequate distribution in terms of age (9–11 years, 12–14 years, 15–18 years), gender, success in weight management (defined for the purposes of the present study as a decrease in BMI standard deviation score (SDS) of .0?1), stage in the programme and time of enrolment (current or previous; Table 1). If participants withdrew before completion of the initial Bronze stage they were considered to have dropped out. Families were recruited via trainers (current participants) or letter (previous participants). Staff members at Leeds and Birmingham who were delivering the programme were invited to participate in one of two focus groups. Interviews were conducted with twenty-three families (comprising twenty-five parents and one grandparent). In ten interviews, the child was present and contributed to the discussion. Four trainers attended the focus group in Leeds and six attended the Birmingham focus group. In total there were eight women and two men, ranging in age from 22 to 48 years. Their time delivering the programme ranged from 2 weeks to 2 years. Trainers had a range of experience and expertise. Four reported personal or family experience managing weight issues and five had previous experience working with children. Seven of the ten trainers also had degree level (or higher) qualifications in a range of relevant subjects including counselling, teaching and health-related subjects, including sport science
Inclusion Criteria	WM facilitators and staff Age group: 9-18 Experience of WM Children Parents/guardians

Exclusion criteria	None reported
Relevant themes	1. conflicting goals 2. parenting challenges 3. child's commitment to lose weight 4. trainer–child dynamics

Critical appraisal - CASP qualitative checklist V2

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	Low
Overall risk of bias and relevance	Relevance	Highly relevant

Visram, 2013

Bibliographic Reference	Visram, S; Hall, T D; Geddes, L; Getting the balance right: qualitative evaluation of a holistic weight management intervention to address childhood obesity.; Journal of public health (Oxford, England); 2013; vol. 35 (no. 2); 246-54

Study Characteristics

Study type	Semi structured interviews

Aim of study	to examine the experiences of four stakeholder groups—children and young people, parents and guardians, national health service (NHS) staff and local authority staff—in attending, implementing or delivering the ‘Balance It!’ programme.
Theoretical approach	None stated
Study location	Northern England, UK
Study setting	childhood weight management programme
Study dates	Not provided
Sources of funding	This work was supported by the local authority (unnamed to preserve their anonymity)
Data collection	Qualitative methods were used to enable stakeholders to express their views and experiences of childhood obesity and weight management. Semi-structured interviews—based on a topic guide developed in collaboration with the ‘Balance It!’ steering group and informed by the existing literature—provided a framework for comparisons between interviews, as well as allowing participants the freedom to raise additional issues.17 The interview format was kept flexible to enhance comfort and foster openness. All staff chose to be interviewed within their workplaces, either on a one-to-one basis (n ¼ 9) or in small groups (n1 ¼ 2 and n2 ¼ 5). Service users were offered the option of taking part in individual or family interviews, as children often feel safer and more relaxed with their parents or guardians present. Furthermore, family interviews can provide insight into family dynamics and assist in discovering the shared meanings that emerge with a health episode.18 Interviews with 17 families took place in their homes (n ¼ 16) or a local cafe´ (n ¼ 1), and involved the child, at least one parent or guardian, and often with siblings present. Feedback from three additional families was obtained during individual interviews with parents (n ¼ 2) or via email (n ¼ 1), according to the participants’ preferences. The duration of the interviews ranged from 15 min to 1 h, although children were told they could leave at any time to ensure they were not wearied by the experience. Given the range of ages involved, and therefore the variation in the communicative abilities of the children and young people, a mosaic methodology was used.19,20 This is a multi-method strength-based approach, resting on the underlying principle that children are experts in their own lives.21 By bringing together several visual and verbal methods, the aim was to enable children to take an active role in expressing their views and experiences of the ‘Balance It!’ programme. They were offered resources to take photographs, draw pictures or produce maps, which were then used as the basis for discussions with the researcher (S.V., who was not known to the participants in any capacity). The discussions and interviews were audio recorded and transcribed verbatim, with all identifying information removed. Field notes were also written up in an attempt to capture contextual data. Utilizing a combination of techniques enabled the

	research team to effectively capture the views of all participants and enhance the reliability of the study through the process of triangulation
Method and process of analysis	Transcripts and notes were analysed using thematic framework analysis, which is a comprehensive, systematic approach that allows between- and within-case comparisons.23 The framework used to classify and organize the data was based on the interview topic guides, with additional categories developed from the participants' narratives (Box 1). Trustworthiness of data interpretation was addressed by having both members of the research team (S.V. and L.G.) independently analyse the transcripts to draw out the key concepts across the sample.22 This process took place manually to ensure the researchers' continued immersion in the data and to create a more sensitive, nuanced analysis. Highlighter pens were used to colour-code important text and the resulting codes were then sorted into themes, concepts and categories using tables within Microsoft Word. The results of this process are presented below
Population and sample collection	NHS and local authority staff were purposively sampled to ensure representation from the various teams involved in delivering the 'Balance It!' programme. It was anticipated that the response from service users would be low; therefore all families listed on the programme database (250) were invited to take part in the study. In order to comply with research ethics and data protection legislation, study information packs were addressed by clerical staff within the NHS trust and distributed by post. These packs contained an invitation letter from the 'Balance It!' programme lead, an information sheet for parents and guardians, separate information for children and young people, a reply slip and pre-paid envelope addressed to the research team. Recruitment continued until a sample of at least 15 staff and 20 families was achieved. Sixteen professional stakeholders were sampled to the study from the local authority (n ¼ 3), NHS acute trust (n ¼ 4) and primary care trust (n ¼ 9). Of the 28 families who returned completed reply slips, a total of 20 consented to take part in the research. R
Inclusion Criteria	WM facilitators and staff Age group: 4 - 17 Experience of WM Parents/guardians
Exclusion criteria	None reported

Relevant themes	1. Identifying overweight and obesity 2. Individual and family outcomes 3. Coordination and communication 4. Areas for improvement

Critical appraisal - CASP qualitative checklist V2

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	Low
Overall risk of bias and relevance	Relevance	Highly relevant

Adults

Coupe, 2018

Bibliographic Reference	Coupe, Nia; Cotterill, Sarah; Peters, Sarah; Tailoring lifestyle interventions to low socio-economic populations: a qualitative study.; BMC public health; 2018; vol. 18 (no. 1); 967

Study Characteristics

Study type	Semi structured interviews

Aim of study	to identify how best to tailor lifestyle interventions to low socio-economic populations to improve outcomes.
Theoretical approach	Behaviour change theory
Study location	North West of England, UK
Study setting	Health/community centres
Study dates	Not stated
Sources of funding	National Institute for Health Research Collaboration for Leadership in Applied Health Research and Care
Data collection	We used one-to-one semi-structured interviews to explore participants' experiences of receiving, delivering and following a weight loss intervention within a low socio-economic community. Field notes from direct observations of weight loss groups were used to inform the topic guides, as well as to increase the validity of the findings from the interviews [26] . Topic guides were used to organise the semi-structured interviews. Given our inductive approach, topics were broad, but were also informed by both relevant literature [21–24], and observational field notes. Topics covered: Views on local areas, facilities available, cost, effect on behaviour change/maintenance. Barriers and facilitators to delivering a weight loss programme in the area e.g. exploring the use of goal setting in a group. Experiences of following a weight loss programme in the area e.g. which elements of the course were perceived as effective or helpful. Course material received by the service users during the course were used during the interview as an aide memoire. All interviews were audio-recorded following consent. Service users completed a brief demographic and socio-economic questionnaire which recorded both individual (income, education, occupation) and area (postcode) level indicators of socio-economic status.
Method and process of analysis	Audio-recordings were transcribed verbatim and analysed following the six stages of thematic analysis outlined by Braun and Clarke [27], which are data familiarisation, coding, searching for themes, reviewing themes, defining and naming themes, and writing up. Data collection and analysis occurred concurrently and iteratively, so that the topic guides continued to be informed by developing themes. This approach also meant that the research team were aware once data saturation had occurred, i.e. when no additional information or themes were being identified in the data [28]. The analysis was undertaken by the first author, facilitated by frequent discussions with the second and third authors throughout the analysis process. The data was coded using NVivo.

Population and sample collection	Participants were identified through a local authority run health improvement service located in the North West of England. This site was selected as the population has poorer health, lower life expectancies and lower rates of employment compared to the UK average (see Table 1). Participants comprised of staff who facilitate lifestyle change groups (facilitators, F) and members of the public who attend the groups (service users, SU). The group was designed to run for a minimum of nine hours over six weeks, and aimed at any individual living in the area and seeking support around weight control. The free groups were accessed through self or GP-referral, and took place at venues such as health centres, community centres, children's centres and workplaces. Attendees were weighed each week, and each session covered a different topic, including food diaries and meal planners, behaviour change theory, portion control, the Eatwell guide, food labels, SMART goals, fats and sugars, and the benefits of exercise. Facilitators were purposively sampled based on their experience in delivering weight loss groups, though they have experience in delivering a large range of health promotion groups within the local authority (e.g. breastfeeding support, cooking courses, physical activity etc.). Service users were recruited through the weight loss groups, both directly by the researcher and by the facilitators delivering the groups. The study was also advertised online, in local community centres and through social media. Twenty-five participants were interviewed (11 F, 14 SUs). Mean length of the interviews was 49 min (28–78), and took place face-to-face in people's homes or places of work. One SU interview was conducted over the phone due to ill health. All facilitators worked in health promotion within a local authority service providing free groups or one-to-one support in the community. Facilitators covered 19 distinct areas, with a wide range of IMD deciles (1–10). Of the 14 SUs, 13 were female. The majority of the sample was White British, with just one Asian women. Their mean age was 66 years (44–84). Individual IMD deciles based on SUs postcodes ranged from 1 to 101 (mean 4). Though this is a broad range, 10 of the ratings were 3 or below, and represents the diversity of the area. Two SUs were in employment, 10 were retired and 2 were unemployed. Eight SUs had qualifications, with the highest being degree level.
Inclusion Criteria	WM facilitators and staff WM participants Low SES
Exclusion criteria	None reported

Relevant themes	1. Managing diversity: the diversity of knowledge and experience of healthy living, language and literacy skills, and cultures among this population presented challenges both in the delivery of, and engagement with, a generic group intervention. "the language barrier is quite difficult…because English isn't the first language, that's really difficult for me to give them leaflets and understand." 1. Meeting diverse needs 2. Language and literacy barriers 3. Cultural tailoring 2. Working against the environment: External environmental issues were identified as challenges to both the delivery of the intervention, as well as barriers to users achieving their lifestyle behaviour goals. "In[area], I think that there are too many takeaways, because nearly every other shop is food, so there's loads of it, it's just so convenient," 1. Affordability; attendance and adherence 2. Access and availability 3. "Life just gets in the way"

Critical appraisal - CASP qualitative checklist V2

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	Low
Overall risk of bias and relevance	Relevance	Highly relevant

Elliott, 2020

Bibliographic Reference	Elliott, Megan; Gillison, Fiona; Barnett, Julie; Exploring the influences on men's engagement with weight loss services: a qualitative study.; BMC public health; 2020; vol. 20 (no. 1); 249

Study Characteristics

Study type	Semi structured interviews
Aim of study	to explore men's experiences and expectations of mainstream weight loss services in the UK, following referral from a medical professional, particular in relation to barriers and motivators.
Theoretical approach	Protection Motivation Theory
Study location	South west England, UK
Study setting	Healthy Lifestyle Service for weight loss support
Study dates	June and July 2018
Sources of funding	There was no external funding for this project, it was conducted as part of an unfunded MSc placement project
Data collection	A semi-structured interview schedule was constructed in accordance with guidelines for improving trustworthiness and rigour [32]. The five phases; identifying prerequisites for semi-structured interviews (1), reviewing and using existing literature (2), creating the interview schedule (3), pilot testing the schedule (4) and reporting the full schedule (5; See Additional file 1) were carefully followed. The interview schedule aimed to explore; history and effects of weight gain, motivations for help seeking and engagement, experiences of weight loss services, reasons for non-engagement, barriers, challenges and preferences. Interviews were conducted in a private room within two hospitals (n = 14) and a university (n = 4) in June and July 2018 by the first author (Female, Health Psychology MSc). Interviews were audio-recorded and transcribed verbatim by the interviewer, and lasted an average of 38 min (shortest = 12; longest = 61). Transcriptions were checked against audio recordings by the first author for accuracy.
Method and process of analysis	Data analysis was conducted using thematic analysis. This approach was informed by a critical realist stance. To ensure rigorous data analysis, Braun and Clarke's [35] recommendations for applying a structured approach to analysis, using a

	six-phase approach: (1) Familiarisation with data was facilitated through listening to the audio recordings and reading the transcriptions multiple times. (2) Initial codes were generated by the first author through an inductive process of identifying meaning units, and developing descriptive codes (n = 171) sticking closely to words use by participants themselves, using NVivo 11 Pro. (3) The first author then worked to cluster similar codes together and identify where duplication and clarity were needed. Each code was written on card and manually grouped into clusters, which were refined into draft theme, and then (4) shared and reviewed alongside coded transcripts and indicative quotes with both co-authors, before (5) discussing and agreeing the definitions and names of themes. (6) The report was then produced, and refinements and clarifications of themes finalised in order to communicate the results more clearly. The analysis was iterative, moving bi-directionally through the phases to ensure a thorough analysis process
Population and sample collection	Existing clients or new referrals to a Healthy Lifestyle Service for weight loss support in south west England were asked by practitioners if they may be interested in participating in a research study. With their consent for contact, a researcher subsequently invited them to participate by telephone. Thirty-five individuals were contacted by phone, 12 were not reachable and two declined to participate. Prospective participants (n = 21) were provided with an information sheet prior to the interview by post or e-mail and written consent was obtained when the participant arrived for the interview. Three participants did not attend their scheduled interview, without giving a reason. To facilitate interpretation of participant comments relative to their individual context, they were asked about their previous experience of weight loss services and from this classified as; ‘completers’ if they had completed at least 12-weeks of a single programme; ‘current participators’ if they had attended one or more sessions, but not yet completed a programme; ‘non-engagers’ if they had declined or had not yet taken up their referral to a programme and; ‘repeaters’ if they had engaged in two or more programmes in the past
Inclusion Criteria	Men Referred to WM by a medical professional BMI >25
Exclusion criteria	None reported
Relevant themes	1. Fear as a motivation for change: For many participants, a medical diagnosis invoked feelings of fear and worry, with one participant saying that the diagnosis “put a bit of the frighteners” on him and subsequently led him to engage in a weight loss programme.

	2. Attitudes towards existing weight loss services: Men found themselves in the minority when attending weight loss services and that the weight loss services that they had engaged with did not align with their preferences. "No, I'm in and out, I can't be doing with all this bloody talking and all this" 1. Female-dominated services 2. Incompatibility of existing services for men

Critical appraisal - CASP qualitative checklist V2

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	Low
Overall risk of bias and relevance	Relevance	Highly relevant

Holt, 2015

Bibliographic Reference	Holt, Nicholas L; Neely, Kacey C; Newton, Amanda S; Knight, Camilla J; Rasquinha, Allison; Ambler, Kathryn A; Spence, John C; Ball, Geoff D C; Families' Perceptions of and Experiences Related to a Pediatric Weight Management Intervention: A Qualitative Study.; Journal of nutrition education and behavior; 2015; vol. 47 (no. 5); 427-31e1

Study Characteristics

Study type	Semi structured interviews

Aim of study	To explore the factors that influence patient access to weight management services
Theoretical approach	Delphi method
Study location	Derby, UK
Study setting	Bariatric clinics
Study dates	mid-late 2018
Sources of funding	y Inspira Health Ltd, the Association for the Study of Obesity - Midlands Group and the East Midlands Bariatric & Metabolic Institute
Data collection	A qualitative study was undertaken involving the use of semi-structured interviews to identify the main barriers and enabling factors when accessing weight management services. Private one-to-one interviews were performed in mid-late 2018 by an experienced Registered Associate Nutritionist at either the place of recruitment, over the phone or in a setting of the participant's choice. Each interview began with an open-ended phrase such as – 'What do you think are the key barriers for somebody accessing weight management services? This can be any service from lifestyle advice to bariatric surgery'. Prompts were used during the interview when necessary for expansion on responses. Interview time lasted no longer than 20 min or finished when the interview reached a natural end.
Method and process of analysis	Data was collated from each interview and analysed for repetitive responses. Responses were grouped into themes before applying Delphi methodology to capture consensus of opinion via online surveys. A two round process was utilised to capture each groups option without compromising the response rate. The survey consisted of all unique responses grouped in themes with a 5-point linear scale 1='not important' to 5='extremely important'. Participants were also invited to comment if they felt statements could be changed to improve ease of rating. This online survey was emailed to all participants. Completed surveys were analysed prior to the administration of a second-round survey consisting of the unique responses where consensus had not been agreed (Fig. 2). The final analysis of the study was completed in March 2019.
Population and sample collection	The subject group included a mix of experienced patients and health care professionals (HCP) involved in obesity management from both primary and secondary care settings to form an 'expert' panel. A recruitment target for the "expert" panel was set at 20–30 participants. All patients had previous experience in accessing recognised weight management services. Primary care recruitment settings included a community weight management clinic and a GP practice. Secondary care recruitment settings included a bariatric clinic within a University Hospital, a bariatric patient support group and medical

	out patients department. Participants were directly approached at random by members of the research team and provided with information leaflets prior to undertaking a formal consent process. A total of 28 participants (7 primary care HCP, 7 secondary care HCP, 6 primary care patients, 8 secondary care patients) completed the semi-structured interviews with 19 participants (3 primary care HCP, 7 secondary care HCP, 3 primary care patients, 6 secondary care patients) going on to complete all rounds of the Delphi method consensus study. Belonging to the HCP group were dietitians, psychologists, psychotherapists, nurses, doctors and weight management advisors. Professional experience in weight management ranged from 12 months to 15 years. The patient group captured a variety of experiences in weight management services including commercial slimming groups, community tier 3 clinics, hospital-based tier 3 clinics and bariatric surgery services
Inclusion Criteria	BMI>40 BMI>35 With a weight comorbidity Experience of WM Healthcare professionals No criteria listed for this group
Exclusion criteria	None reported
Relevant themes	1. knowledge and education of HCPs 2. public perception/stigma 3. healthcare resources 4. previous experience of healthcare 5. service design/provision

Critical appraisal - CASP qualitative checklist V2

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	High
Overall risk of bias and relevance	Relevance	Highly relevant

Hunt, 2014

Bibliographic Reference	Hunt, Kate; Gray, Cindy M; Maclean, Alice; Smillie, Susan; Bunn, Christopher; Wyke, Sally; Do weight management programmes delivered at professional football clubs attract and engage high risk men? A mixed-methods study.; BMC public health; 2014; vol. 14; 50

Study Characteristics

Study type	Focus Groups
Aim of study	To explore who is attracted to FFIT and why overweight/obese men choose to take part
Theoretical approach	None stated
Study location	Scotland, UK
Study setting	13 football clubs (12 in the Scottish Premier League and one recently relegated to a lower division)
Study dates	August/December 2011

Sources of funding	The National Institute for Health Research Public Health Research (NIHR PHR) Programme
Data collection	As part of the process evaluation of FFIT [36], men who had attended at least six FFIT sessions in AugustDecember 2011 (85% of intervention group) were invited to a discussion about their experiences of FFIT at the end of the 12 weekly FFIT sessions. Of 295 men contacted, 133 (45%) indicated willingness to take part. At each club, up to 6 of these men, chosen randomly, were invited to a 60-minute discussion at the club stadium; 63 men participated in 13 focus groups. These were audio- and video-recorded with consent, transcribed verbatim, and transcripts checked for accuracy against recordings. To thank them for their time, men were offered a £20 club shop voucher and travel expenses. During the discussions men were asked about several aspects of FFIT, including why they signed up in the first place and early experiences of attending FFIT, as reported here
Method and process of analysis	of attending FFIT, as reported here. The focus group data were analysed using a structured, thematic approach [44]. Transcripts were read by several authors to identify broad themes, guided in part by our research questions in the process evaluation. Transcripts were then coded to broad themes including the 'draw' of the football club/club setting, reasons for participating, and satisfaction with and acceptability of FFIT; coding was quality-checked by another researcher. Secondly, the content of the themes relevant to this paper was examined in detail by a third researcher. Each coded extract was read line by line to identify all sub-themes. These sub-themes were summarised schematically and each occurrence of every sub-theme was noted and compared with data from subsequent groups, using the OSOP method [44], which allows systematic comparison of data from different participants/groups, noting anticipated and unanticipated themes [45]. Attention was paid to 'deviant cases' to ensure all perspectives were captured [45]. We paid particular attention to a code entitled 'negatives of club setting'; this contained relatively little material (from just 2/13 clubs) and can be summarised as disappointment that the more 'professional' side of the club did not show the same interest in FFIT participants that the community coaches had done.
Population and sample collection	The data were gathered as part of the FFIT RCT [36]. Within a 3.5 month period a prior to start of the first delivery (August/September 2011) of the optimised FFIT programme in 13 clubs (12 in the Scottish Premier League and one recently relegated to a lower division), sufficient men were recruited to fill all available places (at that time funding from the Football Pools and Scottish Government was available for deliveries at the 13 clubs in August-December 2011, February-April 2012 and August-December 2012). Following measurement at baseline in August-September 2011 and assessment of eligibility (age 35–65 years, BMI > 28 kg/m2), 374 men were randomly allocated to undertake FFIT immediately (intervention group) and 374 to undertake FFIT 12 months later (waitlist comparison group). Men who were unable to attend baseline measures were placed on a waiting list and offered a place on the February 2012 delivery of FFIT ('non-trial'

	group) if any places remained after prior allocation to men who had attended the measurement sessions [36]. We report the characteristics of the 747 men who took part in the RCT, excluding one man randomised to the comparison group who subsequently withdrew.
Inclusion Criteria	Men BMI>28 Age group: 35-65
Exclusion criteria	None reported
Relevant themes	Barriers and facilitators to uptake of FITT were not presented thematically

Critical appraisal - CASP qualitative checklist V2

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	High
Overall risk of bias and relevance	Relevance	Highly relevant

Jolly, 2020

Bibliographic Reference	Jolly, Kate; Griffin, Tania; Sidhu, Manbinder; Adab, Peymane; Burgess, Adrienne; Collins, Clare; Daley, Amanda; Entwistle, Andrew; Frew, Emma; Hardy, Pollyanna; Hurley, Kiya; Jones, Laura; McGee, Eleanor; Pallan, Miranda; Sun, Yongzhong; Young, Myles; Morgan, Philip; A weight management programme for fathers of children aged 4-11 years: cultural adaptation and the Healthy Dads, Healthy Kids UK feasibility RCT; 2020

Study Characteristics

Study type	Focus Groups Interviews
Aim of study	To adapt and test the Australian Healthy Dads, Healthy Kids programme for delivery to men in an ethnically diverse, socioeconomically disadvantaged UK setting
Theoretical approach	typology of cultural adaptations
Study location	West Midlands, UK
Study setting	urban local authority areas with high proportion of BAME communities
Study dates	Not provided
Sources of funding	The Public Health Research (PHR) programme, part of the National Institute for Health Research (NIHR),
Data collection	We conducted 18 one-to-one interviews with 14 fathers, two grandfathers and one mother, one paired interview with a couple (father and mother) and two focus groups consisting of 10 mothers overall. Overall, 30 participants took part. Eighteen interviews and one focus group were conducted in English, and one interview and one focus group were conducted in Urdu. Data collection was stopped when no new core themes were interpreted from the data. However, owing to difficulties in recruiting Bangladeshi and Pakistani fathers, we did not achieve saturation in the different ethnic groups. All interviews were completed by Manbinder Sidhu (a male qualitative researcher in applied health sciences); focus groups and a single interview were completed in conjunction with a female qualitative researcher (Farina Kokab) from a South Asian background with the necessary language skills (Urdu). Prior to the start of each interview or focus group, participants were

	asked to provide written informed consent and complete a short demographic questionnaire to facilitate description of the sample. Participants were informed of their right to withdraw from the study at any time (although any data collected prior to withdrawal would be used in our analysis) and were assured that their personal details would be kept confidential. We developed topic guides for the focus groups and interviews, which were informed by the typology of cultural adaptation,69 literature on facilitators of and potential barriers to men and children to attending weight management programmes, and discussions between the research team and PPI group. In addition, there was iterative development of topic guides, as certain topics that arose in earlier interviews were explored in greater depth in later interviews (i.e. gender considerations in an ethnocultural context). The objectives of the interviews and focus groups were to explore a range of issues including but not limited to: l family- and community-embedded attitudes towards group participation in a physical activity programme with members from outside and within their own community l the cultural acceptability of girls and their fathers partaking in 'rough and tumble' and other physical activities together l acceptable locations and timing of sessions l any cultural issues related to fathers being more involved in food preparation l how fathers would like to be invited to take part, including the 'hook' that would encourage them to take part (e.g. personal weight loss, health, role modelling to improve children's health, time with children) l any potential barriers to changes in diet and physical activity. Our approach to interviewing, facilitating group discussions, topic guides and participant-facing material was developed with input from the study PPI group. Specifically, this group commented on the wording on the invitation flyers and raised issues about the HDHK programme and resources. We explored these issues further in the interviews and focus group discussions
Method and process of analysis	Interviews and focus groups were audio-recorded and transcribed clean verbatim for analysis by an external transcription company (The Transcription Company, Sutton Coldfield, UK). Transcripts of interviews conducted in Urdu were translated into English for conceptual equivalence, determined by FK and Manbinder Sidhu.79 We used Braun and Clarke's80 thematic analysis to inductively develop a coding framework informed by Liu et al.'s69 typology, and surface and deep structural levels. We explored similarities and differences in narratives across the different groups of interest (e.g. gender, ethnicity and migration status).81,82 Two members (MS and LJ) of the qualitative research team independently coded a batch of transcripts and then developed a descriptive framework to allow for inductive coding in each domain.82,83 The Liu et al.69 typology informed the coding and the development of a descriptive coding framework. Transcripts were coded using NVivo 10 (QSR International, Warrington, UK). The team met regularly to discuss themes identified in the data linked to adaptions that could influence the modified design of the programme. We then undertook further interrogation of the data81 to explore cultural adaption at (1) surface level and (2) deeper structural levels

Population and sample collection	We used a purposeful sampling approach based on maximum variation.74,75 The HDHK-UK intervention was to be evaluated in men with children of primary school age. Therefore, our intention was to recruit fathers and male guardians of primary school-aged children to phase 1a, as well as other family members who may act as gatekeepers to fathers/male guardians, namely mothers/significant female others (e.g. grandmothers). In relation to our recruitment strategies, we targeted socioeconomically disadvantaged locations and sampling was undertaken to include a range of ethnicities. Multiple pathways were employed to identify suitable participants to take part and share their views in qualitative interviews or focus groups. We aimed to identify participants through community networks, including primary schools, and gatekeepers in local communities who acted as advocates on behalf of the research team. We approached a range of organisations for permission to canvas parents at their facilities or at the activities they ran. Participant characteristics are presented in Table 1. We were able to achieve reasonable ethnic diversity, with over half of our sample comprising South Asian community members. Furthermore, aligning with the overall aim of the HDHK-UK trial, 20 participants (two-thirds of the sample) resided in locations in the highest quintile of socioeconomic deprivation nationally. All participants were recruited from inner-city locations. Participants were part of families with primary school-aged children, with some also having secondary school-aged children. Of our non-white sample, the majority were second-generation migrants, who were born in the UK. One participant, who used a wheelchair, discussed the potential for incapacitated adults to take part in a lifestyle programme with young children
Inclusion Criteria	Low SES Men Bangladeshi or Pakistani communities
Exclusion criteria	None reported
Relevant themes	1. Relevance of the theory underpinning the Healthy Dads, Healthy Kids programme: Parents described the importance of being a good role model to their children 2. Logistical and pragmatic considerations of delivering the intervention: All participants reported that they would like the intervention to be delivered close to their homes for various reasons. 3. Structure and delivery

	1. Programme length and commitment: a shorter intervention (time allocated per session) was preferred by some 2. Session delivery: criticism highlighted the drawbacks of using PowerPoint and, therefore, the perception that speakers would be lecturing rather than teaching. 3. The programme materials: parents felt cautious and some overwhelmed with the quantity of information and concepts 4. Facilitator characteristics: Overall, men welcomed the group nature of the fathers' session 5. Group delivery: fathers welcomed the face-to-face nature of their specific sessions, but shared concerns about the nature of group and how supportive the interactions would be 6. Content of the programme 1. Weight: Mothers welcomed the nature of focusing on calories 2. Nutrition: There was an awareness that family nutrition was often not as good as it could be 3. Physical activity: Fathers understood physical activity as an important element of building a closer bond with their children, rather than as a method for them to lose weight or become healthier 7. Gender considerations: Gender considerations in both delivery and within-programme active play was a focal theme among parent narratives 8. Alcohol: Pakistani and Bangladeshi participants acknowledged that some members of their community may drink alcohol, but still felt that it would be awkward for those who drink privately 9. Screen time: Fathers also expressed concern about not knowing what their children were reading/watching and the nature of the activity itself, which is often in isolation away from the family 10. Parenting: South Asian mothers felt that their husbands took a laissez-faire attitude to fatherhood, conforming to traditional working-class masculine ideals of male breadwinner and provider 11. Healthy Dads, Healthy Kids programme 'hook': getting families to attend and continue to attend the programme

Critical appraisal - CASP qualitative checklist V2

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	Low
Overall risk of bias and relevance	Relevance	Relevant *(Downgraded due to the focus on a specific programme)*

McDonald, 2020

Bibliographic Reference	McDonald, Matthew D; Dombrowski, Stephan U; Skinner, Rebecca; Calveley, Eileen; Carroll, Paula; Elders, Andrew; Gray, Cindy M; Grindle, Mark; Harris, Fiona M; Jones, Claire; Hoddinott, Pat; Game of Stones, team; Recruiting men from across the socioeconomic spectrum via GP registers and community outreach to a weight management feasibility randomised controlled trial.; BMC medical research methodology; 2020; vol. 20 (no. 1); 249

Study Characteristics

Study type	Focus Groups Interviews
Aim of study	to report on recruitment to the men-only weight management feasibility trial, including the acceptability and feasibility of recruitment
Theoretical approach	None stated
Study location	Scotland, UK
Study setting	Community
Study dates	between 1st March 2017 and 16th June 2017

Sources of funding	National Institute of Health Research Public Health Research
Data collection	During the feasibility trial, semi-structured face-to-face interviews were audio-recorded and transcribed with intervention group participants three months post-randomisation (n = 50 of 69 randomised; 7–61 min, median = 23 min). Wait-list control participants did not have interim appointments. Some (n = 6; 7–18 min, median = 11 min) were interviewed about their experiences, including recruitment, at a 12 months appointment post-randomisation. The two researchers (MM and RS) that led recruitment conducted the interviews at venues and times convenient for participants, after quantitative data collection at scheduled assessments. Topic guides covered several topics relating to study acceptability and recruitment
Method and process of analysis	Quantitative community recruitment data were summarised by site, including venue SIMD quintile, researcher time spent at venues, and the numbers of men participating in each stage of the recruitment process (taking a leaflet, assessment for eligibility and randomisation). GP recruitment data were summarised similarly, including practice SIMD quintile, number of invitations sent, the proportion who opted into the study, and the numbers screened for eligibility and randomised. Descriptive summaries of the baseline characteristics of randomised men were tabulated with the number of non-missing responses, mean and standard deviation reported for continuous variables and numbers with percentages reported for categorical variables. Characteristics were compared by recruitment strategy (community v GP) using two-sample t-tests for continuous variables and chi-squared tests for categorical variables. Analysis was carried out using Stata version 13 (StataCorp LP, Texas, USA). Qualitative interview verbatim transcripts were entered into QSR NVivo (v12) and analysis was informed by the framework approach [47], with independent coding conducted by four researchers (MM, RS, EC and NG). Charting and visualisation techniques were used in research team meetings to ensure robustness and to facilitate the interpretative analysis that, for the purpose of this paper, focused on experiences of recruitment. Matrix coding queries explored SIMD and recruitment strategy to establish patterns in the data and to identify any disconfirming cases that could provide insights to the analysis. The analysis sought to understand variation in views and experiences. Extracts were labelled with anonymised participant number, recruitment strategy (Community or GP) and participant SIMD postcode area. The quantitative and qualitative results have been synthesised narratively in line with a complementary mixed methods approach
Population and sample collection	y. To assess the feasibility of the recruitment strategies, a target of 105 men within a 4 months period was pre-specified as one of the criteria for progression to a full trial. Men aged 18 or over, with an objectively measured Body Mass Index (BMI) ≥30 kg/m2 and/or a waist circumference of ≥40 in. were eligible to participate. Further eligibility criteria are reported elsewhere [44]. Prior research, targeting disadvantaged Scottish men to SMS interventions to support reducing alcohol consumption [41–43], helped inform the community outreach and GP register strategies used in the current study.

	Participants were recruited by a male and a female researcher (MM and RS) from two Health Boards (healthcare providers responsible for specific geographical areas) in Scotland selected to cover disadvantaged urban, suburban, town and more rural populations. Participants were not actively made aware that disadvantaged areas were being targeted and level of disadvantage was not a study eligibility criterion. Feasibility of the recruitment strategies was demonstrated by recruiting and randomising 105 men within four months (between 1st March 2017 and 16th June 2017) by two researchers via community outreach (n = 60) and GP practices (n = 45). More participants were recruited through community outreach due to the time taken for some GP practices to agree to participate and screen practice lists within the pre-specified 4 months window. An audio-recorded focus group with men (n = 5) living in disadvantaged areas was conducted. The aim of the focus group was to explore men's views on the planned recruitment strategies and to inform the research team's approach to selecting venues to recruit men living in disadvantaged areas. Focus group participants were recruited through a researcher community link. Focus group participants were, on average, 52 years old (range 32–58), had an average of 1.8 household members (range 1–3) and four were classified as overweight or obese. All men lived in an area classified by the Scottish Index for Multiple Deprivation (SIMD; area-based index that allocates scores based on income, employment, housing, health, education and access to communication) as living within the most deprived quintile area
Inclusion Criteria	Men Over 18 Waist circumference: >= 40 inches
Exclusion criteria	None reported

Relevant themes	Set up (focus groups) 1. Community recruitment and safety: Some felt that men would deliberately 'body swerve' researchers attempting to recruit from within public spaces 2. Relationships, trust and familiarity: A lack of relationship with the researcher could be a barrier to the recruitment of men from more disadvantaged areas due to 'issues with trust and reassurance' Barriers and facilitators to participation in WM (Interviews) 1. Study name: The study name, Game of Stones, was viewed as a source of amusement 2. Recruitment tagline: The straightforward, matter of fact process of self-identifying as a man who wanted to lose weight appealed 3. Trust and familiarity: Men who received a study invitation letter from their GP believed they had been identified as a potential participant with good reason 4. Place and context: Some community recruited participants alluded to how crucial the choice of venue may be in recruiting men in a manner congruent with their situation and motivations. 5. Privacy, embarrassment and a sensitive approach For some, receiving a physical letter from their GP in the privacy of their own home allowed them to make a pressure-free decision

Critical appraisal - CASP qualitative checklist V2

Section	Question	Answer

Overall risk of bias and relevance	Overall risk of bias	Moderate
Overall risk of bias and relevance	Relevance	Relevant

Morrison, 2014

Bibliographic Reference	Morrison, Zoe; Douglas, Anne; Bhopal, Raj; Sheikh, Aziz; Trial, Investigators; Understanding experiences of participating in a weight loss lifestyle intervention trial: a qualitative evaluation of South Asians at high risk of diabetes.; BMJ open; 2014; vol. 4 (no. 6); e004736

Study Characteristics

Study type	Narrative interviews
Aim of study	To explore the reasons for enrolling, experiences of participating and reasons for remaining in a family-based, cluster randomised controlled trial of a dietitian-delivered lifestyle modification intervention aiming to reduce obesity in South Asians at high risk of developing diabetes.
Theoretical approach	None stated
Study location	Scotland, UK
Study setting	Within an existing RCT
Study dates	Not provided
Sources of funding	the National Prevention Research Initiative, a funding consortium comprising the British Heart Foundation; Cancer Research UK; Department of Health; Diabetes UK; Economic and Social Research Council; Medical Research Council; Health & Social Care Research & Development Office for Northern Ireland; Chief Scientist Office, Scottish Government Health Directorate; the Welsh Assembly Government; and World Cancer Research Fund. Additional financial support was

	provided from NHS Lothian and NHS Greater Glasgow & Clyde R&D, Chief Scientist Office, NHS Health Scotland and NHS National Services Scotland
Data collection	We undertook a qualitative study18 to inform our understanding of patient experiences of the trial processes.19 We used narrative-based interviewing,20 a method that encourages participants to tell their story as they choose, in preference to interviews that utilise structured topic guides. Asking participants to tell their story allows people to spontaneously construct an account of their own experiences in a manner that is strongly shaped by and reflective of their cultural preferences. This method has been found to be an effective method of generating and interpreting experience-centered, culturally orientated data with people of South Asian backgrounds. During their final trial visit, participants were invited by their dietitian to take part in a further piece of related research and given an information sheet regarding the qualitative study. The trial dietitians then obtained consent to be contacted from those who were willing to consider participation. A selection of participants was made utilising the purposeful sampling strategy and contacted to arrange a research meeting, at the beginning of which the qualitative study was explained again before written consent to take part was obtained by the researcher. All interviews were conducted at a location and in the language of the participants' choice; interpreting services were used, if necessary. Interviews lasted between 1 and 2 h and in all but one case took place in the participant's home. Each of the family volunteers who took part was related to one of the 20 trial participants and was interviewed together with their family member. All fieldwork was undertaken with due regard to maintaining the best interests of participants and, in particular, assuring their confidentiality and anonymity. The researcher was blinded to the performance of trial participants throughout the course of the research process, including study design, data generation and analysis. Narrative methods seek to gather participant accounts of their experiences in their own words in the form of stories by using natural prompts to encourage communication rather than questions to stimulate response.20 We used preliminary qualitative work (unpublished) to identify open questions to prompt participants' stories, when necessary, including for example: ▸ What were the motivations, perceptions and attitudes that led you to express an interest and then agree to participate in this trial? ▸ What factors have influenced your ability to engage with, and be faithful to, the study interventions? ▸ What factors have influenced participants' decisions to remain involved in the trial? ▸ More generally, what were the most memorable events and experiences that influenced decisions to accept the invitation for screening, agree to participate, adhere to and remain enrolled in the trial?
Method and process of analysis	Thematic data analysis20 was concurrently undertaken using NVivio9 software,23 allowing emerging themes to inform on-going data collection using the constant comparison method.24 We actively considered alternative explanation cases and

	allowed for the researcher's reflexive analysis of interpretations.20 Regular discussions of the emerging findings among the trial qualitative subgroup and the active seeking of disconfirming data further ensured the trustworthiness of findings. Data collection ceased when saturation could reasonably be assumed.25 Fully anonymised study results were only shared with trial dietitians once the trial was closed.
Population and sample collection	We focused on trial participants and family volunteers exiting the study. We utilised purposeful sampling22 to ensure representation of the diversity within the trial population by sex, ethnicity, faith group, geographical location (Glasgow and Edinburgh) and whether they were allocated to the intervention or control group. We conducted 21 narrative interviews with 24 participants (20 trial participants and four family volunteers)
Inclusion Criteria	Participants in WM RCT
Exclusion criteria	Normoglycaemic Diabetic
Relevant themes	1. Participation and retention in the trial: Perceived benefits of participation in the trial, the accommodation of participant choice of language and location, and trusting relationships between trial investigators and participants. "sometimes I don't understand in English, then I could speak to her in Indian" 1. Perspectives on potential benefits of participation 2. Participant choice 3. Relationships 2. Adherence to the intervention: . Non-adherence to the trial was in some case culturally motivated, or due to contextual factors such as climate or lack of time. "I know that if I lose more weight I'm going to put it back on at Ramadan" 1. Understanding adherence 2. Reasons for non-adherence
Additional information	Inclusion and exclusion criteria for the RCT are not outlined in this paper as they are published elsewhere, however the publication they are detailed in is unavailable.

Critical appraisal - CASP qualitative checklist V2

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	Moderate
Overall risk of bias and relevance	Relevance	Partially relevant

Taylor, 2020

Bibliographic Reference	Taylor, Cath; Bhavnani, Vanita; Zasada, Magdalena; Ussher, Michael; Bick, Debra; SWAN trial, team; SWAN trial, team; Barriers and facilitators to uptake and retention of inner-city ethnically diverse women in a postnatal weight management intervention: a mixed-methods process evaluation within a feasibility trial in England.; BMJ open; 2020; vol. 10 (no. 7); e034747

Study Characteristics

Study type	Interviews Questionnaire

Aim of study	To understand the barriers and facilitators to uptake and retention of postnatal women randomised to a commercial group weight management intervention using the COM-B (capability, opportunity, motivation and behaviour) behaviour change model.
Theoretical approach	behaviour change theory and techniques, including social cognitive theory
Study location	south of England UK
Study setting	NHS maternity unit
Study dates	1 December 2015 and 30 November 2018.
Sources of funding	National Institute for Health Research (NIHR) Public Health Research Programme
Data collection	Interviews were conducted by a female experienced qualitative researcher (VB) with a purposively selected sample of women at approximately 6 months post-birth and 12 months post-birth. Criteria for inviting women captured diversity (in line with guidance20) in relation to: attendance at SW sessions (women who attended 10+sessions vs attended fewer or did not attend at all); weight change and ethnicity. The same criteria were applied at 12 months post-birth, but also included six women from the initial sample to provide a nested longitudinal sample. The topic guide included motivation for study participation, experiences of the intervention and reasons for uptake and retention (or not), with prompts informed by the COM-B model. All interviews were by telephone (face-to-face was offered), and lasted between 20 and 50 min (average 45 min). Interviews were audio-recorded. Barriers and facilitators to study participation were considered separately to those that relate to the intervention and are reported elsewhere.
Method and process of analysis	Quantitative questionnaire data were analysed descriptively. Analysis of open questions and interview data was underpinned by the COM-B model13 and used the Framework method.21 Interviews were transcribed verbatim. Transcripts were read by two researchers (CT and MZ for questionnaires; CT and VB for interviews), who independently noted key themes. Coding was compared an discussed before final coding and labelling. Data were examined to identify themes in relation to capability, motivation and opportunity factors (eg, comparing women who attended different ‘doses’ of sessions; and those that lost or gained weight). Data were examined longitudinally if women completed both questionnaires/ interviews. As the COM-B components are not mutually exclusive, data often fit several dimensions.
Population and sample collection	Postnatal women aged ≥18 with BMIs≥25 kg/m2 at pregnancy commencement or with normal BMIs (18.5– 24.9kg/m2) who met criteria for excessive gestational weight gain (EGWG) at 36 weeks gestation, randomly allocated at 36 weeks

	gestation to access 12-weekly SW sessions, commenced anytime from 8 to 16 weeks post-birth (n=98). Full inclusion/exclusion criteria are published elsewhere. Of 98 women randomised to the intervention, 83 (85%) completed the 6-month questionnaire, 69 of whom (69/83, 83%) also completed the 12-month questionnaire. At least one of the two questions about SW was answered by all women who attended at least one SW session. Fifty-two (53%) women did not attend any sessions and 39 (75%) gave a reason for not attending. Interviews were conducted with 13 women immediately post-intervention (approximately 6–8 months post-birth); and with nine women (six of whom had participated at 6 months) at 12 months post-birth
Inclusion Criteria	BMI >25 Pre-pregnancy Postnatal Women Over 18 Excessive gestational weight gain with previously normal BMI
Exclusion criteria	None reported

Relevant themes	1. Uptake
	2. Retention
	3. Motivation: "It felt to me to be sustainable, not a harsh diet that I was only going to do for a few weeks"
	    1. Weight loss aspirations
	    2. (psychological capability): beliefs and expectations regarding weight loss
	    3. understanding and implementing the intervention
	4. Opportunity: "The woman who ran the group, wasn't very nice, she was very critical…. "
	    1. Social opportunity and motivation: social context

	2. Physical opportunity: accessibility of the intervention

Critical appraisal - CASP qualitative checklist V2

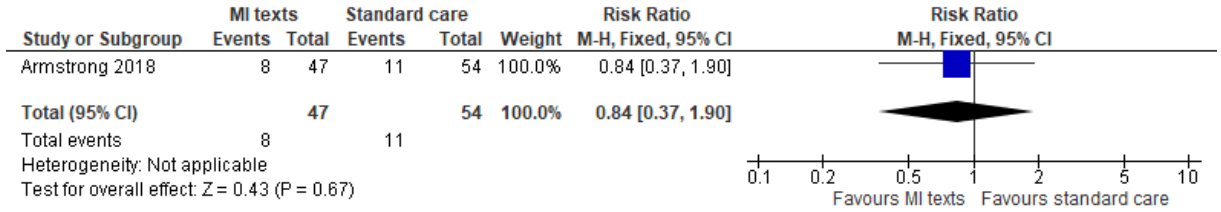
Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	Low
Overall risk of bias and relevance	Relevance	Relevant

Appendix E – Forest plots

Children and young people

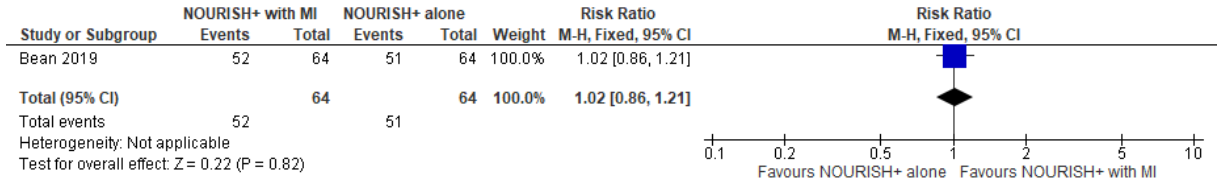
Motivational interviewing based text messages compared to standard care

Number of participants who dropped out of the program. Value lower than 0 favours intervention

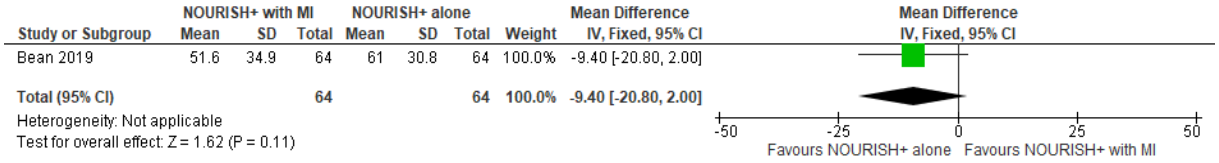


NOURISH+ with motivational interviewing compared to NOURISH+

Enrolment: Number of participants enrolled who in the program. Value greater than 0 favours intervention.

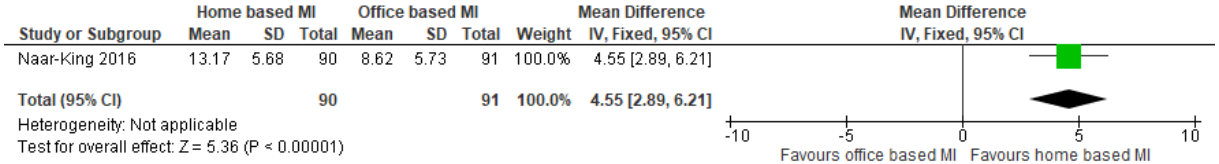


Attendance: Average percentage of sessions attended. Value greater than 0 favours intervention.



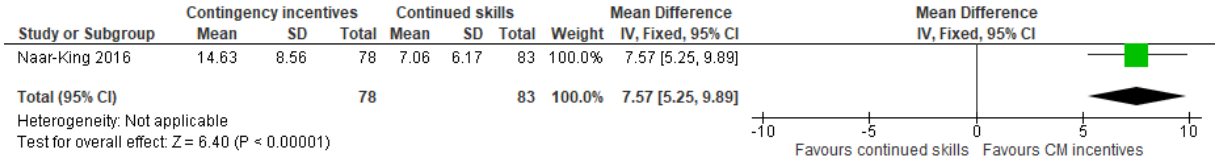
Home based motivational interviewing compared to office based motivational interviewing

Attendance: Average number of sessions attended. Value greater than 0 favours intervention.



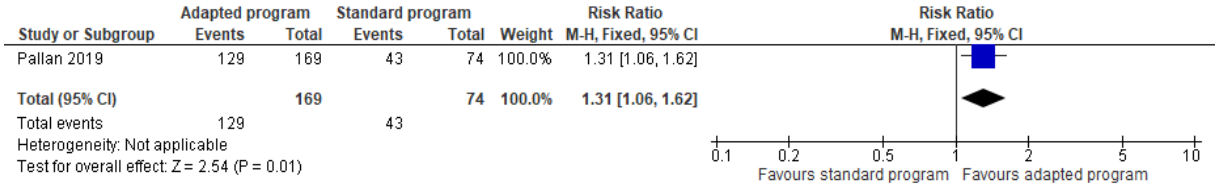
Contingency management incentives compared to continued skills training

Attendance: Average number of sessions attended. Value greater than 0 favours intervention.



Culturally adapted weight management program compared to standard weight management program

Attendance: Number of participants who completed the program. Value greater than 0 favours intervention.



Attendance: Number of participants who completed the program (Pakistani and Bangladeshi subgroup). Value greater than 0 favours intervention.

Children and young people data presented without Forest plots

The following tables are presented in their original published form. Cluster RCT corrections and analysis were conducted by the study authors with no further analysis by the NICE team.

HENRY with optimisation vs HENRY only. Analysis by Bryant 2021.

	Pre-randomisation[a] (%)	Adjusted model estimates[bc]		
		RD (95% CI)	*p*-value	*ICC*
Primary outcome 1: enrolment				
HENRY alone (*n* = 10 local authorities)	50.0	−1.2 (−19.5, 17.1)	0.886	0.136
HENRY + optimisation intervention (*n* = 10 local authorities)	60.0			
Primary outcome 2: attendance				
HENRY alone (*n* = 10 local authorities)	50.0	1.2 (−15.7, 18.1)	0.881	< 0.001
HENRY + optimisation intervention (*n* = 10 local authorities)	50.0			

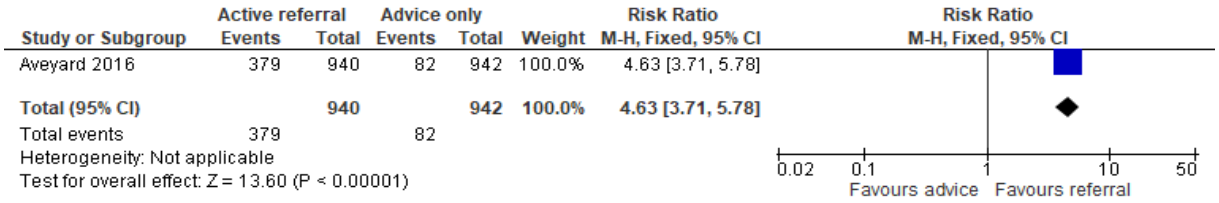
Parent information letters vs Weight status letters. Analysis by Sallis 2019.

	Adjusted				
	n	AOR	95% CI	*p*	ICC
Primary outcome					
Enrolment	2532 children 283 schools	2.48	1.46,4.21	0.001	0.120
Secondary outcome					
Contact	2532 children 283 schools	2.46	1.52,3.98	<0.001	0.064
Attendance	2443 children 267 schools	2.11	1.01,4.41	0.047	0.126

Adults

Active referral to weight management vs. weight advice

Enrolment to weight management: assessed by number of patients who attended a session. Value greater than 0 favours intervention.

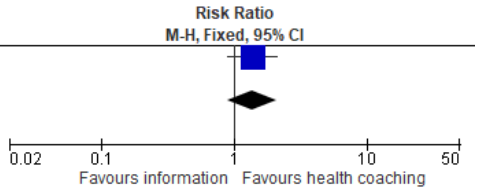


Health coaching vs. information

Enrolment to weight management: assessed by number of patients enrolled at 6 month follow up. Value greater than 0 favours intervention.

Study or Subgroup	Health coaching Events	Total	Information (control) Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Heredia 2019	33	84	24	84	100.0%	1.38 [0.89, 2.11]
Total (95% CI)		**84**		**84**	**100.0%**	**1.38 [0.89, 2.11]**
Total events	33		24			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.45 (P = 0.15)

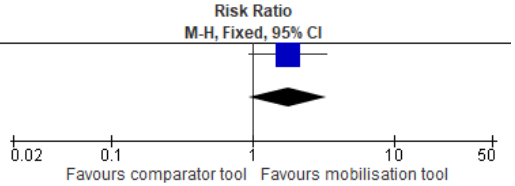


Tailored ‘mobilisation’ tool vs. non-tailored tool

Enrolment to weight management: assessed by number of patients who initiated treatment. Value greater than 0 favours intervention.

Study or Subgroup	Mobilisation tool Events	Total	Comparator tool Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
McVay 2021	20	34	8	24	100.0%	1.76 [0.94, 3.32]
Total (95% CI)		**34**		**24**	**100.0%**	**1.76 [0.94, 3.32]**
Total events	20		8			

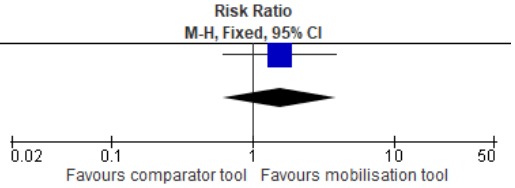
Heterogeneity: Not applicable
Test for overall effect: Z = 1.76 (P = 0.08)



Attendance at weight management: assessed by number of patients who attended at least 8 sessions. Value greater than 0 favours intervention.

Study or Subgroup	Mobilisation tool Events	Total	Comparator tool Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
McVay 2021	11	34	5	24	100.0%	1.55 [0.62, 3.89]
Total (95% CI)		**34**		**24**	**100.0%**	**1.55 [0.62, 3.89]**
Total events	11		5			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.94 (P = 0.35)

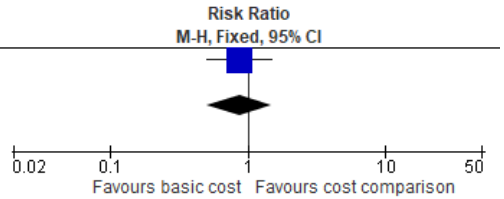


Cost comparison framing vs. basic cost

Enrolment to weight management: assessed by number of patients who accepted a referral. Value greater than 0 favours intervention.

Study or Subgroup	Cost comparison Events	Total	Basic cost Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Tudor 2020	13	30	15	30	100.0%	0.87 [0.50, 1.49]
Total (95% CI)		**30**		**30**	**100.0%**	**0.87 [0.50, 1.49]**
Total events	13		15			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.52 (P = 0.61)

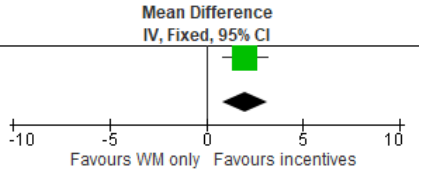


Financial incentives + weight management vs. weight management only

Attendance at weight management: assessed by number of sessions attended at 6 month follow-up (out of a maximum of 24). Value greater than 0 favours intervention.

Study or Subgroup	Financial incentives + WM Mean	SD	Total	WM only Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
West 2022	18	5.1	206	16	6.6	212	100.0%	2.00 [0.87, 3.13]
Total (95% CI)			**206**			**212**	**100.0%**	**2.00 [0.87, 3.13]**

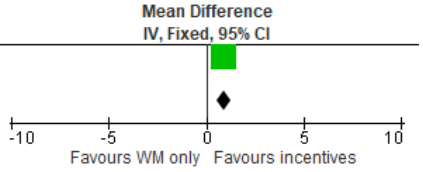
Heterogeneity: Not applicable
Test for overall effect: Z = 3.47 (P = 0.0005)



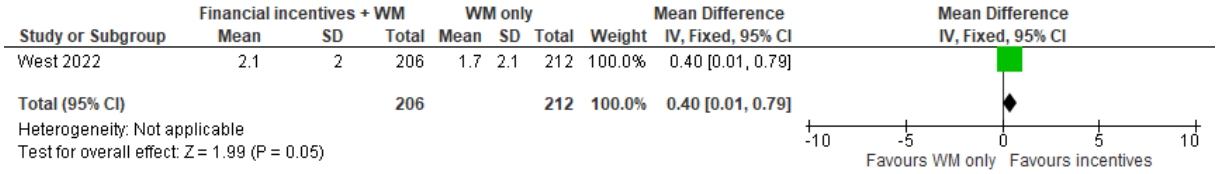
Attendance at weight management: assessed by number of sessions attended at 12 month follow-up (out of a maximum of 6). Value greater than 0 favours intervention.

Study or Subgroup	Financial incentives + WM Mean	SD	Total	WM only Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
West 2022	3.3	1.9	206	2.4	2.2	212	100.0%	0.90 [0.51, 1.29]
Total (95% CI)			**206**			**212**	**100.0%**	**0.90 [0.51, 1.29]**

Heterogeneity: Not applicable
Test for overall effect: Z = 4.48 (P < 0.00001)

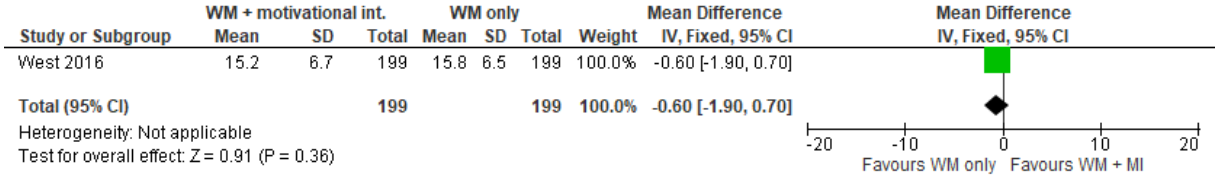


Attendance at weight management: assessed by number of sessions attended at 18 month follow-up (out of a maximum of 6). Value greater than 0 favours intervention.

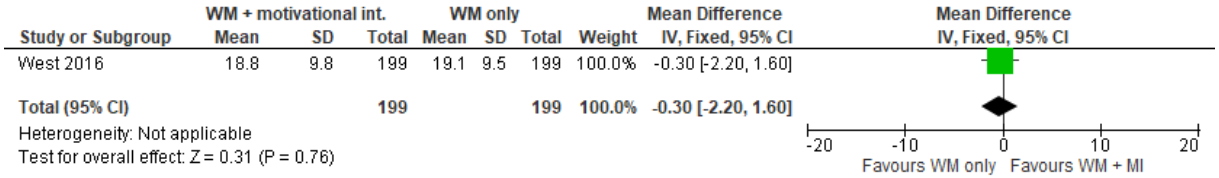


Motivational interviewing + online weight management compared to online weight management only

Attendance at weight management: assessed by number of sessions attended at 6 month follow-up (out of a maximum of 24). Value greater than 0 favours intervention.

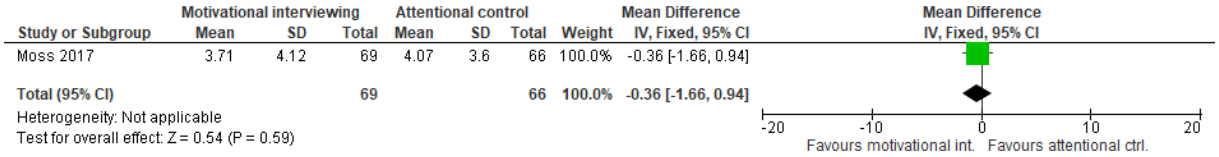


Attendance at weight management: assessed by number of sessions attended at 18 month follow-up (out of a maximum of 36 (full program)). Value greater than 0 favours intervention.



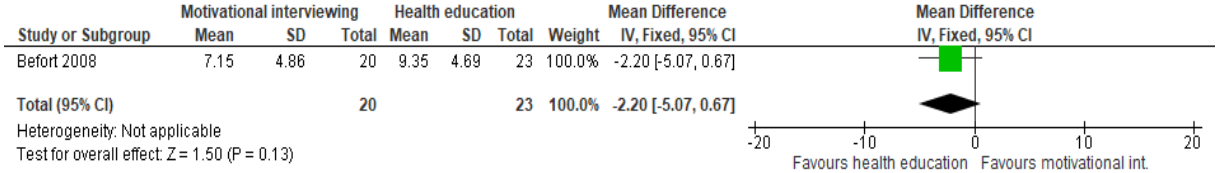
Motivational interviewing + weight management vs. attentional control + weight management

Attendance at weight management: assessed by number of weight management sessions missed (out of a maximum of 24). Value lower than 0 favours intervention.

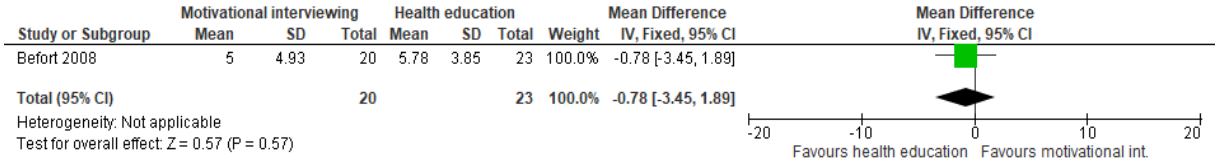


Motivational interviewing + weight management vs. health education + weight management

Attendance at weight management: assessed by number of weight management sessions attended (out of a maximum of 16). Value greater than 0 favours intervention.



Engagement: Number of self-monitoring logs submitted (out of a maximum of 15). Value greater than 0 favours intervention.



Appendix F - GRADE and GRADE CERQual tables

F.1 GRADE Tables

Children and young people

Motivational interviewing based text messages vs standard care

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Motivational interviewing based text messages	Standard care	Relative (95% CI)	Absolute		
Drop out (assessed with: Number of participants). MID = 0.8 to 1.25												
1[1]	randomised trials	no serious risk of bias	no serious inconsistency[2]	no serious indirectness	very serious[33]	none	8/47 (17%)	11/54 (20.4%)	RR 0.84 (0.37 to 1.9)	33 fewer per 1000 (from 128 fewer to 183 more)	⊕⊕OO LOW	CRITICAL

[1] Armstrong 2018
[2] Single study; inconsistency not applicable
[3] Downgraded twiceas 95%CI crosses two clinical decision thresholds (0.8 and 1.25)

NOURISH+ with motivational interviewing vs NOURISH+

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NOURISH+ with motivational interviewing	NOURISH+	Relative (95% CI)	Absolute		
Program uptake (assessed with: number of participants). MID = 0.8 to 1.25												

1[1]	randomised trials	no serious risk of bias	no serious inconsistency[2]	serious[3]	no serious imprecision	none	52/64 (81.3%)	51/64 (79.7%)	RR 1.0202 (0.8686 to 1.2121)	112 more per 1000 (from 8 fewer to 263 more)	⊕⊕⊕O MODERATE	CRITICAL
Average attendance % (measured with: average percentage of sessions attended; Better indicated by lower values). MID = 15.4												
1[1]	randomised trials	no serious risk of bias	no serious inconsistency[2]	serious[3]	serious[4]	none	64	64	-	MD 9.4 lower (20.88 lower to 2 higher)	⊕⊕OO LOW	CRITICAL

[1] Bean 2019
[2] Single study; inconsistency not applicable
[3] Downgraded for indirectness due to the study being conducted in the USA
[4] Downgraded once for imprecision as 95%CI crosses one line of the calculated MID

HENRY with optimisation vs HENRY only

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**HENRY with optimisation**	**HENRY only**	**Relative (95% CI)**	**Absolute**		
Enrolment in weight management (assessed with: proportion of centres enrolling at least 8 families)												
1[1]	randomised trials	no serious risk of bias	no serious inconsistency	no serious indirectness	very serious[2]	none	-	-	RD 0 (-19.5 to 17.1)	-	⊕⊕OO LOW	CRITICAL
Attendance (assessed with: proportion of children's centres with at least 75% of parents attending at least 5 sessions)												
1[1]	randomised trials	no serious risk of bias	no serious inconsistency	no serious indirectness	very serious[2]	none	-	-	RD 0 (-15.7 to 18.1)	-	⊕⊕OO LOW	CRITICAL

[1] Bryant 2021
[2] Downgraded for imprecision due to large confidence intervals that cross the line of no effect

Home based motivational interviewing vs office based motivational interviewing

Quality assessment	No of patients	Effect	Quality	Importance

No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**Home based motivational interviewing**	**Office based motivational interviewing**	**Relative (95% CI)**	**Absolute**		
Number of sessions attended (measured with: Average number of sessions attended; Better indicated by lower values). MID = 2.87												
1[1]	randomised trials	no serious risk of bias	no serious inconsistency	serious[2]	no serious imprecision	none	90	91	-	MD 4.55 higher (2.89 to 6.21 higher)	⊕⊕⊕O MODERATE	CRITICAL

[1] Naar-King 2016
[2] Downgraded for indirectness due to the study being conducted in the USA

Contingency management incentives vs continued skills training

Quality assessment							**No of patients**		**Effect**		**Quality**	**Importance**
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**Contingency managment incentives**	**Continued skills training**	**Relative (95% CI)**	**Absolute**		
Number of sessions attended (measured with: average number of sessions attended; Better indicated by lower values). MID = 3.09												
1[1]	randomised trials	no serious risk of bias	no serious inconsistency	serious[2]	no serious imprecision	none	78	83	-	MD 7.57 higher (5.25 to 9.89 higher)	⊕⊕⊕O MODERATE	CRITICAL

[1] Naar-King 2016
[2] Downgraded for indirectness due to the study being conducted in the USA

Culturally adapted weight management program vs standard weight management program

Quality assessment	**No of patients**	**Effect**	**Quality**	**Importance**

No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Culturally adapted weight management program	Standard weight management program	Relative (95% CI)	Absolute		
Completed the program (assessed with: Number of participants). MID = 0.8 to 1.25												
1[1]	randomised trials	very serious[2]	no serious inconsistency[3]	no serious indirectness	serious[4]	none	129/169 (76.3%)	43/74 (58.1%)	RR 1.31 (1.06 to 1.62)	180 more per 1000 (from 35 more to 360 more)	⊕OOO VERY LOW	CRITICAL
Completed the program [Pakistani and Bangladeshi subgroup] (assessed with: Number of participants). MID = 0.8 to 1.25												
1[1]	randomised trials	very serious[2]	no serious inconsistency[3]	no serious indirectness	serious[4]	none	63/80 (78.8%)	43/74 (58.1%)	RR 1.36 (1.08 to 1.7)	209 more per 1000 (from 46 more to 407 more)	⊕OOO VERY LOW	CRITICAL

[1] Pallan 2019
[2] Downgraded twice as study rated as high risk of bias
[3] Single study; inconsistency not applicable
[4] Downgraded once as 95%CI crosses one clinical decision threshold (1.25)

Parent information letters vs Weight status letters

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Parent information letters	Weight status letters	Relative (95% CI)	Absolute		
Enrolment (assessed with: number of children enrolled)												
1[1]	randomised trials	no serious risk of bias	no serious inconsistency	very serious[2]	no serious imprecision	none	-	-	OR 2.48 (1.46 to 4.21)	-	⊕⊕⊕⊕ HIGH	CRITICAL
Attendance (assessed with: number of children attending regularly)												
1[1]	randomised trials	no serious risk of bias	no serious inconsistency	very serious[2]	no serious imprecision	none	-	-	RR 2.11 (1.01 to 4.41)	-	⊕⊕⊕⊕ HIGH	CRITICAL

[1] Sallis 2019
[2] Downgraded twice for indirectness due to the intervention being embedded in the National Child Measurement Program which is outside of the guideline remit

Adults

Active referral to weight management vs. weight advice

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Active referral	Advice	Relative (95% CI)	Absolute		
Number of patients who attended a weight management session (assessed with: Number of patients). MID = 0.8 to 1.25												
1[1]	randomised trials	serious[2]	no serious inconsistency[3]	no serious indirectness	no serious imprecision	none	379/940 (40.3%)	82/942 (8.7%)	RR 4.63 (3.71 to 5.78)	316 more per 1000 (from 236 more to 416 more)	⊕⊕⊕O MODERATE	CRITICAL

[1] Aveyard 2016
[2] Downgraded once as the study is rated moderate risk of bias
[3] Single study; inconsistency is not applicable

Health coaching vs information

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Health coaching	Information	Relative (95% CI)	Absolute		
Enrollment in weight management at 6 month follow-up (follow-up 6 months; assessed with: Number of participants enrolled). MID = 0.8 to 1.25												
1[1]	randomised trials	serious[2]	no serious inconsistency[3]	serious[4]	serious[5]	none	33/84 (39.3%)	24/84 (28.6%)	RR 1.38 (0.89 to 2.11)	109 more per 1000 (from 31 fewer to 317 more)	⊕OOO VERY LOW	CRITICAL

[1] Heredia 2019
[2] Downgraded once as the study is rated moderate risk of bias
[3] Single study; inconsistency not applicable

[4] Downgraded once for indirectness as the study was conducted in the USA
[5] Downgraded once as 95%CI crosses one clinical decision threshold (1.25)

Tailored 'mobilisation' tool vs. non-tailored tool

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Mobilisation tool	Comparator tool	Relative (95% CI)	Absolute		
Initiation of weight management. MID = 0.8 to 1.25												
1[1]	randomised trials	serious[2]	no serious inconsistency[3]	serious[4]	serious[5]	none	20/34 (58.8%)	8/24 (33.3%)	RR 1.76 (0.94 to 3.32)	253 more per 1000 (from 20 fewer to 773 more)	⊕OOO VERY LOW	CRITICAL
Sustained attendance at weight management. MID = 0.8 to 1.25												
1[1]	randomised trials[7]	serious[2]	no serious inconsistency[3]	serious[4]	very serious[6]	none	11/34 (32.4%)	5/24 (20.8%)	RR 1.55 (0.62 to 3.89)	115 more per 1000 (from 79 fewer to 602 more)	⊕OOO VERY LOW	CRITICAL

[1] McVay 2021
[2] Downgraded once as the study is rated moderate risk of bias
[3] Single study; inconsistency not applicable
[4] Downgraded once for indirectness as the study was conducted in the USA
[5] Downgraded once as 95%CI crosses one clinical decision threshold (1.25)
[6] Downgraded twice as 95%CI crosses two clinical decision thresholds (0.8 and 1.25)

Cost comparison framing vs basic cost

Quality assessment	No of patients	Effect	Quality	Importance

No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**Cost comparison**	**Basic cost**	**Relative (95% CI)**	**Absolute**		
Number of patients who accepted a referral during their appointment (assessed with: Number of patients). MID= 0.8 to 1.25												
1[1]	randomised trials	serious[2]	no serious inconsistency[3]	no serious indirectness	very serious[4]	none	13/30 (43.3%)	15/30 (50%)	RR 0.87 (0.5 to 1.49)	65 fewer per 1000 (from 250 fewer to 245 more)	⊕OOO VERY LOW	CRITICAL

[1] Tudor 2020
[2] Downgraded once as study was rated moderate risk of bias
[3] Single study; inconsistency not applicable
[4] Downgraded twice as 95%CI crosses two clinical decision thresholds (0.8 and 1.25)

Financial incentives + weight management vs weight management only

Quality assessment							**No of patients**		**Effect**		**Quality**	**Importance**
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**Financial incentives + weight management**	**Weight management only**	**Relative (95% CI)**	**Absolute**		
Number of sessions attended at 6 month follow-up (out of a maximum of 24) (follow-up 6 months; range of scores: 0-24; Better indicated by higher values). MID = 3.3												
1[1]	randomised trials	serious[2]	no serious inconsistency[3]	serious[4]	no serious imprecision	none	206	212	-	MD 2 higher (0.87 to 3.13 higher)	⊕⊕OO LOW	CRITICAL
Number of sessions attended at 12 month follow-up (out of a maximum of 6) (follow-up 12 months; range of scores: 0-6; Better indicated by higher values). MID = 1.1												
1[1]	randomised trials	serious[2]	no serious inconsistency[3]	serious[4]	serious[5]	none	206	212	-	MD 0.9 higher (0.51 to 1.29 higher)	⊕OOO VERY LOW	CRITICAL
Number of sessions attended at 18 month follow-up (out of a maximum of 6) (follow-up 18 months; range of scores: 0-6; Better indicated by higher values). MID = 1.05												
1[1]	randomised trials	serious[2]	no serious inconsistency[3]	serious[4]	no serious imprecision	none	206	212	-	MD 0.4 higher (0.01 to 0.79 higher)	⊕⊕OO LOW	CRITICAL

[1] West 2022
[2] Downgraded once as the study is rated moderate risk of bias

[3] Single study; inconsistency not applicable
[4] Downgraded once for indirectness as the study was conducted in the USA
[5] Downgraded once as 95%CI crosses one line of the calculated MID

Motivational interviewing + online weight management vs online weight management only

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Motivational interviewing + online weight management	online weight management only	Relative (95% CI)	Absolute		
Weight management session attendance at 6 month follow-up (out of a maximum of 24) (follow-up 6 months; range of scores: 0-24; Better indicated by higher values). MID = 3.25												
1[1]	randomised trials	serious[2]	no serious inconsistency[3]	serious[4]	no serious imprecision	none	199	199	-	MD 0.6 lower (1.9 lower to 0.7 higher)	⊕⊕OO LOW	CRITICAL
Number of weight management sessions attended for full program at 18 month follow-up (out a of a maximum of 36) (follow-up 18 months; range of scores: 0-36; Better indicated by higher values). MID = 4.75												
1[1]	randomised trials	serious[2]	no serious inconsistency[3]	serious[4]	no serious imprecision	none	199	199	-	MD 0.3 lower (2.2 lower to 1.6 higher)	⊕⊕OO LOW	CRITICAL

[1] West 2016
[2] Downgraded once as study is rated moderate risk of bias
[3] Single study; inconsistency not applicable
[4] Downgraded once for indirectness as study was conducted in the USA

Motivational interviewing and weight management vs attentional control and weight management

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Motivational interviewing	Attentional control	Relative (95% CI)	Absolute		
Number of weight management sessions missed (out of 24) (follow-up 24 weeks; range of scores: 0-24; Better indicated by lower values). MID = 1.8												
1[1]	randomised trials	no serious risk of bias	no serious inconsistency[2]	no serious indirectness	no serious imprecision	none	69	66	-	MD 0.36 lower (1.66 lower to 0.94 higher)	⊕⊕⊕⊕ HIGH	CRITICAL

[1] Moss 2017

[2] Single study; inconsistency not applicable

Motivational interviewing and weight management vs health education and weight management

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Motivational interviewing	Health education	Relative (95% CI)	Absolute		
Number of weight management sessions attended (out of a maximum of 16) (follow-up 16 weeks; range of scores: 0-16; Better indicated by higher values). MID = 2.35												
1[1]	randomised trials	very serious[2]	no serious inconsistency[3]	serious[4]	serious[5]	none	20	23	-	MD 2.2 lower (5.07 lower to 0.67 higher)	⊕OOO VERY LOW	CRITICAL
Engagement: Number of self-monitoring logs submitted (out of a maximum of 15) (follow-up 16 weeks; range of scores: 0-15; Better indicated by higher values). MID = 1.93												
1[1]	randomised trials	very serious[2]	no serious inconsistency[3]	serious[4]	serious[5]	none	20	23	-	MD 0.78 lower (3.45 lower to 1.89 higher)	⊕OOO VERY LOW	CRITICAL

[1] Befort 2008
[2] Downgraded twice as study is rated high risk of bias
[3] Single study; inconsistency not applicable
[4] Downgraded once for indirectness as study was conducted in the USA
[5] Downgraded once as 95%CI crosses one line of the calculated MID

F.2 GRADE CERQual tables

Children and young people

Table 29: GRADE-CERQual assessment of qualitative findings

Summary of review finding	Studies	Methodological limitations	Relevance	Coherence	Adequacy	Confidence
Barriers and facilitators affecting initial motivation						
Objections that arise at the identification stage remain barriers at the point of uptake	Cyril 2016/2017 Gillespie 2015 Newson 2013 Pallan 2019 Povey 2020 Visram 2013	No concerns	No concerns	No concerns	No concerns	High
Participants wanted to avoid negative social outcomes of overweight	Banks 2014 Gillespie 2015 Jones 2021	Minor concerns[1]	No concerns	No concerns	No concerns	Moderate

Summary of review finding	Studies	Methodological limitations	Relevance	Coherence	Adequacy	Confidence
	Lucas 2014 Newson 2013 Twiddy 2012 Visram 2013					
Many had doubts that weight management programs would be effective or suitable	Cyril 2016/2017 Gillespie 2015 Jones 2021 Lucas 2014 Newson 2013 Pallan 2019 Povey 2020 Twiddy 2012 Visram 2013	No concerns	No concerns	No concerns	No concerns	High
Many parents were unsure what to do for the best so were motivated by the need for outside help	Cyril 2017 Gillespie 2015 Newson 2013 Pallan 2019 Visram 2013	No concerns	No concerns	Minor concerns[5]	No concerns	Moderate
Barriers and facilitators arising from the child's agency and involvement						
Weight management was more successful when the child agreed to it than when the parents decided for them.	Banks 2014 Povey 2020 Pallan 2019 Twiddy 2012 Visram 2013	No concerns	No concerns	No concerns	No concerns	High
The child's motivation for weight loss was as important as their parents'	Banks 2014 Jones 2021 Lucas 2014 Pallan 2019 Twiddy 2012	No concerns	No concerns	Minor concerns[5]	No concerns	Moderate

Summary of review finding	Studies	Methodological limitations	Relevance	Coherence	Adequacy	Confidence
	Visram 2013					
Many children found weight management to be an empowering experience	Banks 2014 Jones 2021 Lucas 2014 Pallan 2019 Twiddy 2012 Visram 2013	No concerns	No concerns	Minor concerns[5]	No concerns	Moderate
Stigma was overwhelmingly experienced by children rather than adults	Banks 2014 Jones 2021 Lucas 2014 Newson 2013 Pallan 2019 Povey 2020 Twiddy 2012 Visram 2013	No concerns	No concerns	No concerns	No concerns	High
Barriers and facilitators arising from circumstances and opportunity to participate						
Weight management services and opportunities to exercise and eat healthily were not always available to patients	Cyril 2016/2017 Lucas 2014 Newson 2013 Pallan 2019 Renzaho 2018 Visram 2013	No concerns	No concerns	No concerns	No concerns	High
Patients reported many circumstances that restricted their ability to commit to a weight management program	Banks 2014 Cyril 2017 Lucas 2014 Newson 2013 Pallan 2019	No concerns	No concerns	No concerns	No concerns	High

Summary of review finding	Studies	Methodological limitations	Relevance	Coherence	Adequacy	Confidence
	Povey 2020 Twiddy 2012					
Balancing the needs of a whole family, especially when there were other children, was challenging	Cyril 2017a Lucas 2014 Pallan 2019 Povey 2020	No concerns	No concerns	No concerns	No concerns	High
Barriers and facilitators arising from the structure of weight management programs						
Timing, location and cost had a substantial influence on attendance	Banks 2014 Cyril 2016/2017 Gillespie 2015 Jones 2021 Lucas 2014 Newson 2013 Pallan 2019 Povey 2020 Renzaho 2018 Visram 2013	No concerns	No concerns	No concerns	No concerns	High
The content and approach of the program affected patients' willingness to participate	Banks 2014 Cyril 2016/2017 Jones 2021 Pallan 2019 Renzaho 2018	Minor concerns[1]	No concerns	No concerns	No concerns	Moderate
Parents felt strongly that diets are not appropriate for children and preferred a different focus.	Banks 2014 Gillespie 2015 Jones 2021 Lucas 2014	No concerns	No concerns	Minor concerns[5]	No concerns	Moderate

Summary of review finding	Studies	Methodological limitations	Relevance	Coherence	Adequacy	Confidence
	Newson 2013 Pallan 2019 Povey 2020 Twiddy 2012 Visram 2013					
Providers and stakeholders prioritised convenience, value and cost in commissioning services	Cyril 2016 Lucas 2014 Visram 2013	No concerns	No concerns	No concerns	No concerns	High
Barriers and facilitators arising from social factors affecting participation						
Good rapport with the staff delivering the program was important	Banks 2014 Cyril 2016/2017 Gillespie 2015 Jones 2021 Lucas 2014 Pallan 2019 Renzaho 2018 Twiddy 2012 Visram 2013	No concerns	No concerns	No concerns	No concerns	High
Fitting in with the group and feeling socially comfortable were very important to parents and children	Banks 2014 Jones 2021 Lucas 2014 Newson 2013 Pallan 2019 Povey 2020 Visram 2013	No concerns	No concerns	No concerns	No concerns	High

Summary of review finding	Studies	Methodological limitations	Relevance	Coherence	Adequacy	Confidence
Family and community support outside of the program also had a substantial impact	Cyril 2017 Jones 2021 Lucas 2014 Newson 2013 Pallan 2019 Renzaho 2018 Twiddy 2012 Visram 2013	No concerns	No concerns	No concerns	No concerns	High
Parental commitment and engagement were the most influential social factors	Cyril 2016/2017 Jones 2021 Lucas 2014 Newson 2013 Pallan 2019 Renzaho 2018 Twiddy 2012	No concerns	No concerns	No concerns	No concerns	High
Barriers and facilitators arising from diverse community needs						
Cultural norms presented specific barriers for engaging BAME families	Cyril 2016/2017 Lucas 2014 Renzaho 2018	Minor concerns[1]	Minor concerns[3]	No concerns	No concerns	Moderate
Language and understanding presented barriers to program delivery in many cases	Cyril 2016/2017 Lucas 2014 Pallan 2019 Renzaho 2018	No concerns	No concerns	No concerns	No concerns	High

Summary of review finding	Studies	Methodological limitations	Relevance	Coherence	Adequacy	Confidence
Cultural variations in dietary practices need to be taken into account when delivering weight management.	Cyril 2016/2017 Lucas 2014 Pallan 2019 Renzaho 2018	No concerns	No concerns	No concerns	No concerns	High
It is important to strike the right balance of representation and tailoring towards the communities targeted by the weight management program	Banks 2014 Cyril 2016/2017 Jones 2021 Lucas 2014 Pallan 2019 Visram 2013	No concerns	No concerns	No concerns	No concerns	High

1. Finding was downgraded once because it was identified mainly in studies at moderate or high risk of bias
2. Finding was downgraded twice because it was identified mainly in studies at high risk of bias
3. Finding was downgraded once because it was identified mainly in studies that were indirectly or partially relevant
4. Finding was downgraded twice because it was identified mainly in studies that were partially relevant
5. Finding was downgraded once for coherence because the theme did not emerge from all relevant studies, findings were somewhat conflicting, or there was little convincing theoretical explanation
6. Finding me was downgraded twice for coherence because the theme did not emerge from all relevant studies, findings were directly conflicting, or there was no convincing theoretical explanation
7. Finding was downgraded once for adequacy because of insufficient studies (fewer than 3) or insufficient detail
8. Finding was downgraded twice for adequacy because of both insufficient studies (fewer than 3) and insufficient detail

Adults

Table 30: GRADE CERQual assessment of qualitative findings in adults

Summary of review finding	Studies	Methodological limitations	Relevance	Coherence	Adequacy	Confidence
Barriers and facilitators affecting initial motivation						

Summary of review finding	Studies	Methodological limitations	Relevance	Coherence	Adequacy	Confidence
Being invited to participate prompted many to get started	Holt 2021 Hunt 2014 McDonald 2020 Taylor 2020	Moderate concerns[2]	Minor concerns[3]	Minor concerns[5]	No concerns	Low
Most participants wanted to avoid negative outcomes of overweight	Elliott 2020 Holt 2021 Hunt 2014 Morrison 2014 Taylor 2020	Minor concerns[1]	No concerns	No concerns	No concerns	Moderate
Some participants were seeking the benefits of weight loss	Elliott 2020 Hunt 2014 Jolly 2020 McDonald 2020 Morrison 2014 Taylor 2020	No concerns	Minor concerns[3]	Minor concerns[5]	No concerns	Moderate
Many had doubts that weight management programs would be effective or suitable	Coupe 2018 Elliott 2020 Holt 2021 Hunt 2014 Morrison 2014 Taylor 2020	No concerns	No concerns	No concerns	No concerns	High
Barriers and facilitators arising from circumstances and opportunity to participate						
Weight management services and opportunities to exercise and eat healthily were not always available to patients	Coupe 2018 Holt 2021 Hunt 2014 Jolly 2020 Taylor 2020	No concerns	No concerns	No concerns	No concerns	High
Patients reported many circumstances that restricted their ability to commit to a weight management program	Coupe 2018 Jolly 2020 Morrison 2014	No concerns	Minor concerns[3]	No concerns	No concerns	Moderate

Summary of review finding	Studies	Methodological limitations	Relevance	Coherence	Adequacy	Confidence
	Taylor 2020					
Weight management was not accessible for some patients due to their physical or mental health	Coupe 2018 Holt 2021 Hunt 2014 Taylor 2020	Minor concerns[1]	No concerns	Minor concerns[5]	No concerns	Moderate
Barriers and facilitators arising from the structure of weight management programs						
Timing, location and cost had a substantial influence on attendance	Coupe 2018 Jolly 2020 McDonald 2020 Morrison 2014 Taylor 2020	No concerns	Minor concerns[3]	No concerns	No concerns	Moderate
The content and approach of the program affected patients' willingness to participate	Coupe 2018 Hunt 2014 Jolly 2020 Morrison 2014 Taylor 2020	No concerns	Minor concerns[3]	No concerns	No concerns	Moderate
Some participants preferred the focus not to be on weight management.	Hunt 2014 Jolly 2020	Moderate concerns[2]	Minor concerns[3]	No concerns	Minor concerns[7]	Low
Barriers and facilitators arising from social factors affecting participation						
Good rapport with the staff delivering the program was important, especially when the staff were from similar backgrounds.	Coupe 2018 Holt 2021 Hunt 2014 Jolly 2020 Morrison 2014 Taylor 2020	No concerns	No concerns	No concerns	No concerns	High
Fitting in with the group and feeling socially comfortable were very important to most patients	Coupe 2018 Hunt 2014 Jolly 2020 McDonald 2020 Taylor 2020	No concerns	Minor concerns[3]	No concerns	No concerns	Moderate

Summary of review finding	Studies	Methodological limitations	Relevance	Coherence	Adequacy	Confidence
Family and community support outside of the program also had a substantial impact	Coupe 2018 Hunt 2014 Jolly 2020 McDonald 2020 Taylor 2020	No concerns	Minor concerns[3]	Minor concerns[5]	No concerns	Moderate
Stigma was a prevalent concern, but often subsided once patients began to participate.	Coupe 2018 Elliott 2020 Holt 2021 Hunt 2014 Jolly 2020 McDonald 2020	No concerns	No concerns	No concerns	No concerns	High
Barriers and facilitators arising from diverse community needs						
Gender was a highly influential factor in weight management program participation, especially for men.	Elliott 2020 Hunt 2014 Jolly 2020 McDonald 2020	Minor concerns[1]	Minor concerns[3]	No concerns	No concerns	Moderate
Language and understanding presented barriers to program delivery in many cases	Coupe 2018 Jolly 2020 Morrison 2014 Taylor 2020	No concerns	Minor concerns[3]	No concerns	No concerns	High
Cultural variations in dietary practices need to be taken into account when delivering weight management.	Coupe 2018 Jolly 2020 Morrison 2014 Taylor 2020	No concerns	Minor concerns[3]	No concerns	No concerns	High
It is important to strike the right balance of representation and tailoring towards the communities targeted by the weight management program	Coupe 2018 Jolly 2020 Morrison 2014 Taylor 2020	No concerns	Minor concerns[3]	No concerns	No concerns	High

1. Finding was downgraded once because it was identified mainly in studies at moderate or high risk of bias
2. Finding was downgraded twice because it was identified mainly in studies at high risk of bias
3. Finding was downgraded once because it was identified mainly in studies that were indirectly or partially relevant
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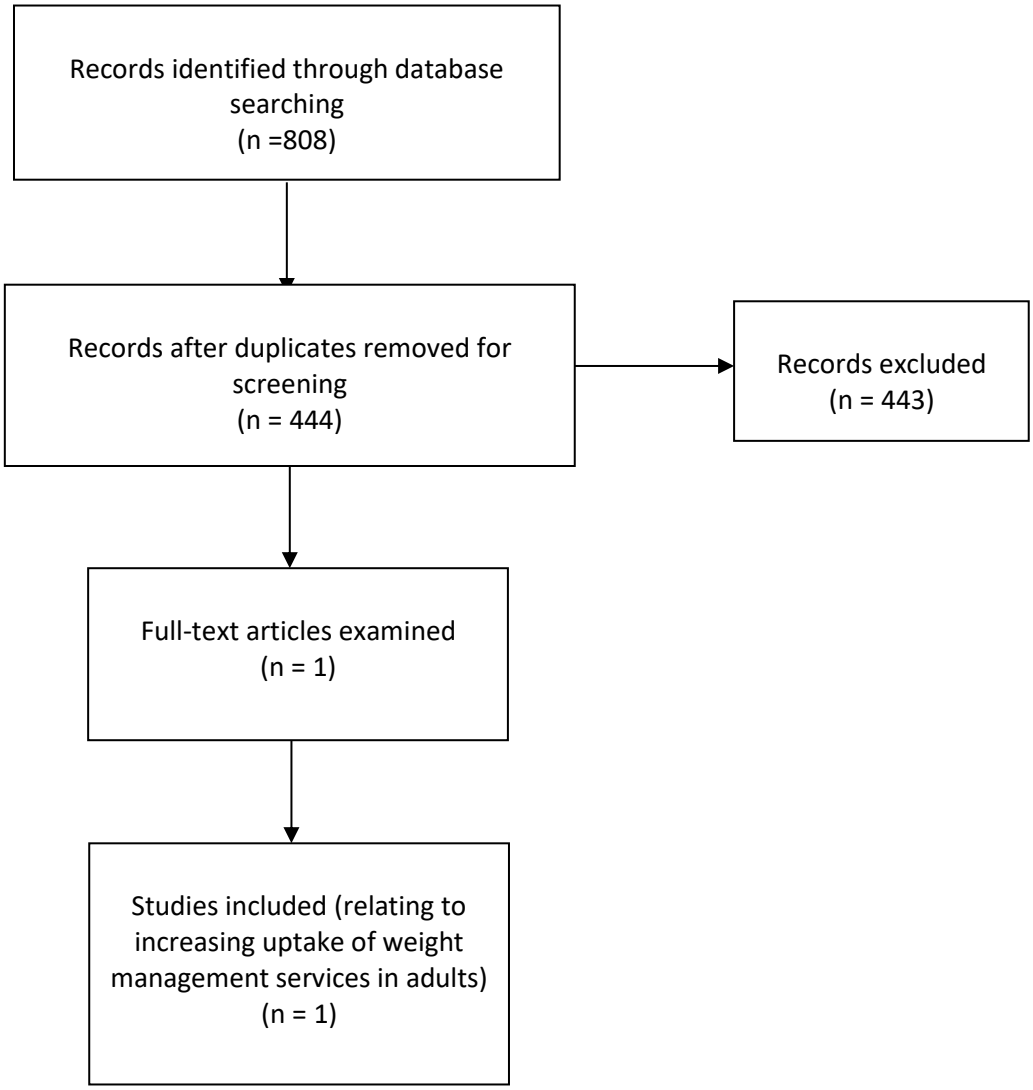
6. Finding me was downgraded twice for coherence because the theme did not emerge from all relevant studies, findings were directly conflicting, or there was no convincing theoretical explanation
7. Finding was downgraded once for adequacy because of insufficient studies (fewer than 3) or insufficient detail
8. Finding was downgraded twice for adequacy because of both insufficient studies (fewer than 3) and insufficient detail

Appendix G - Economic evidence study selection

A combined search was performed for the two review questions included in this evidence review relating to increasing uptake of weight management services in children and young people and increasing uptake of weight management services in adults.



Appendix I – Economic evidence tables

Retat et al. (2019). Screening and brief intervention for obesity in primary care: cost-effectiveness analysis in the BWeL trial.

Study details

Analysis: Cost-utility analysis

Approach to analysis: Virtual cohorts of 20 million people were created by randomly sampling with replacement from the adult population enrolled in the BWeL trial. BMI growth equation was applied to the BMI of cohort members and simulated using a Monte Carlo Process.

BMI related complications considered: Breast cancer, cardiovascular disease, colorectal cancer, type 2 diabetes mellitus, endometrial cancer, hypertension, knee osteoarthritis, oesophageal cancer, ovarian cancer, pancreatic cancer, renal cancer, and stroke.

Time horizon: 20 years or until death from 2015 to 2035.

Discounting: 1.5%

Setting: NHS healthcare payer using a healthcare perspective.

Interventions

Intervention 1: Advice

Intervention 2: Support

Population

Population: BMI of at least 25kg/m^2 for people of Asian ethnicity or 30kg/m2 for people of other ethnicities together with a raised body fat percentage for age and gender.

Data sources

Baseline/natural history: National population statistics.

Incidence of long-term conditions: Published sources which in turn were derived from periodically updated systematic searching and appraisal (Table 2 Appendix).

Effectiveness: Weight loss of each intervention was applied to the cohort representing the participants in each arm of the trial in year 1 of the modelling. In the intervention group, the effect of the intervention depended on whether a patient attended or did not attend the weight loss programme when it was offered, and this was allocated at random in the model. Those that did attend (40% of the trial arm) lost a mean of 4.7kg and those that did not attend lost a mean of 0.7kg. In the advice group, a uniform effect was applied to each member of the cohort, representative of the mean weight loss in the advice arm of the BWeL trial (1.0kg).

Resource use & Costs: Data on direct costs only were obtained from the NHS England programme budgeting cost database 2012-2013. Expenditure figures included only healthcare costs incurred by the NHS. The intervention costs were derived from the BWeL trial.

QoL: A QALY value was assigned to each of the disease states using data on EQ-5D. Most of the EQ-5D measures were obtained from Sullivan et al. (2011) and otherwise from searching the literature.

Base-case results

Intervention	Absolute		Incremental		
	Costs (£)	QALYs	Costs (£)	QALYs	ICER (£)
Support	NR	NR	£2.01million/100,000 persons	992 QALYs/100,000 persons	Dominant
Advice	NR	NR	-	-	-

Sensitivity analyses

Deterministic: Not performed.

Probabilistic: The authors report that as the model is a microsimulation, it was not possible to include probabilistic sensitivity analysis as this would have required a super computer.

Retat et al. (2019). Screening and brief intervention for obesity in primary care: cost-effectiveness analysis in the BWeL trial.	
Comments	**Source of funding:** National Prevention Research Initiative of the UK. **Overall applicability:** Partially applicable (Applicability checklist – see below) **Limitations:** Very serious limitations (Limitations checklist – see below)

Abbreviations: BMI, body mass index; BWeL, Brief Intervention for Weight Loss; NHS, National Health Service; QALYs, quality-adjusted life years

Applicability checklist

Study	1.1 Is the study population appropriate for the review question?	1.2 Are the interventions appropriate for the review question?	1.3 Is the system in which the study was conducted sufficiently similar to the current UK context?	1.4 Is the perspective for costs appropriate for the review question?	1.5 Is the perspective for outcomes appropriate for the review question?	1.6 Are all future costs and outcomes discounted appropriately?	1.7 Are QALYs, derived using NICE's preferred methods, or an appropriate social care-related equivalent used as an outcome?	1.8 Overall judgement
Retat et al. (2019)	Yes	Yes	Yes: UK	Yes: NHS perspective	Yes (UK based study with an NHS perspective)	Partly (Costs and outcomes discounted at 1.5%.)	Yes: UK EQ-5D scores	Partially Applicable

Limitations checklist

Study	2.1 Does the model structure adequately reflect the nature of the topic under evaluation?	2.2 Is the time horizon sufficiently long to reflect all important differences in costs and outcomes?	2.3 Are all important and relevant outcomes included?	2.4 Are the estimates of baseline outcomes from the best available source?	2.5 Are the estimates of relative intervention effects from the best available source?	2.6 Are all important and relevant costs included?	2.7 Are the estimates of resource use from the best available source?	2.8 Are the unit costs of resources from the best available source?	2.9 Is an appropriate incremental analysis presented or can it be calculated from the data?	2.10 Are all important parameters whose values are uncertain subjected to appropriate sensitivity analysis?	2.11 Has no potential financial conflict of interest been declared?	2.12 Overall assessment
Retat et al. (2019)	Yes	Partly (Time horizon of 20 years or until death)	Yes	Yes	Yes: from a RCT	Yes	Yes (UK specific sources have been used)	Yes (UK specific sources have been used)	No	No – No sensitivity analysis was performed	Yes	Very serious limitations

Appendix J – Excluded studies

Quantitative studies

Study	Code [Reason]
Ahern, Amy L, Aveyard, Paul, Boyland, Emma J et al. (2016) Inequalities in the uptake of weight management interventions in a pragmatic trial: an observational study in primary care. The British journal of general practice : the journal of the Royal College of General Practitioners 66(645): e258-63	- Not a relevant study design *Demographics only*
Albury, Charlotte, Stokoe, Elizabeth, Ziebland, Sue et al. (2018) GP-delivered brief weight loss interventions: a cohort study of patient responses and subsequent actions, using conversation analysis in UK primary care. The British journal of general practice : the journal of the Royal College of General Practitioners 68(674): e646-e653	- Does not contain relevant outcome measures
Allison, Kim, Jones, Sarah, Hinman, Rana S et al. (2021) Effects of an online education program on physiotherapists' confidence in weight management for people with osteoarthritis: a randomized controlled trial. Arthritis care & research	- Does not contain a relevant population *Physiotherapists training*
Amiri, Parisa, Karimi, Mehrdad, Jalali-Farahani, Sara et al. (2021) Does Motivational Interviewing Improve the Weight Management Process in Adolescents? A Systematic Review and Meta-analysis. International journal of behavioral medicine	- SR checked
Ashton, Lee M, Sharkey, Thomas, Whatnall, Megan C et al. (2020) Which behaviour change techniques within interventions to prevent weight gain and/or initiate weight loss improve adiposity outcomes in young adults? A systematic review and meta-analysis of randomized controlled trials. Obesity reviews : an official journal of the International Association for the Study of Obesity 21(6): e13009	- Does not contain relevant outcome measures
Bailey-Davis, Lisa, Peyer, Karissa L, Fang, Yinan et al. (2017) Effects of Enhancing School-Based Body Mass Index Screening Reports with Parent Education on Report Utility and Parental Intent To Modify Obesity Risk Factors. Childhood obesity (Print) 13(2): 164-171	- Does not contain relevant outcome measures
Ball, Geoff D C, Sebastianski, Meghan, Wijesundera, Jessica et al. (2021) Strategies to reduce attrition in managing paediatric obesity: A systematic review. Pediatric obesity 16(4): e12733	- SR checked
Barnes, Rachel D, Ivezaj, Valentina, Martino, Steve et al. (2017) Back to Basics? No Weight Loss from Motivational Interviewing Compared to Nutrition Psychoeducation at One-Year Follow-Up. Obesity (Silver Spring, Md.) 25(12): 2074-2078	- Does not contain relevant outcome measures

Study	Code [Reason]
Bean, M K, Ingersoll, K S, Powell, P et al. (2018) Impact of motivational interviewing on outcomes of an adolescent obesity treatment: results from the MI Values randomized controlled pilot trial. Clinical obesity 8(5): 323-326	- Does not contain relevant outcome measures
Befort, Christie A, Kurz, Danny, VanWormer, Jeffrey J et al. (2020) Recruitment and reach in a pragmatic behavioral weight loss randomized controlled trial: implications for real-world primary care practice. BMC family practice 21(1): 47	- Study does not contain a relevant intervention *Recruitment to RCT*
Biggs, Bridget K, Vickers, Kristin S, Hathaway, Julie C et al. (2022) Acceptability of a brief, intensive adolescent obesity intervention with wellness coaching. Clinical Practice in Pediatric Psychology: no-specified	- Intervention is for weight management not for uptake of services
Black, Maureen M, Hager, Erin R, Le, Katherine et al. (2010) Challenge! Health promotion/obesity prevention mentorship model among urban, black adolescents. Pediatrics 126(2): 280-8	- Does not contain relevant outcome measures
Bordowitz, Richard; Morland, Kimberly; Reich, Douglas (2007) The use of an electronic medical record to improve documentation and treatment of obesity. Family medicine 39(4): 274-9	- Study does not contain a relevant intervention *For referral but not uptake*
Bourhill, Jana, Lee, Joseph J, Frie, Kerstin et al. (2021) What Makes Opportunistic GP Interventions Effective? An Analysis of Behavior Change Techniques Used in 237 GP-Delivered Brief Interventions for Weight Loss. Annals of behavioral medicine : a publication of the Society of Behavioral Medicine 55(3): 228-241	- Review article but not a systematic review
Bradbury, Katherine, Dennison, Laura, Little, Paul et al. (2015) Using mixed methods to develop and evaluate an online weight management intervention. British journal of health psychology 20(1): 45-55	- Does not contain relevant outcome measures
Bryant, M., Burton, W., Collinson, M. et al. (2019) The Optimising Family Engagement in HENRY (OFTEN) cluster randomised controlled trial: Increasing impact in obesity prevention. Obesity Facts 12(supplement1): 243-244	- Conference abstract
Burgess, E, Hassmen, P, Welvaert, M et al. (2017) Behavioural treatment strategies improve adherence to lifestyle intervention programmes in adults with obesity: a systematic review and meta-analysis. Clinical obesity 7(2): 105-114	- SR checked

Study	Code [Reason]
Byrne, J L S, Cameron Wild, T, Maximova, K et al. (2018) A brief eHealth tool delivered in primary care to help parents prevent childhood obesity: a randomized controlled trial. Pediatric obesity 13(11): 659-667	- Data not reported in an extractable format
Campbell-Scherer, Denise L, Asselin, Jodie, Osunlana, Adedayo M et al. (2014) Implementation and evaluation of the 5As framework of obesity management in primary care: design of the 5As Team (5AsT) randomized control trial. Implementation science : IS 9: 78	- Not a relevant study design *Design only, no results*
Carels, Robert A, Darby, Lynn, Cacciapaglia, Holly M et al. (2007) Using motivational interviewing as a supplement to obesity treatment: a stepped-care approach. Health psychology : official journal of the Division of Health Psychology, American Psychological Association 26(3): 369-74	- Does not contain relevant outcome measures
Chan, Renee, Nguyen, Matthew, Smith, Rachel et al. (2019) Effect of Serial Anthropometric Measurements and Motivational Text Messages on Weight Reduction Among Workers: Pilot Randomized Controlled Trial. JMIR mHealth and uHealth 7(4): e11832	- Study does not contain a relevant intervention *intervention was for WM not for uptake*
Chomitz, Virginia R, Collins, Jessica, Kim, Juhee et al. (2003) Promoting healthy weight among elementary school children via a health report card approach. Archives of pediatrics & adolescent medicine 157(8): 765-72	- Study does not contain a relevant intervention *Identification not uptake*
Cohen, Anne, Perozich, Alyssa, Rajan, Radha et al. (2017) Framed, interactive theory-driven texting: Effects of message framing on health behavior change for weight loss. Family & Community Health: The Journal of Health Promotion & Maintenance 40(1): 43-51	- Comparator in study does not match that specified in protocol *No control group*
Crane, Melissa M, LaRose, Jessica Gokee, Espeland, Mark A et al. (2016) Recruitment of young adults for weight gain prevention: randomized comparison of direct mail strategies. Trials 17(1): 282	- Not a relevant study design
Crane, Melissa M, Seburg, Elisabeth M, Levy, Rona L et al. (2020) Using targeting to recruit men and women of color into a behavioral weight loss trial. Trials 21(1): 537	- Study does not contain a relevant intervention *recruitment to RCT, not to WM*
Cui, Zhaohui, Seburg, Elisabeth M, Sherwood, Nancy E et al. (2015) Recruitment and retention in obesity prevention and treatment trials targeting minority or low-income children: a review of the clinical trials registration database. Trials 16: 564	- Study does not contain a relevant intervention

Study	Code [Reason]
	recruitment to RCTs not to services
Dalton, William T 3rd, Schetzina, Karen E, McBee, Matthew T et al. (2013) Parent report of child's health-related quality of life after a primary-care-based weight management program. Childhood obesity (Print) 9(6): 501-8	- Does not contain relevant outcome measures
Dawson, Anna M, Brown, Deirdre A, Cox, Adell et al. (2014) Using motivational interviewing for weight feedback to parents of young children. Journal of paediatrics and child health 50(6): 461-70	- Does not contain relevant outcome measures
DiMarco, Ilyse Dobrow, Klein, Dena A, Clark, Vicki L et al. (2009) The use of motivational interviewing techniques to enhance the efficacy of guided self-help behavioral weight loss treatment. Eating behaviors 10(2): 134-6	- Does not contain relevant outcome measures
Dodd-Reynolds, Caroline J, Nevens, Lisa, Oliver, Emily J et al. (2019) Prototyping for public health in a local context: a streamlined evaluation of a community-based weight management programme (Momenta), Northumberland, UK. BMJ open 9(10): e029718	- Non-RCT studies not needed
Dombrowski, Stephan U, McDonald, Matthew, van der Pol, Marjon et al. (2020) No title provided.	- Study does not contain a relevant intervention *Incentives for weight loss, not for uptake*
Dombrowski, Stephan U, McDonald, Matthew, van der Pol, Marjon et al. (2020) Text messaging and financial incentives to encourage weight loss in men with obesity: the Game of Stones feasibility RCT. Public Health Research 9	- Duplicate reference
Doring, Nora, Ghaderi, Ata, Bohman, Benjamin et al. (2016) Motivational Interviewing to Prevent Childhood Obesity: A Cluster RCT. Pediatrics 137(5)	- Conference abstract
Doring, Nora, Hansson, Lena M, Andersson, Elina Scheers et al. (2014) Primary prevention of childhood obesity through counselling sessions at Swedish child health centres: design, methods and baseline sample characteristics of the PRIMROSE cluster-randomised trial. BMC public health 14: 335	- Does not contain relevant outcome measures
Durrer, D. and Schutz, Y. (2010) Motivational interviewing: Is it efficient in the context of a general practice?. Obesity Reviews 11(suppl1): 322	- Conference abstract

Study	Code [Reason]
Fagg, James, Cole, Tim J, Cummins, Steven et al. (2015) After the RCT: who comes to a family-based intervention for childhood overweight or obesity when it is implemented at scale in the community?. Journal of epidemiology and community health 69(2): 142-8	- Study does not contain a relevant intervention *Uptake to RCT*
Faghri, Pouran D. and Li, Rui (2014) Effectiveness of financial incentives in a worksite diabetes prevention program. Open Obesity Journal 6(1): 1-12	- Study does not contain a relevant intervention *Incentives for weight loss not uptake*
Flodgren, G; Gonçalves-Bradley, DC; Summerbell, CD (2017) Interventions to change the behaviour of health professionals and the organisation of care to promote weight reduction in children and adults with overweight or obesity. Cochrane Database of Systematic Reviews	- SR checked
Freira, Silvia, Fonseca, Helena, Williams, Geoffrey et al. (2019) Quality-of-life outcomes of a weight management program for adolescents based on motivational interviewing. Patient education and counseling 102(4): 718-725	- Does not contain relevant outcome measures
Glasgow, Russell E, Nelson, Candace C, Kearney, Kathleen A et al. (2007) Reach, engagement, and retention in an Internet-based weight loss program in a multi-site randomized controlled trial. Journal of medical Internet research 9(2): e11	- Study does not contain a relevant intervention *Enrolment to RCT, not WM*
Gourlan, Mathieu; Sarrazin, Philippe; Trouilloud, David (2013) Motivational interviewing as a way to promote physical activity in obese adolescents: a randomised-controlled trial using self-determination theory as an explanatory framework. Psychology & health 28(11): 1265-86	- Does not contain relevant outcome measures
Graham, J, Tudor, K, Jebb, S A et al. (2019) The equity impact of brief opportunistic interventions to promote weight loss in primary care: secondary analysis of the BWeL randomised trial. BMC medicine 17(1): 51	- Does not contain relevant outcome measures
Guagliano, Justin M., Morton, Katie L., van Sluijs, Esther M.F. et al. (2021) Effective and resource-efficient strategies for recruiting families in physical activity, sedentary behavior, nutrition, and obesity prevention research: A systematic review with expert opinion. Obesity Reviews 22(4): e13161	- SR checked
Hopkins, Laura C., Fristad, Mary, Goodway, Jacqueline D. et al. (2018) Feasibility and acceptability of technologybased caregiver engagement strategies delivered in a summertime childhood obesity prevention	- Not a relevant study design

Study	Code [Reason]
intervention: Results from an internal pilot of the Camp NERF (Nutrition, Education, Recreation, and Fitness) study. Pilot and Feasibility Studies 4(1): 153	*Qualitative*
Howarth, Elizabeth, Cotterill, Sarah, Bower, Peter J et al. (2020) 'Going the distance': An independent cohort study of engagement and dropout among the first 100 000 referrals into a large-scale diabetes prevention program. BMJ Open Diabetes Research and Care 8(2): 1835	- Non-RCT studies not needed
Iaia, M, Pasini, M, Burnazzi, A et al. (2017) An educational intervention to promote healthy lifestyles in preschool children: a cluster-RCT. International journal of obesity (2005) 41(4): 582-590	- Does not contain relevant outcome measures
Jebb, Susan A, Ahern, Amy L, Olson, Ashley D et al. (2011) Primary care referral to a commercial provider for weight loss treatment versus standard care: a randomised controlled trial. Lancet (London, England) 378(9801): 1485-92	- Does not contain relevant outcome measures
Jensen, Chad D, Duraccio, Kara M, Barnett, Kimberly A et al. (2019) Feasibility, acceptability, and preliminary effectiveness of an adaptive text messaging intervention for adolescent weight control in primary care. Clinical Practice in Pediatric Psychology 7(1): 57-67	- Does not contain relevant outcome measures
John, Leslie K, Troxel, Andrea B, Yancy, William S Jr et al. (2018) The Effect of Cost Sharing on an Employee Weight Loss Program: A Randomized Trial. American journal of health promotion : AJHP 32(1): 170-176	- Comparator in study does not match that specified in protocol *No proper control group, all conditions involve incentives*
Jolly, Kate, Griffin, Tania, Sidhu, Manbinder et al. (2020) A weight management programme for fathers of children aged 4-11 years: cultural adaptation and the Healthy Dads, Healthy Kids UK feasibility RCT.	- Study does not contain a relevant intervention *Intervention is WM, not for uptake*
Jones, Rebecca A, Mueller, Julia, Sharp, Stephen J et al. (2021) The impact of participant mental health on attendance and engagement in a trial of behavioural weight management programmes: secondary analysis of the WRAP randomised controlled trial. The international journal of behavioral nutrition and physical activity 18(1): 146	- Not a relevant study design *Correlation*
Kelleher, M., Harrington, D., Shiely, D. et al. (2017) If you build it will they come? An analysis of the recruitment of families to a community-based, multi-disciplinary childhood weight-management programme. Obesity Facts 10(supplement1): 237-238	- Conference abstract

Study	Code [Reason]
Kong, A.S., Sussman, A.L., Yahne, C. et al. (2012) School-based health center intervention improves body mass index in overweight and obese adolescents. Clinical and Translational Science 5(2): 155	- Does not contain relevant outcome measures
Korhonen, Paivi E; Jarvenpaa, Salme; Kautiainen, Hannu (2014) Primary care-based, targeted screening programme to promote sustained weight management. Scandinavian journal of primary health care 32(1): 30-6	- Does not contain relevant outcome measures
Ladapo, Joseph A, Orstad, Stephanie L, Wali, Soma et al. (2023) Effectiveness of Goal-Directed and Outcome-Based Financial Incentives for Weight Loss in Primary Care Patients With Obesity Living in Socioeconomically Disadvantaged Neighborhoods: A Randomized Clinical Trial. JAMA internal medicine 183(1): 61-69	- Does not contain relevant outcome measures
Lam, E; Partridge, S R; Allman-Farinelli, M (2016) Strategies for successful recruitment of young adults to healthy lifestyle programmes for the prevention of weight gain: a systematic review. Obesity reviews : an official journal of the International Association for the Study of Obesity 17(2): 178-200	- SR checked
Lanoye, A., Caccavale, L.J., Robichaud, E. et al. (2016) A mixed methods approach to improving recruitment and engagement of emerging adults in behavioural weight loss programs. Obesity Science and Practice 2(4): 341-354	- Duplicate reference
LaRose, Jessica Gokee, Lanoye, Autumn, Gorin, Amy A et al. (2020) Using motivational interviewing to enhance emerging adults' engagement in weight loss: The Live Well RVA pilot randomized clinical trial. Obesity Science and Practice 6(5): 460-472	- Comparator in study does not match that specified in protocol *Standard WM program content differs between study arms*
Logue, J. (2019) Small talk big difference: Results of a randomised controlled trial of an online educational intervention to improve the quality and rate of primary-care referrals to weight management programmes for patients with type 2 diabetes and obesity. Obesity Facts 12(supplement1): 31	- Conference abstract
Love-Osborne, Kathy, Fortune, Rachel, Sheeder, Jeanelle et al. (2014) School-based health center-based treatment for obese adolescents: feasibility and body mass index effects. Childhood obesity (Print) 10(5): 424-431	- Does not contain relevant outcome measures *Attendance was only recorded for anthropometric measuring sessions*

Study	Code [Reason]
Macleod, Maureen, Craigie, Angela M, Barton, Karen L et al. (2013) Recruiting and retaining postpartum women from areas of social disadvantage in a weight-loss trial--an assessment of strategies employed in the WeighWell feasibility study. Maternal & child nutrition 9(3): 322-31	- Study does not contain a relevant intervention *Recruitment to RCT, not WM*
Madsen, Kristine, Garber, Andrea, Martin, Maria et al. (2014) The feasibility of a physical activity referral network for pediatric obesity. Childhood obesity (Print) 10(2): 169-74	- Comparator in study does not match that specified in protocol *No control group*
Maula, Asiya, Kendrick, Denise, Kai, Joe et al. (2021) Evidence generated from a realist synthesis of trials on educational weight loss interventions in type 2 diabetes mellitus. Diabetic medicine : a journal of the British Diabetic Association 38(1): e14394	- SR checked
McDonald, Matthew D, Dombrowski, Stephan U, Skinner, Rebecca et al. (2020) Recruiting men from across the socioeconomic spectrum via GP registers and community outreach to a weight management feasibility randomised controlled trial. BMC medical research methodology 20(1): 249	- Study does not contain a relevant intervention *Recruitment to RCT, not WM*
McDonald, Matthew, Calveley, Eileen, Glennie, Nicola et al. (2019) Game of Stones: A feasibility randomised controlled trial of narrative short message system (SMS) and financial incentive interventions to support weight loss in men with obesity. Trials 20(supplement1)	- Conference abstract
McTigue, Kathleen M., Simkin-Silverman, Laurey R., Conroy, Molly B. et al. (2014) Online counseling to enable lifestyle-focused obesity treatment in primary care. Journal of General Internal Medicine 29(suppl1): 158-s159	- Does not contain relevant outcome measures
McVay, Megan A, Donahue, Marissa L, Cheong, JeeWon et al. (2020) Effects of Intervention Characteristics on Willingness to Initiate a Weight Gain Prevention Program. American journal of health promotion : AJHP 34(8): 837-847	- Does not contain relevant outcome measures *Willingness, not actual uptake*
Micco, Nicci, Gold, Beth, Buzzell, Paul et al. (2007) Minimal in-person support as an adjunct to internet obesity treatment. Annals of behavioral medicine : a publication of the Society of Behavioral Medicine 33(1): 49-56	- Comparator in study does not match that specified in protocol
Mirkarimi, K, Mostafavi, F, Ozouni-Davaji, RB et al. (2017) The effect of weight loss program on overweight and obese females based on	- Non-OECD country

Study	Code [Reason]
protection motivation theory: a randomized control trial. Iranian red crescent medical journal 19(1)	*Iran*
Mirkarimi, Kamal, Mostafavi, Firoozeh, Eshghinia, Samira et al. (2015) Effect of motivational interviewing on a weight loss program based on the protection motivation theory. Iranian Red Crescent Medical Journal 17(6): e23492	- Non-OECD country *Iran*
Mirkarimi, SK and Kabir, MJ (2015) Comparing the effect of motivational interviewing and standard nutrition education on promoting adherence to weight loss program in obese and overweight women: a randomized clinical trial. Journal of mazandaran university of medical sciences 25(124): 200-208	- Study not reported in English
Nguyen, Nam Hoang, Kebbe, Maryam, Peng, Chenhui et al. (2020) Public health nurse referrals for paediatric weight management: A nested mixed-methods study. Journal of clinical nursing 29(1718): 3263-3271	- Not a relevant study design *Qualitative*
Nyberg, Gisela, Norman, Asa, Sundblom, Elinor et al. (2016) Effectiveness of a universal parental support programme to promote health behaviours and prevent overweight and obesity in 6-year-old children in disadvantaged areas, the Healthy School Start Study II, a cluster-randomised controlled trial. The international journal of behavioral nutrition and physical activity 13: 4	- Does not contain relevant outcome measures
Nyberg, Gisela, Sundblom, Elinor, Norman, Asa et al. (2015) Effectiveness of a universal parental support programme to promote healthy dietary habits and physical activity and to prevent overweight and obesity in 6-year-old children: the Healthy School Start Study, a cluster-randomised controlled trial. PloS one 10(2): e0116876	- Does not contain relevant outcome measures
Pakpour, Amir H, Gellert, Paul, Dombrowski, Stephan U et al. (2015) Motivational interviewing with parents for obesity: An RCT. Pediatrics 135(3): e644-e652	- Non-OECD country *Iran*
Palezac, Lidija, Relan, Shilpi, Jacobson, Marc S. et al. (2017) Specialty weight management clinic management for pediatric BMI reduction in a high needs population. Endocrine Reviews 38(3supplement1)	- Conference abstract
Parra-Medina, Deborah, D'antonio, Angela, Smith, Sharon M et al. (2004) Successful recruitment and retention strategies for a randomized weight management trial for people with diabetes living in rural, medically underserved counties of South Carolina: the POWER study. Journal of the American Dietetic Association 104(1): 70-5	- Study does not contain a relevant intervention *Recruitment to RCT not to WM*

Study	Code [Reason]
Patel, Michele L, Wakayama, Lindsay N, Bass, Michelle B et al. (2019) Motivational interviewing in eHealth and telehealth interventions for weight loss: A systematic review. Preventive medicine 126: 105738	- SR checked
Pellegrini, Christine A, Verba, Steven D, Otto, Amy D et al. (2012) The comparison of a technology-based system and an in-person behavioral weight loss intervention. Obesity (Silver Spring, Md.) 20(2): 356-63	- Does not contain relevant outcome measures
Pirotta, Stephanie, Joham, Anju, Hochberg, Lisa et al. (2019) Strategies to reduce attrition in weight loss interventions: A systematic review and meta-analysis. Obesity reviews : an official journal of the International Association for the Study of Obesity 20(10): 1400-1412	- SR checked
Pouwels, S., Raaijmakers, L., Berghuis, K. et al. (2017) Technology-based interventions in the treatment of overweight and obesity: A systematic review. Obesity Facts 10(supplement1): 146	- Conference abstract
Robertson, Clare, Archibald, Daryll, Avenell, Alison et al. (2014) Systematic reviews of and integrated report on the quantitative, qualitative and economic evidence base for the management of obesity in men. Health technology assessment (Winchester, England) 18(35): v-424	- SR checked
Rodriguez-Cristobal, Juan Jose, Alonso-Villaverde, Carlos, Panisello, Jose Ma et al. (2017) Effectiveness of a motivational intervention on overweight/obese patients in the primary healthcare: a cluster randomized trial. BMC family practice 18(1): 74	- Does not contain relevant outcome measures
Rothberg, Amy E, McEwen, Laura N, Fraser, Tom et al. (2013) The impact of a managed care obesity intervention on clinical outcomes and costs: a prospective observational study. Obesity (Silver Spring, Md.) 21(11): 2157-62	- Does not contain relevant outcome measures
Shell, Aubrey L., Hsueh, Loretta, Stewart, Jesse C. et al. (2020) Depressive symptom severity as a predictor of attendance in the HOME behavioral weight loss trial. Journal of Psychosomatic Research 131: 109970	- Not a relevant study design *Correlation*
Smith, Anna Jo, Skow, Aine, Bodurtha, Joann et al. (2013) Health information technology in screening and treatment of child obesity: a systematic review. Pediatrics 131(3): e894-902	- SR checked
Solbrig, Linda, Whalley, Ben, Kavanagh, David J et al. (2019) Functional imagery training versus motivational interviewing for weight loss: a randomised controlled trial of brief individual interventions for overweight and obesity. International journal of obesity (2005) 43(4): 883-894	- Comparator in study does not match that specified in protocol *No control group*

Study	Code [Reason]
Stark, Lori J., Spear Filigno, Stephanie, Kichler, Jessica C. et al. (2018) Clinic and Home-Based Behavioral Intervention for Obesity in Preschoolers: A Randomized Trial. Journal of Pediatrics 192: 115	- Does not contain relevant outcome measures
Sykes-Muskett, Bianca J, Prestwich, Andrew, Lawton, Rebecca J et al. (2015) The utility of monetary contingency contracts for weight loss: a systematic review and meta-analysis. Health psychology review 9(4): 434-51	- SR checked
Tate, Deborah F, Valle, Carmina G, Crane, Melissa M et al. (2017) Randomized trial comparing group size of periodic in-person sessions in a remotely delivered weight loss intervention. The international journal of behavioral nutrition and physical activity 14(1): 144	- Comparator in study does not match that specified in protocol *No control group*
Tseng, Eva, Wang, Nae-Yuh, Clark, Jeanne M. et al. (2015) Role of PCP referral and weight loss in the Hopkins POWER trial. Preventive Medicine Reports 2: 968-972	- Not a relevant study design *Correlational*
Walpole, Beverly, Dettmer, Elizabeth, Morrongiello, Barbara A et al. (2013) Motivational interviewing to enhance self-efficacy and promote weight loss in overweight and obese adolescents: A randomized controlled trial. Journal of Pediatric Psychology 38(9): 944-953	- Does not contain relevant outcome measures
Ware, Lisa J, Hurling, Robert, Bataveljic, Ogi et al. (2008) Rates and determinants of uptake and use of an internet physical activity and weight management program in office and manufacturing work sites in England: cohort study. Journal of medical Internet research 10(4): e56	- Study does not contain a relevant intervention *Intervention did not target uptake*
Waring, Molly E, Roberts, Mary B, Parker, Donna R et al. (2009) Documentation and management of overweight and obesity in primary care. Journal of the American Board of Family Medicine : JABFM 22(5): 544-52	- Study does not contain a relevant intervention *Just baseline data*
Webber, Kelly H; Tate, Deborah F; Quintiliani, Lisa M (2008) Motivational interviewing in internet groups: a pilot study for weight loss. Journal of the American Dietetic Association 108(6): 1029-32	- Study does not contain a relevant intervention *Intervention was for weight management directly, not for uptake*
Welsh, Jean A, Nelson, Jennifer M, Walsh, Stephanie et al. (2015) Brief training in patient-centered counseling for healthy weight management increases counseling self-efficacy and goal setting among pediatric	- Does not contain relevant outcome measures

Study	Code [Reason]
primary care providers: results of a pilot program. Clinical pediatrics 54(5): 425-9	
West, Delia Smith, DiLillo, Vicki, Bursac, Zoran et al. (2007) Motivational interviewing improves weight loss in women with type 2 diabetes. Diabetes care 30(5): 1081-7	- Study does not contain a relevant intervention *WM intervention is specifically for diabetes, so not generalisable*
Williams, L.T., Hollis, J.L., Collins, C.E. et al. (2014) Can a relatively low-intensity intervention by health professionals prevent weight gain in mid-age women? 12-month outcomes of the 40-something randomised controlled trial. Nutrition and Diabetes 4(5): e116	- Study does not contain a relevant intervention *MI for WM not for uptake*
Wong, Emmy M. Y and Cheng, May M. H (2013) Effects of motivational interviewing to promote weight loss in obese children. Journal of Clinical Nursing 22(1718): 2519-2530	- Does not contain relevant outcome measures
Woolford, Susan J. and Clark, Sarah J. (2009) Tailored mobile phone text messages as an adjunct to obesity treatment for adolescents. Journal of Adolescent Health 44(2suppl1): 1	- Not a relevant study design
Wyatt, Katrina. et al. (2011) The development, feasability and acceptability of a school-based obesity prevention programme: results from three phases of piloting. BMJ Open 1(1)	- Does not contain relevant outcome measures
Xu, Xiaomeng, Leahey, Tricia M, Boguszewski, Katherine et al. (2017) Self-Expansion is Associated with Better Adherence and Obesity Treatment Outcomes in Adults. Annals of behavioral medicine : a publication of the Society of Behavioral Medicine 51(1): 13-17	- Does not contain relevant outcome measures *Adherence was measured for the intervention itself, not for WM*
Yancey, A K, Miles, O L, McCarthy, W J et al. (2001) Differential response to targeted recruitment strategies to fitness promotion research by African-American women of varying body mass index. Ethnicity & disease 11(1): 115-23	- Study does not contain a relevant intervention *Recruitment pre-RCT*
Yardley, Lucy, Ware, Lisa J, Smith, Emily R et al. (2014) Randomised controlled feasibility trial of a web-based weight management intervention with nurse support for obese patients in primary care. The international journal of behavioral nutrition and physical activity 11: 67	- Does not contain relevant outcome measures

Study	Code [Reason]
You, Wen, Yuan, Yuan, Boyle, Kevin J. et al. (2021) Examining Ways to Improve Weight Control Programs' Population Reach and Representativeness: A Discrete Choice Experiment of Financial Incentives. PharmacoEconomics - Open	- Study does not contain a relevant intervention *Preferences not efficacy*

Qualitative studies

Study	Code [Reason]
Abdin, Shanara; Welch, Richard K.; Heath, Gemma (2021) Health professionals' views and experiences of discussing weight with children and their families: A systematic review of qualitative research. Child: care, health and development 47(4): 562-574	- SR checked
Aboueid, Stephanie; Bourgeault, Ivy; Giroux, Isabelle (2018) Nutrition care practices of primary care providers for weight management in multidisciplinary primary care settings in Ontario, Canada - a qualitative study. BMC family practice 19(1): 69	- Does not contain relevant findings *Nutrition*
Aboueid, Stephanie, Pouliot, Catherine, Nur, Teeyaa et al. (2019) Dietitians' perspectives on patient barriers and enablers to weight management: An application of the social-ecological model. Nutrition & dietetics: the journal of the Dietitians Association of Australia 76(3): 353-362	- Non-UK study not needed as sufficient UK evidence found
Ahern, A., Boyland, E., Jebb, S. et al. (2012) Weight loss interventions in primary care: A qualitative study of participants; accounts of commercial referral and standard care. Obesity Facts 5(suppl1): 196	- Conference abstract
Ahern, Amy L, Boyland, Emma J, Jebb, Susan A et al. (2013) Participants' explanatory model of being overweight and their experiences of 2 weight loss interventions. Annals of family medicine 11(3): 251-7	- Does not contain relevant findings *Experiences not B&F*
Albury, Charlotte, Stokoe, Elizabeth, Ziebland, Sue et al. (2018) GP-delivered brief weight loss interventions: a cohort study of patient responses and subsequent actions, using conversation analysis in UK primary care. The British journal of general practice : the journal of the Royal College of General Practitioners 68(674): e646-e653	- Does not contain qualitative data
Alexander, Shirley, Cohen, Jennifer, Signorelli, Christina et al. (2021) Clinician and healthcare managers' perspectives on the delivery of secondary and tertiary pediatric weight management services. Journal of Child Health Care	- Does not contain relevant findings *Implementation not uptake*

Study	Code [Reason]
Allen, Jodie T; Cohn, Simon R; Ahern, Amy L (2015) Experiences of a commercial weight-loss programme after primary care referral: a qualitative study. The British journal of general practice : the journal of the Royal College of General Practitioners 65(633): e248-55	- Does not contain relevant findings *Experiences rather than uptake*
Allman-Farinelli, Margaret, Chen, Lily, Enright, Gemma et al. (2020) What Motivates Engagement in a Community-Based Behavior Change Strategy for Overweight Children?. Health promotion practice: 1524839920944859	- OECD subset studies not needed as UK studies stufficient
Almiron-Roig, Eva; Vaughan, David; Jebb, Susan A. (2016) A qualitative analysis of barriers and facilitators in using portion control tools for weight control. Proceedings of the Nutrition Society 75(oce3): e256	- Conference abstract
Ann Russell, Holly; Rufus, Cheryl; Fogarty, Colleen (2013) 'You need a support. When you don't have that . . . chocolate looks real good': barriers to and facilitators of behavioural changes among participants of a Healthy Living Program. Family Practice 30(4): 452-458	- Country not in the selected group *USA*
Anti, Eliza, Laurent, Jennifer S, Tompkins, Connie et al. (2016) The health care provider's experience with fathers of overweight and obese children: A qualitative analysis. Journal of Pediatric Health Care 30(2): 99-107	- Country not in the selected group *USA*
Appleton, Jessica; Fowler, Cathrine; Brown, Nicola (2017) Parents' views on childhood obesity: qualitative analysis of discussion board postings. Contemporary nurse 53(4): 410-420	- Not a relevant study design *content analysis*
Arai, Lisa, Panca, Monica, Morris, Steve et al. (2015) Time, monetary and other costs of participation in family-based child weight management interventions: qualitative and systematic review evidence. PloS one 10(4): e0123782	- SR checked
Archibald, Daryll, Douglas, Flora, Hoddinott, Pat et al. (2015) A qualitative evidence synthesis on the management of male obesity. BMJ open 5(10): e008372	- SR checked
Arnold, Austin; Holmes, Erin; Rosenthal, Meagen (2019) Building a patient-centeredweight management program: A mixed methods project to obtain patients' information needs and ideas for program structure. Pharmacy 7(4): 165	- Country not in the selected group *USA*
Bailey, Karen, Blinder, Henrietta, Kin, Bethany Easterbrook et al. (2019) Understanding paediatric patients' attitudes toward obesity and expectations prior to entering a weight management program. Paediatrics and Child Health (Canada) 24(1): e26-e32	- OECD subset studies not needed as UK studies stufficient

Study	Code [Reason]
Bailey, Karen, Pemberton, Julia, Blinder, Henrietta et al. (2015) Understanding pediatric patients' attitudes toward obesity treatment: A qualitative study. Canadian Journal of Diabetes 39(suppl1): 33-s34	- Conference abstract
Beckenstein, Hailee, Slim, May, Kim, Helene et al. (2021) Acceptability of a structured diet and exercise weight loss intervention in breast cancer survivors living with an overweight condition or obesity: A qualitative analysis. Cancer reports (Hoboken, N.J.) 4(3): e1337	- Does not contain relevant findings *Focus is on cancer, so not generalisable*
Beckerman-Hsu, Jacob P, Gago, Cristina, Aftosmes-Tobio, Alyssa et al. (2021) Acceptability and appropriateness of a novel parent-staff co-leadership model for childhood obesity prevention in Head Start: a qualitative interview study. BMC public health 21(1): 201	- Country not in the selected group *USA*
Bihuniak, Jessica D, Bryant, Tiffany, Kleiman, Jennifer et al. (2020) Behavioural weight loss treatment preferences of college students with overweight and obesity. Clinical obesity 10(1): e12343	- Country not in the selected group *USA*
Bonde, Ane Hostgaard; Bentsen, Peter; Hindhede, Anette Lykke (2014) School nurses' experiences with motivational interviewing for preventing childhood obesity. The Journal of school nursing : the official publication of the National Association of School Nurses 30(6): 448-55	- Does not contain relevant findings *Motivational interviewing is not used for uptake*
Bornhoeft, Kathleen (2018) Perceptions, attitudes, and behaviors of primary care providers toward obesity management: A qualitative study. Journal of Community Health Nursing 35(3): 85-101	- Country not in the selected group *USA*
Bourgeois, N., Kim, S., Brauer, P. et al. (2016) Perspectives of primary care clinicians and parents on a childhood obesity prevention intervention in primary care. Obesity Reviews 17(suppl2): 117	- Conference abstract
Boyden, C.; Wilson, C.; Capehorn, M. (2015) Retrospective analysis of subjective wellbeing and weight loss in patients receiving talking therapies at the Rotherham Institute for Obesity (RIO). Obesity Facts 8(suppl1): 184	- Conference abstract
Bradbury, Daisy, Chisholm, Anna, Watson, Paula M et al. (2018) Barriers and facilitators to health care professionals discussing child weight with parents: A meta-synthesis of qualitative studies. British journal of health psychology 23(3): 701-722	- SR checked
Brautigam-Ewe, Marie, Lydell, Marie, Mansson, Jorgen et al. (2017) Dietary advice on prescription: experiences with a weight reduction programme. Journal of clinical nursing 26(56): 795-804	- Does not contain relevant findings

Study	Code [Reason]
	Success not uptake
Brock, Donna-Jean P, Price, Bryan E., Zoellner, Jamie M. et al. (2021) Assets and Challenges to Recruiting and Engaging Families in a Childhood Obesity Treatment Research Trial: Insights From Academic Partners, Community Partners, and Study Participants. Frontiers in public health 9: 631749	- Does not contain relevant findings *Focused on recruitment to trials*
Brown, Cynthia Williams, Alexander, Dayna S, Warren, Claudia A et al. (2017) A Qualitative Approach: Evaluating the Childhood Health and Obesity Initiative Communities Empowered for Success (CHOICES) Pilot Study. Journal of racial and ethnic health disparities 4(4): 549-557	- Country not in the selected group *USA*
Brown, I. and Gould, J. (2011) Decisions about weight management: A synthesis of qualitative studies of obesity. Clinical Obesity 1(23): 99-109	- SR checked
Burton, Wendy, Twiddy, Maureen, Sahota, Pinki et al. (2019) Participant engagement with a UK community-based preschool childhood obesity prevention programme: a focused ethnography study. BMC public health 19(1): 1074	- Does not contain relevant findings *Implementation not uptake*
Cardel, Michelle I., Szurek, Sarah M., Dillard, Jackson R. et al. (2020) Perceived barriers/facilitators to a healthy lifestyle among diverse adolescents with overweight/obesity: A qualitative study. Obesity Science and Practice 6(6): 638-648	- Country not in the selected group *USA*
Cason-Wilkerson, Rochelle, Goldberg, Shauna, Albright, Karen et al. (2015) Factors influencing healthy lifestyle changes: a qualitative look at low-income families engaged in treatment for overweight children. Childhood obesity (Print) 11(2): 170-6	- Country not in the selected group *USA*
Ciupitu, Carmen Cristina and Babitsch, Birgit (2011) Why is it not working? Identifying barriers to the therapy of paediatric obesity in an intercultural setting. Journal of Child Health Care 15(2): 140-150	- Country not in the selected group *Germany*
Clancy, Shayna M, Stroo, Marissa, Schoenfisch, Ashley et al. (2018) Barriers to Engagement in a Workplace Weight Management Program: A Qualitative Study. American journal of health promotion : AJHP 32(3): 763-770	- Country not in the selected group *USA*
Claridge, Rosemary, Gray, Lesley, Stubbe, Maria et al. (2014) General practitioner opinion of weight management interventions in New Zealand. Journal of primary health care 6(3): 212-20	- Country not in the selected group *New Zealand*

Study	Code [Reason]
Clarke, Ellie; Davies, Sioned; Senniappan, Senthil (2021) The experiences and perceptions of children and young people with obesity participating in virtual exercise sessions. Archives of Disease in Childhood 106(suppl1): a470	- Conference abstract
Clarke, Joanne L, Griffin, Tania L, Lancashire, Emma R et al. (2015) Parent and child perceptions of school-based obesity prevention in England: a qualitative study. BMC public health 15: 1224	- Does not contain relevant findings *Prevention not management*
Cleo, Gina; Hersch, Jolyn; Thomas, Rae (2018) Participant experiences of two successful habit-based weight-loss interventions in Australia: a qualitative study. BMJ open 8(5): e020146	- Does not contain relevant findings *Experiences not B&F*
Coffey, F, Curran, T-I, Kenny, C et al. (2018) Assessment of patients' attitudes towards weight loss in an Irish general practice setting. Irish journal of medical science 187(3): 669-674	- Does not contain qualitative data
Colligan, G.; Galloway, J.; Lempp, H. (2017) Recipients' and providers' perspectives of obesity and potential barriers to weight management programmes in patients with Rheumatoid Arthritis (RA): A qualitative study. BMC Obesity 4(1): 33	- Does not contain relevant findings *Focused on impact of RA*
Collins, C., Hutchesson, M., Rollo, M. et al. (2014) What women want: A survey of needs of women related to postpartum weight loss. Obesity Reviews 15(suppl2): 159	- Conference abstract
Crino, Natalie D, Parker, Helen M, Gifford, Janelle A et al. (2019) Recruiting young women to weight management programs: Barriers and enablers. Nutrition & dietetics: the journal of the Dietitians Association of Australia 76(4): 392-398	- Non-UK study not needed as sufficient UK evidence found
Crino, Natalie D, Parker, Helen M, Gifford, Janelle A et al. (2020) What do young women with obesity want from a weight management program?. Eating and weight disorders : EWD 25(5): 1303-1309	- Non-UK study not needed as sufficient UK evidence found
Croot, L., Rimmer, M., Harris, J. et al. (2016) Modifying mainstream weight management interventions for use with people with intellectual disabilities: A user centred approach. Obesity Facts 9(suppl1): 40-41	- Conference abstract
Cyril, Sheila, Nicholson, Jan M, Agho, Kingsley et al. (2017) Barriers and facilitators to childhood obesity prevention among culturally and linguistically diverse (CALD) communities in Victoria, Australia. Australian and New Zealand journal of public health 41(3): 287-293	- Duplicate reference

Study	Code [Reason]
Cyril, Sheila, Polonsky, Michael, Green, Julie et al. (2017) Readiness of communities to engage with childhood obesity prevention initiatives in disadvantaged areas of Victoria, Australia. Australian health review : a publication of the Australian Hospital Association 41(3): 297-307	- Duplicate reference
Dahl, Unni, Rise, Marit By, Kulseng, Bard et al. (2014) Personnel and participant experiences of a residential weight-loss program. A qualitative study. PloS one 9(6): e100226	- Does not contain relevant findings *Experiences, not B&F*
Dao, M.C., Yu, Z., Maafs-Rodriguez, A. et al. (2022) Perceived intrinsic, social, and environmental barriers for weight management in older Hispanic/Latino adults with obesity. Obesity Science and Practice	- Country not in the selected group *USA*
Darling, K.E., Warnick, J., Guthrie, K.M. et al. (2023) Weight Management Engagement for Teens From Low-Income Backgrounds: Qualitative Perspectives From Adolescents and Caregivers. Journal of pediatric psychology	- Country not in the selected group *USA*
Davidson, Kamila and Vidgen, Helen (2017) Why do parents enrol in a childhood obesity management program?: a qualitative study with parents of overweight and obese children. BMC public health 17(1): 159	- Does not contain relevant findings
De Leon, Angela; Roemmich, James N.; Casperson, Shanon L. (2020) Identification of barriers to adherence to a weight loss diet in women using the nominal group technique. Nutrients 12(12): 1-10	- Country not in the selected group *USA*
Derksen, R E, Brink-Melis, W J, Westerman, M J et al. (2012) A local consensus process making use of focus groups to enhance the implementation of a national integrated health care standard on obesity care. Family practice 29suppl1: i177-i184	- Does not contain relevant findings *Specific to non-UK national guidelines*
Dhaliwal, Jasmine, Perez, Arnaldo J, Holt, Nicholas L et al. (2017) Why do parents discontinue health services for managing paediatric obesity? A multi-centre, qualitative study. Obesity research & clinical practice 11(3): 335-343	- OECD subset studies not needed as UK studies stufficient
Dodd-Reynolds, Caroline J, Vallis, Dimitris, Kasim, Adetayo et al. (2020) The Northumberland Exercise Referral Scheme as a Universal Community Weight Management Programme: A Mixed Methods Exploration of Outcomes, Expectations and Experiences across a Social Gradient. International journal of environmental research and public health 17(15)	- Non-UK study not needed as sufficient UK evidence found

Study	Code [Reason]
Doherty, Alison J, Jones, Stephanie P, Chauhan, Umesh et al. (2019) Healthcare practitioners' views and experiences of barriers and facilitators to weight management interventions for adults with intellectual disabilities. Journal of applied research in intellectual disabilities : JARID 32(5): 1067-1077	- Does not contain relevant findings *Identification*
Donaghue, Ngaire and Allen, Maddison (2016) "People don't care as much about their health as they do about their looks": Personal trainers as intermediaries between aesthetic and health-based discourses of exercise participation and weight management. International Journal of Sport and Exercise Psychology 14(1): 42-56	- Population do not match protocol *Personal trainers*
Douglas, F., Craig, L., Commerford, C. et al. (2013) A qualitative study exploring parents' views and perceptions of overweight and obesity in pre-school children in Scotland. Annals of Nutrition and Metabolism 63(suppl1): 597	- Does not contain relevant findings
Evans, Elizabeth H, Sainsbury, Kirby, Kwasnicka, Dominika et al. (2018) Support needs of patients with obesity in primary care: a practice-list survey. BMC family practice 19(1): 6	- Does not contain qualitative data
Farman, R.; Fitzgerald, H.; Radley, D. (2019) Weight management provision in a special school: Experiences of disabled children and their families. Obesity Facts 12(supplement1): 268	- Conference abstract
Farnesi, Biagina-Carla, Perez, Arnaldo, Holt, Nicholas L et al. (2019) Continued attendance for paediatric weight management: A multicentre, qualitative study of parents' reasons and facilitators. Clinical obesity 9(3): e12304	- OECD subset studies not needed as UK studies stufficient
Frood, S., Matteson, C.L., Finegood, D.T. et al. (2011) Understanding complexity of health behaviour change in overweight youth. Canadian Journal of Diabetes 35(2): 178	- Conference abstract
Gage, Heather, Erdal, Ebru, Saigal, Priyanka et al. (2012) Recognition and management of overweight and obese children: A questionnaire survey of general practitioners and parents in England. Journal of Paediatrics and Child Health 48(2): 146-152	- Does not contain qualitative data
Gale, Jennifer T, Ward, Aimee L, de Bruin, Willemijn E et al. (2020) Translating hunger training research to primary health: a qualitative study of nurse attitudes towards a novel weight management intervention. Journal of primary health care 12(1): 79-87	- Country not in the selected group *New Zealand*
Gallagher, Robyn, Kirkness, Ann, Armari, Elizabeth et al. (2012) Weight management issues and strategies for people with high cardiovascular	- Does not contain relevant findings *Experiences not B&F*

Study	Code [Reason]
risk undertaking an Australian weight loss program: a focus group study. Nursing & health sciences 14(1): 18-24	
Garip, G. and Yardley, L. (2011) A synthesis of qualitative research on overweight and obese people's views and experiences of weight management. Clinical Obesity 1(23): 110-126	- SR checked
Gehring, Nicole D, Ball, Geoff D C, Perez, Arnaldo et al. (2018) Families' perceived benefits of home visits for managing paediatric obesity outweigh the potential costs and barriers. Acta paediatrica (Oslo, Norway : 1992) 107(2): 315-321	- OECD subset studies not needed as UK studies stufficient
Gerards, Sanne M P L, Dagnelie, Pieter C, Jansen, Maria W J et al. (2012) Barriers to successful recruitment of parents of overweight children for an obesity prevention intervention: a qualitative study among youth health care professionals. BMC family practice 13: 37	- OECD subset studies not needed as UK studies stufficient
Gillespie, J., Ness, C., Ballard, P. et al. (2011) Parents as the start of the solution - A social marketing approach to understanding triggers and barriers to entering a childhood weight management service. Obesity Reviews 12(suppl1): 57	- Conference abstract
Goldthorpe, Joanna, Epton, Tracy, Keyworth, Chris et al. (2020) What do children, parents and staff think about a healthy lifestyles intervention delivered in primary schools? a qualitative study. BMJ open 10(8): e038625	- Does not contain relevant findings *healthy lifestyles, not WM or WM services*
Gossage-Worrall, Rebecca, Hind, Daniel, Barnard-Kelly, Katharine D et al. (2019) Structured lifestyle education for people with schizophrenia (STEPWISE): Mixed methods process evaluation of a group-based lifestyle education programme to support weight loss in people with schizophrenia. BMC Psychiatry 19	- Does not contain relevant findings *Evaluation of specific intervention (not included)*
Grootens-Wiegers, Petronella, van den Eynde, Emma, Halberstadt, Jutka et al. (2020) The "Stages Towards Completion Model": what helps and hinders children with overweight or obesity and their parents to be guided towards, adhere to and complete a group lifestyle intervention. International journal of qualitative studies on health and well-being 15(1): 1735093	- OECD subset studies not needed as UK studies stufficient
Gudzune, Kimberly A, Clark, Jeanne M, Appel, Lawrence J et al. (2012) Primary care providers' communication with patients during weight counseling: a focus group study. Patient education and counseling 89(1): 152-7	- Country not in the selected group *USA*

Study	Code [Reason]
Gunther, Stephen, Guo, Fenglin, Sinfield, Paul et al. (2012) Barriers and enablers to managing obesity in general practice: a practical approach for use in implementation activities. Quality in primary care 20(2): 93-103	- Does not contain relevant findings *Identification*
Guo, Jiasheng D, Vann, William F Jr, Lee, Jessica Y et al. (2018) Identification of Preferred Healthy Weight Counseling Approaches for Children in the Dental Setting. The Journal of clinical pediatric dentistry 42(6): 414-421	- Does not contain relevant findings *Identification*
Hanckel, Benjamin, Peacock, Janet L., Green, Judith et al. (2019) The Daily Mile as a public health intervention: a rapid ethnographic assessment of uptake and implementation in South London, UK. BMC public health 19(1): 1167	- Does not contain a population of people with XXX *Implemented for whole classes, no individual uptake*
Haracz, Kirsti. et al. (2013) Occupational therapy and obesity : An integrative literature review. Australian Occupational Therapy Journal,	- Review article but not a systematic review
Hardcastle, Sarah and Hagger, Martin S (2011) "You Can't Do It on Your Own": Experiences of a motivational interviewing intervention on physical activity and dietary behaviour. Psychology of Sport and Exercise 12(3): 314-323	- Does not contain relevant findings *No WM services*
Harms, Lisa S E, Gerards, Sanne M P L, Kremers, Stef P J et al. (2021) Involving Parents in Promoting Healthy Energy Balance-Related Behaviors in Preschoolers: A Mixed Methods Impact and Process Evaluation of SuperFIT. Nutrients 13(5)	- Does not contain relevant findings *Experiences of intervention, not barriers and facilitators*
Harvey, Susan P., Gibson, Cheryl A., Sol, Renee J. et al. (2010) The perceptions of overweight and obese individuals participating in a phone-based weight management program: What are the benefits and barriers?. Obesity 18(suppl2): 128	- Conference abstract
Helmink, J.; Kremers, S.; van Boekel, L. (2012) The BeweegKuur programme: a qualitative study of promoting and impeding factors for successful implementation of a primary health care lifestyle intervention for overweight and obese people. Family Practice 29(1): i68	- Does not contain relevant findings *Implementation*
Hoeeg, D, Mortil, A. M. A, Hansen, M. L et al. (2020) Families' adherence to a family-based childhood obesity intervention: A qualitative study on perceptions of communicative authenticity. Health Communication 35(1): 110-118	- OECD subset studies not needed as UK studies stufficient

Study	Code [Reason]
Hoft, Galen, Forseth, Bethany, Trofimoff, Anna et al. (2023) Barriers to participation in a telemedicine-based, family-based behavioral group treatment program for pediatric obesity: Qualitative findings from rural caregivers. Children's Health Care: no-specified	- Country not in the selected group *USA*
Holdsworth, Elizabeth, Thorogood, Nicki, Sorhaindo, Annik et al. (2017) A Qualitative Study of Participant Engagement With a Weight Loss Intervention. Health promotion practice 18(2): 245-252	- Does not contain relevant findings *Evaluation of a specific intervention (not included)*
Holt, Guy and Hughes, David (2021) A study using semi-structured interview and Delphi survey to explore the barriers and enabling factors that influence access and utilisation of weight management services for people living with morbid obesity: A patient and professional perspective. Journal of human nutrition and dietetics : the official journal of the British Dietetic Association 34(1): 215-223	- Does not contain relevant findings *Experiences of intervention, not barriers and facilitators*
Hopkins, Laura C., Fristad, Mary, Goodway, Jacqueline D. et al. (2018) Feasibility and acceptability of technologybased caregiver engagement strategies delivered in a summertime childhood obesity prevention intervention: Results from an internal pilot of the Camp NERF (Nutrition, Education, Recreation, and Fitness) study. Pilot and Feasibility Studies 4(1): 153	- Country not in the selected group *USA*
Howard, Marie (2015) An exploration into the impact of obesity on the daily occupational participation of adults attending an Irish weight management clinic. Canadian Journal of Diabetes 39(suppl1): 23	- Conference abstract
Howard-Drake, E J and Halliday, V (2016) Exploring primary school headteachers' perspectives on the barriers and facilitators of preventing childhood obesity. Journal of public health (Oxford, England) 38(1): 44-52	- Does not contain relevant findings *Prevention rather than management*
Jacob-Files, Elizabeth; Powell, Jennifer; Wright, Davene R. (2018) Exploring parent attitudes around using incentives to promote engagement in family-based weight management programs. Preventive Medicine Reports 10: 278-284	- Country not in the selected group *USA*
Jay, Melanie, Chintapalli, Sumana, Oi, Kathryn et al. (2014) Identifying barriers and facilitators to improving the implementation of weight management services within a patient-centered medical home. Journal of General Internal Medicine 29(suppl1): 115-s116	- Conference abstract

Study	Code [Reason]
Jessen-Winge, Christina, Ilvig, Pia Maria, Fritz, Heather et al. (2021) What a weight loss programme should contain if people with obesity were asked - a qualitative analysis within the DO:IT study. BMC public health 21(1): 28	- Non-UK study not needed as sufficient UK evidence found
Jessen-Winge, Christina, Ilvig, Pia Marie, Thilsing, Trine et al. (2020) Health professionals' perceptions of weight loss programmes and recommendations for future implementation: a qualitative study. BMJ open 10(11): e039667	- Does not contain relevant findings *Implementation*
Johnson, Rebecca E, Oyebode, Oyinlola, Walker, Sadie et al. (2018) The difficult conversation: a qualitative evaluation of the 'Eat Well Move More' family weight management service. BMC research notes 11(1): 325	- Does not contain relevant findings
Jones, H M, Al-Khudairy, L, Melendez-Torres, G J et al. (2019) Viewpoints of adolescents with overweight and obesity attending lifestyle obesity treatment interventions: a qualitative systematic review. Obesity reviews : an official journal of the International Association for the Study of Obesity 20(1): 156-169	- SR checked
Jones, Helen M., Al-Khudairy, Lena, Melendez-Torres, G.J. et al. (2017) Viewpoints of overweight and obese adolescents attending lifestyle obesity treatment interventions: A qualitative systematic review. The Lancet 390(speciss1): 50	- SR checked
Jones, Kay M; Dixon, Maureen E; Dixon, John B (2014) GPs, families and children's perceptions of childhood obesity. Obesity research & clinical practice 8(2): e140-8	- Does not contain relevant findings *Identification*
Kebbe, M., Perez, A., Dyson, M. et al. (2018) 'It's the same with almost anything; you're going to have to want to do it': A preliminary qualitative exploration of barriers and enablers influencing a healthy lifestyle in adolescents with obesity. Obesity Facts 11(supplement1): 217	- Conference abstract
Kebbe, M, Perez, A, Buchholz, A et al. (2020) Health care providers' weight management practices for adolescent obesity and alignment with clinical practice guidelines: a multi-centre, qualitative study. BMC health services research 20(1): 850	- Does not contain relevant findings *Canadian guidelines*
Kebbe, Maryam, Jebb, Susan A, Begh, Rachna et al. (2021) General practitioner views on addressing weight opportunistically in primary care: An embedded sequential mixed-methods study. Patient Education and Counseling	- Does not contain relevant findings *Identification*
Kebbe, Maryam, Perez, Arnaldo, Buchholz, Annick et al. (2018) Barriers and enablers for adopting lifestyle behavior changes in adolescents with obesity: A multi-centre, qualitative study. PloS one 13(12): e0209219	- Does not contain relevant findings

Study	Code [Reason]
	General healthy lifestyle, not about weight
Kelleher, E, Davoren, M P, Harrington, J M et al. (2017) Barriers and facilitators to initial and continued attendance at community-based lifestyle programmes among families of overweight and obese children: a systematic review. Obesity reviews : an official journal of the International Association for the Study of Obesity 18(2): 183-194	- SR checked
Kelleher, Emily, Harrington, Janas M, Shiely, Frances et al. (2017) Barriers and facilitators to the implementation of a community-based, multidisciplinary, family-focused childhood weight management programme in Ireland: a qualitative study. BMJ open 7(8): e016459	- Does not contain relevant findings *Implementation at a structural level*
Kozica, Samantha L, Harrison, Cheryce L, Teede, Helena J et al. (2015) Engaging rural women in healthy lifestyle programs: insights from a randomized controlled trial. Trials 16: 413	- Non-UK study not needed as sufficient UK evidence found
Kozica, Samantha L, Teede, Helena J, Harrison, Cheryce L et al. (2016) Optimizing Implementation of Obesity Prevention Programs: A Qualitative Investigation Within a Large-Scale Randomized Controlled Trial. The Journal of rural health : official journal of the American Rural Health Association and the National Rural Health Care Association 32(1): 72-81	- Does not contain relevant findings *Implementation*
Lanoye, A., Caccavale, L.J., Robichaud, E. et al. (2016) A mixed methods approach to improving recruitment and engagement of emerging adults in behavioural weight loss programs. Obesity Science and Practice 2(4): 341-354	- Not a relevant study design
Lee, Alexandra, Szurek, Sarah, Miller, Darci et al. (2020) Preferences of adolescents with overweight/obesity for healthy lifestyle programs: Qualitative study. Obesity 28(suppl2): 30	- Conference abstract
Lim, Siew, Smith, Caroline A, Costello, Michael F et al. (2019) Barriers and facilitators to weight management in overweight and obese women living in Australia with PCOS: a qualitative study. BMC endocrine disorders 19(1): 106	- Does not contain relevant findings *Focused on impact of PCOS on weight*
Lindelof, Anders, Nielsen, Claus Vinther, Pedersen, Birthe D et al. (2010) Obesity treatment-More than food and exercise: A qualitative study exploring obese adolescents' and their parents' views on the former's obesity. International Journal of Qualitative Studies on Health and Well-being 5(2): 1-11	- Does not contain relevant findings *No service uptake*

Study	Code [Reason]
Lloyd, Jenny, Dean, Sarah, Abraham, Charles et al. (2017) Intervention fidelity in the definitive cluster randomised controlled trial of the Healthy Lifestyles Programme (HeLP) trial: Findings from the process evaluation. International Journal of Behavioral Nutrition and Physical Activity 14(1): 163	- Does not contain relevant findings *Adherence to RCT*
Locatelli, Sara M., Gerber, Ben S., Weaver, Frances M. et al. (2013) SCI/D weight management practices, barriers, and facilitators to treat overweight/obesity. Journal of Spinal Cord Medicine 36(5specissue): 509	- Conference abstract
Look, Michelle, Kolotkin, Ronette L, Dhurandhar, Nikhil V et al. (2019) Implications of differing attitudes and experiences between providers and persons with obesity: results of the national ACTION study. Postgraduate medicine 131(5): 357-365	- Country not in the selected group *USA*
Lyzwinski, Lynnette N, Caffery, Liam J, Bambling, Matthew et al. (2018) Consumer perspectives on mHealth for weight loss: a review of qualitative studies. Journal of telemedicine and telecare 24(4): 290-302	- SR checked
Magnusson, Maria B, Kjellgren, Karin I, Winkvist, Anna et al. (2012) Enabling overweight children to improve their food and exercise habits - school nurses' counselling in multilingual settings. Journal of Clinical Nursing 21(1718): 2452-2460	- Does not contain relevant findings *Weight counselling*
Malatzky, Christina and Glenister, Kristen (2019) Talking about overweight and obesity in rural Australian general practice. Health & Social Care in the Community 27(3): 599-608	- Does not contain relevant findings *Identification*
Malden, Stephen, Reilly, John J, Hughes, Adrienne et al. (2020) Assessing the acceptability of an adapted preschool obesity prevention programme: ToyBox-Scotland. Child: care, health and development 46(2): 213-222	- Does not contain a population of people with XXX *Prevention: population are nor overweight.*
Malterud, Kirsti and Ulriksen, Kjersti (2010) Obesity in general practice. Scandinavian Journal of Primary Health Care 28(4): 205-210	- Outside date range *1964*
Malterud, Kirsti and Ulriksen, Kjersti (2010) Obesity in general practice A focus group study on patient experiences. Scandinavian journal of primary health care 28(4): 205-210	- Does not contain relevant findings *Identification*
Maston, Gabrielle, Franklin, Janet, Hocking, Samantha et al. (2021) Dietary adherence and program attrition during a severely energy-	- Non-UK study not needed as sufficient UK evidence found

Study	Code [Reason]
restricted diet among people with complex class III obesity: A qualitative exploration. PloS one 16(6): e0253127	
Mazza, D, McCarthy, E, Carey, M et al. (2019) "90% of the time, it's not just weight": General practitioner and practice staff perspectives regarding the barriers and enablers to obesity guideline implementation. Obesity research & clinical practice 13(4): 398-403	- Does not contain relevant findings *Uptake of guidelines, not WM*
Mazza, D, McCarthy, E, Singh, N et al. (2020) "There's always something else": Patient perspectives on improving the implementation of obesity guidelines in general practice. Obesity research & clinical practice 14(5): 437-442	- Does not contain relevant findings *Uptake of guidelines, not WM*
McDonald, Matthew, Calveley, Eileen, Glennie, Nicola et al. (2019) Game of Stones: A feasibility randomised controlled trial of narrative short message system (SMS) and financial incentive interventions to support weight loss in men with obesity. Trials 20(supplement1)	- Conference abstract
McGuire, Sally, Stephens, Alex, Griffith, Emma et al. (2021) "It's changed my life!" Evaluation and improvement of a pilot Tier 2 weight management course, "Balance". Mental Health Review Journal 26(1): 71-86	- Does not contain relevant findings *Evaluation of a specific intervention (not included)*
McHale, Calum T, Laidlaw, Anita H, Cecil, Joanne E et al. (2016) Direct observation of weight-related communication in primary care: A systematic review. Family Practice 33(4): 327-345	- SR checked
McMahon, Naoimh E; Visram, Shelina; Connell, Louise A (2016) Mechanisms of change of a novel weight loss programme provided by a third sector organisation: a qualitative interview study. BMC public health 16: 378	- Does not contain relevant findings *Experiences not uptake*
McMaster, Caitlin M, Cohen, Jennifer, Alexander, Shirley et al. (2020) Satisfaction and acceptability of paediatric weight management services amongst parents and carers: A mixed-methods study. Clinical obesity 10(6): e12391	- OECD subset studies not needed as UK studies stufficient
McVay, Megan A, Yancy, William S Jr, Bennett, Gary G et al. (2018) Perceived barriers and facilitators of initiation of behavioral weight loss interventions among adults with obesity: a qualitative study. BMC public health 18(1): 854	- Country not in the selected group *USA*

Study	Code [Reason]
Nguyen, Nam Hoang, Kebbe, Maryam, Peng, Chenhui et al. (2020) Public health nurse referrals for paediatric weight management: A nested mixed-methods study. Journal of clinical nursing 29(1718): 3263-3271	- OECD subset studies not needed as UK studies stufficient
Norman, Asa, Nyberg, Gisela, Elinder, Liselotte Schafer et al. (2016) One size does not fit all-qualitative process evaluation of the Healthy School Start parental support programme to prevent overweight and obesity among children in disadvantaged areas in Sweden. BMC public health 16: 37	- Does not contain relevant findings *Implementation at the organisational level*
Oberle, Megan M, Loth, Katie A, Schendel, Anne et al. (2020) Acceptance of a meal kit programme in an outpatient paediatric weight management clinic: A qualitative pilot study. Clinical obesity 10(5): e12371	- Country not in the selected group *USA*
Palmer, A. and Fihosy, S. (2017) Participants' reasons for attrition from a british paediatric weight management service. Acta Paediatrica, International Journal of Paediatrics 106(supplement470): 34	- Conference abstract
Peletidi, Aliki and Kayyali, Reem (2019) Experiences of the pharmacy-led weight management service: Views of service providers in England. Pharmacy 7(3): 82	- Does not contain relevant findings *Implementation at the organisation level*
Perez, A J, Avis, J L S, Holt, N L et al. (2016) Why do families enrol in paediatric weight management? A parental perspective of reasons and facilitators. Child: care, health and development 42(2): 278-87	- OECD subset studies not needed as UK studies stufficient
Perez, Arnaldo, Ball, Geoff, Holt, Nicholas et al. (2015) Why don't families initiate treatment? A qualitative multicentre study investigating parents' reasons for declining paediatric weight management. Paediatrics and Child Health (Canada) 20(4): 179-184	- OECD subset studies not needed as UK studies stufficient
Po'e, Eli K, Gesell, Sabina B, Lynne Caples, T et al. (2010) Pediatric obesity community programs: barriers & facilitators toward sustainability. Journal of community health 35(4): 348-54	- Country not in the selected group *USA*
Raaff, C; Glazebrook, C; Wharrad, H (2015) Dietitians' perceptions of communicating with preadolescent, overweight children in the consultation setting: the potential for e-resources. Journal of human nutrition and dietetics : the official journal of the British Dietetic Association 28(3): 300-12	- Does not contain relevant findings *No service uptake*
Rawlins, E, Baker, G, Maynard, M et al. (2013) Perceptions of healthy eating and physical activity in an ethnically diverse sample of young children and their parents: the DEAL prevention of obesity study. Journal	- Does not contain relevant findings

Study	Code [Reason]
of human nutrition and dietetics : the official journal of the British Dietetic Association 26(2): 132-44	*Healthy beahviours, but not WM or WM services*
Reece, Lindsey J; Bissell, Paul; Copeland, Robert J (2016) 'I just don't want to get bullied anymore, then I can lead a normal life'; Insights into life as an obese adolescent and their views on obesity treatment. Health expectations : an international journal of public participation in health care and health policy 19(4): 897-907	- Does not contain relevant findings *Focus on experiences of overweight and of interventions. No mention of uptake.*
Renouf, Sarah, Bradbury, Katherine, Yardley, Lucy et al. (2015) The role of nurse support within an Internet-delivered weight management intervention: A qualitative study. Psychology, health & medicine 20(8): 963-71	- Does not contain relevant findings *Experiences and preferences*
Robustelli, Briana L., Campbell, Sarah B., Hoerster, Katherine D. et al. (2021) Table for two: Perceptions of social support from participants in a weight management intervention for veterans with PTSD and overweight or obesity. Psychological services	- Country not in the selected group *USA*
Royall, D., Brauer, P., Dwyer, J.J.M. et al. (2011) Eliciting provider and patient perspectives to develop an interdisciplinary obesity management planning framework in primary care. Canadian Journal of Diabetes 35(2): 172	- Conference abstract
Rubino, Francesco, Logue, Jennifer, Bogelund, Mette et al. (2021) Attitudes about the treatment of obesity among healthcare providers involved in the care of obesity-related diseases: A survey across medical specialties in multiple European countries. Obesity Science and Practice 7(6): 659-668	- Does not contain qualitative data
Ryan, Mandy, Yi, Deokhee, Avenell, Alison et al. (2015) Gaining pounds by losing pounds: preferences for lifestyle interventions to reduce obesity. Health economics, policy, and law 10(2): 161-82	- Does not contain qualitative data
Salemonsen, Elin, Forland, Georg, Hansen, Britt Saetre et al. (2020) Understanding beneficial self-management support and the meaning of user involvement in lifestyle interventions: a qualitative study from the perspective of healthcare professionals. BMC health services research 20(1): 88	- Does not contain relevant findings *Support not uptake*
Schalkwijk, Annemarie A H, Nijpels, Giel, Bot, Sandra D M et al. (2016) Health care providers' perceived barriers to and need for the implementation of a national integrated health care standard on childhood	- Does not contain relevant findings *Focused on an obesity guideline*

Study	Code [Reason]
obesity in the Netherlands - a mixed methods approach. BMC health services research 16: 83	
Schmied, Emily A, Chuang, Emmeline, Madanat, Hala et al. (2018) A Qualitative Examination of Parent Engagement in a Family-Based Childhood Obesity Program. Health promotion practice 19(6): 905-914	- Country not in the selected group *USA*
Sealy, Yvette M, Zarcadoolas, Christina, Dresser, Michelle et al. (2012) Using public health detailing and a family-centered ecological approach to promote patient-provider-parent action for reducing childhood obesity. Childhood obesity (Print) 8(2): 132-46	- Country not in the selected group *USA*
Silva, David Franciole Oliveira, Sena-Evangelista, Karine Cavalcanti Mauricio, Lyra, Clelia Oliveira et al. (2018) Motivations for weight loss in adolescents with overweight and obesity: a systematic review. BMC pediatrics 18(1): 364	- SR checked
Skea, Z.C., Aceves Martins, M., Robertson, C. et al. (2019) The acceptability of weight management programmes for adults with severe obesity: A qualitative evidence synthesis. Obesity Facts 12(supplement1): 268-269	- Conference abstract
Skea, Zoe C, Aceves-Martins, Magaly, Robertson, Clare et al. (2019) Acceptability and feasibility of weight management programmes for adults with severe obesity: a qualitative systematic review. BMJ open 9(9): e029473	- SR checked
Skelton, J A; Martin, S; Irby, M B (2016) Satisfaction and attrition in paediatric weight management. Clinical obesity 6(2): 143-53	- Country not in the selected group *USA*
Smith, E, Sweeting, H, Wright, C et al. (2013) 'Do I care?' Young adults' recalled experiences of early adolescent overweight and obesity: A qualitative study. International Journal of Obesity 37(2): 303-308	- Does not contain relevant findings *Experiences of being overweight, not WM*
Smith, Kyla L, Straker, Leon M, McManus, Alexandra et al. (2014) Barriers and enablers for participation in healthy lifestyle programs by adolescents who are overweight: a qualitative study of the opinions of adolescents, their parents and community stakeholders. BMC pediatrics 14: 53	- OECD subset studies not needed as UK studies stufficient
Sonntag, Ulrike, Wiesner, Julia, Fahrenkrog, Sandra et al. (2012) Motivational interviewing and shared decision making in primary care. Patient education and counseling 87(1): 62-6	- Does not contain qualitative data

Study	Code [Reason]
Spano, D., Hanke, C., Kosh, P. et al. (2011) Carers' perspectives on a weight loss intervention for obese adults with intellectual disabilities: A qualitative study. Obesity Reviews 12(suppl1): 233-234	- Conference abstract
Spanos, D, Hankey, C R, Boyle, S et al. (2013) Carers' perspectives of a weight loss intervention for adults with intellectual disabilities and obesity: a qualitative study. Journal of intellectual disability research : JIDR 57(1): 90-102	- Conference abstract
Sporndly-Nees, Soren, Igelstrom, Helena, Lindberg, Eva et al. (2014) Facilitators and barriers for eating behaviour changes in obstructive sleep apnoea and obesity - a qualitative content analysis. Disability and rehabilitation 36(1): 74-81	- Does not contain relevant findings *Healthy lifestyle not WM*
Staniford, Leanne Jane, Radley, Duncan, Gately, Paul et al. (2020) Employees' experiences of participating in a workplace-supported weight management service: A qualitative inquiry. International Journal of Workplace Health Management 13(2): 203-221	- Does not contain relevant findings *Experiences not uptake*
Surrow, Signe, Jessen-Winge, Christina, Ilvig, Pia Maria et al. (2021) The motivation and opportunities for weight loss related to the everyday life of people with obesity: A qualitative analysis within the DO:IT study. Scandinavian journal of occupational therapy 28(6): 479-487	- Does not contain relevant findings *WM behaviours not services*
Sutcliffe, Katy, Melendez-Torres, G J, Burchett, Helen E D et al. (2018) The importance of service-users' perspectives: A systematic review of qualitative evidence reveals overlooked critical features of weight management programmes. Health expectations : an international journal of public participation in health care and health policy 21(3): 563-573	- Non-UK study not needed as sufficient UK evidence found
Sykes-Muskett, Bianca J, Prestwich, Andrew, Lawton, Rebecca J et al. (2017) Exploration of likely engagement with Monetary Contingency Contracts for weight loss: a questionnaire study. Psychology, health & medicine 22(10): 1278-1283	- Does not contain qualitative data
Tabak, Rachel G, Dsouza, Nishita, Schwarz, Cynthia D et al. (2018) A formative study to understand perspectives of families eligible for a pediatric obesity program: a qualitative study. BMC public health 18(1): 586	- Country not in the selected group *USA*
Taylor, Rachael W, Williams, Sheila M, Dawson, Anna M et al. (2013) What factors influence uptake into family-based obesity treatment after weight screening?. The Journal of pediatrics 163(6): 1657-1662e1	- Country not in the selected group *New Zealand*

Study	Code [Reason]
Teevale, Tasileta; Taufa, Seini; Percival, Teuila (2015) Acceptability and non-compliance in a family-led weight-management programme for obese Pacific children. Public health nutrition 18(14): 2625-33	- Country not in the selected group *New Zealand*
Teixeira, F V; Pais-Ribeiro, J L; Maia, A (2015) A qualitative study of GPs' views towards obesity: are they fighting or giving up?. Public health 129(3): 218-25	- Does not contain relevant findings *No mention of uptake*
Thogersen-Ntoumani, Cecilie, Ntoumanis, Nikos, McBride, Hannah et al. (2021) The Aussie-FIT process evaluation: feasibility and acceptability of a weight loss intervention for men, delivered in Australian Football League settings. Psychology & health: 1-20	- Non-UK study not needed as sufficient UK evidence found
Thorstensson, Stina, Blomgren, Carola, Sundler, Annelie J et al. (2018) To break the weight gain-A qualitative study on the experience of school nurses working with overweight children in elementary school. Journal of Clinical Nursing 27(12): e251-e258	- Does not contain relevant findings *No service uptake*
Tol, Jacqueline, Swinkels, Ilse C, De Bakker, Dinny H et al. (2014) Overweight and obese adults have low intentions of seeking weight-related care: a cross-sectional survey. BMC public health 14: 582	- Does not contain qualitative data
Tommerup, Kristiane, Smith, Andrea D, Evans, Elizabeth H et al. (2021) The acceptability and feasibility of using a 3D body size scale to initiate conversations about weight in toddlerhood: a mixed-methods study. Pediatric obesity 16(2): e12715	- Does not contain relevant findings *Identification, not uptake*
Torti, Jacqueline, Luig, Thea, Borowitz, Michelle et al. (2017) The 5As team patient study: patient perspectives on the role of primary care in obesity management. BMC family practice 18(1): 19	- OECD subset studies not needed as UK studies stufficient
Turner, Katrina M, Salisbury, Chris, Shield, Julian P. H et al. (2012) Parents' views and experiences of childhood obesity management in primary care: A qualitative study. Family Practice 29(4): 476-481	- Does not contain relevant findings *GP interactions, not WM services*
Tyldesley-Marshall, Natalie, Greenfield, Sheila M, Parretti, Helen M et al. (2021) The experiences of postnatal women and healthcare professionals of a brief weight management intervention embedded within the national child immunisation programme. BMC pregnancy and childbirth 21(1): 462	- Does not contain relevant findings *Focus on pregnancy and evaluation of the intervention itself rather than BF to WM*

Study	Code [Reason]
Um, Irene S I, Armour, Carol, Krass, Ines et al. (2010) Managing obesity in pharmacy: the Australian experience. Pharmacy world & science : PWS 32(6): 711-20	- Does not contain relevant findings *Implementation at organisation level*
Vazin, Roza, McGinty, Emma E, Dickerson, Faith et al. (2016) Perceptions of strategies for successful weight loss in persons with serious mental illness participating in a behavioral weight loss intervention: A qualitative study. Psychiatric Rehabilitation Journal 39(2): 137-146	- Country not in the selected group *USA*
Velez, Desiree Sierra, Fiechtner, Lauren, Taveras, Elsie et al. (2021) Determinants of adoption of a pediatric weight management intervention (PWMI): A qualitative study. Obesity 29(suppl2): 80	- Conference abstract
Visser, Femke, Hiddink, Gerrit, Koelen, Maria et al. (2008) Longitudinal changes in GPs' task perceptions, self-efficacy, barriers and practices of nutition education and treatment of overweight. Family Practice 25(suppl1): i105-i111	- Outside date range *2008*
Waterfield, T., Johnston, J., Sweeney, E. et al. (2016) How should we approach obesity in the emergency department?. Archives of Disease in Childhood 101(supplement1): a124	- Does not contain relevant findings
Watson, Libby A; Baker, Martyn C; Chadwick, Paul M (2016) Kids just wanna have fun: Children's experiences of a weight management programme. British journal of health psychology 21(2): 407-20	- Does not contain relevant findings *Experiences of an intervention, not uptake*
Webb, R.J., Davies, I.G., Abayomi, J.C. et al. (2013) A qualitative investigation into the follow-up support offered to patients after an NHS obesity weight management programme in Liverpool. Proceedings of the Nutrition Society 72(oce3): e150	- Conference abstract
Wermeling, Matthias, Thiele-Manjali, Ulrike, Koschack, Janka et al. (2014) Type 2 diabetes patients' perspectives on lifestyle counselling and weight management in general practice: a qualitative study. BMC family practice 15: 97	- Country not in the selected group *Germany*
WILLIAMS, Lauren and et, al (2016) The role of occupational therapists in the provision of dietary interventions for people with severe mental illness: results from a national survey. British Journal of Occupational Therapy 79(7): 442-449	- Does not contain qualitative data

Study	Code [Reason]
Wills, Wendy J and Lawton, Julia (2015) Attitudes to weight and weight management in the early teenage years: A qualitative study of parental perceptions and views. Health Expectations: An International Journal of Public Participation in Health Care & Health Policy 18(5): 775-783	- Does not contain relevant findings *attitudes to weight, no WM services*
Wyatt, Katrina. et al. (2011) The development, feasability and acceptability of a school-based obesity prevention programme: results from three phases of piloting. BMJ Open 1(1)	- Does not contain qualitative data
Zevin, B., Dalgarno, N., Martin, M. et al. (2019) Barriers to accessing weight-loss interventions for patients with class II or III obesity in primary care: a qualitative study. CMAJ open 7(4): e738-e744	- Does not contain relevant findings *Uptake of WM behaviours, not programs*

Appendix K – Research recommendations – full details

G.1.1 Research recommendation

G.1.2 How do beliefs and attitudes about weight affect identification, uptake and adherence to overweight and obesity management interventions in adults, children and young people? [2023]

G.1.3 Why this is important

Beliefs and attitudes about weight were highlighted in the qualitative evidence as important influences on how families and carers felt about their child being identified as overweight or obese and referred to overweight and obesity management services. This beliefs and attitudes stem from a range of cultures and backgrounds, and understanding how they affect identification and uptake of interventions is crucial to effective interventions for these.

G.1.4 Rationale for research recommendation

Importance to 'patients' or the population	Beliefs and attitudes are important to the people who hold them and addressing them appropriately shapes their experiences of healthcare.
Relevance to NICE guidance	This guideline aims to improve identification uptake and adherence to interventions, so understanding the beliefs and attitudes that affect them is crucial to addressing these potential barriers.
Relevance to the NHS	Increased uptake of overweight and obesity management interventions could prevent children and young people from being exposed to the health risks of weight related comorbidities
National priorities	High
Current evidence base	Some qualitative evidence has identified that these beliefs and attitudes exist, but there is little detail available at present.
Equality considerations	Some beliefs and attitudes may stem from cultural ideas originating in communities from minority family backgrounds, therefore it is important that these are treated sensitively and respectfully.

G.1.5 Modified PICO table

Population	• Children and young people living with overweight or obesity • Adults living with overweight or obesity

Intervention	n/a
Comparator	n/a
Outcome	Beliefs and attitudes about weight, including perspectives, experiences, values, preferences, views and considerations
Study design	Qualitative
Timeframe	Any
Additional information	None