

ARTICLE

'I'm a failure again, I can't do it': Attitudes towards, and experiences of, exercise participation in adults with class III obesity

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Abstract

Objectives: Living within a larger body brings unique challenges to exercise participation, which are poorly understood. This qualitative study explored the attitudes towards, and experiences of, exercise participation in adults with class III obesity.

Design: Individual semi-structured qualitative interviews.

Methods: We recruited 30 adults with class III obesity (body mass index: $45.8 \pm 8.6 \text{ kg/m}^2$) from a specialist multidisciplinary weight management service. Participants took part in semi-structured interviews while participating in a 6-month home-based aerobic and resistance exercise intervention. Open-ended questions were used flexibly to explore their views and experiences of exercise, encompassing barriers, motives and perceived benefits. Transcripts were analysed using reflexive thematic analysis.

Results: Three themes were developed: (1) a web of barriers; (2) tailored exercise facilitates positive experiences; and (3) a desire to live a normal life. People with class III obesity perceived that they were unable to do exercise; a view that was attributed to perceived judgement, low physical function, pain during everyday activities and failed weight loss attempts. These complex physical and psychosocial barriers to exercise were described as contributing to exercise avoidance. High value was placed on tailored exercise that accommodates the unique needs of moving in a larger body. A desire to carry out everyday tasks underpinned motivations for exercise.

Conclusions: Our findings suggest that multi-component obesity interventions should move away from generic

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exercise prescriptions designed to maximize energy expenditure, and instead move towards addressing the unique physical and psychosocial needs of people who have class III obesity with tailored person-centred and weight-neutral exercise prescriptions.

KEYWORDS

barriers, behaviour change, exercise, obesity, physical activity, qualitative

INTRODUCTION

Exercise is first-line treatment for class III obesity, defined as having a body mass index (BMI) of $\geq 40 \text{ kg/m}^2$ or $35\text{--}39.9 \text{ kg/m}^2$ with comorbidities (Yumuk et al., 2015). Regular exercise improves cardiometabolic risk markers in adults living with obesity independent of weight loss (Boulé et al., 2001; Edwards et al., 2023; Recchia et al., 2023). The increased risk of cardiovascular disease (CVD) and mortality associated with obesity are attenuated or eliminated by regular exercise (Hu et al., 2004; Koolhaas et al., 2017; Zhang et al., 2020), and exercise lowers the risk of several obesity-related cancers independent of BMI (Matthews et al., 2019). Multiple international organizations recommend adults with obesity should meet the general physical activity guidelines for adult populations, which are to do at least 150 min/week of moderate-intensity aerobic physical activity combined with 2 days per week of resistance exercise (American College of Sports Medicine, 2020; Yumuk et al., 2015).

Living within a larger body brings unique and non-trivial challenges to exercise participation. Adults with class III obesity have reduced physical function compared to people with a lower BMI (Ling et al., 2012), experience disproportionate bodily pain (Hitt et al., 2007) and have an increased risk of musculoskeletal conditions, in particular knee osteoarthritis (Reyes et al., 2016). People with class III obesity experience stigma and feelings of judgement, shame and worthlessness in exercise and non-exercise spaces (Farrell et al., 2021; Toft & Uhrenfeldt, 2015), and the incidence of anxiety and depression is highest in people with the highest BMI (Garipey et al., 2010; Ma et al., 2021). Moreover, class III obesity comes hand in hand with a raft of complex comorbidities that require careful management and may contraindicate certain exercise regimes (Kivimäki et al., 2022).

The complex physical and psychosocial characteristics of people with class III obesity may impact the contemplation, initiation and maintenance of exercise. People with obesity tend to avoid exercise and are less active than people with normal weight (Silveira et al., 2022; Thedinga et al., 2021). Understanding the unique views and experiences of exercise participation in people with class III obesity is important to inform the development of acceptable, sensitive and person-centred interventions to support sustained exercise behaviour (Skivington et al., 2021).

Current knowledge on exercise views and experiences in adults with class III obesity exists in the context of intensive weight loss interventions, such as bariatric surgery and in-hospital or residential lifestyle modification programmes (Danielsen et al., 2016; Dikareva et al., 2016; Peacock et al., 2014; Toft, Galvin, et al., 2020; Toft, Nielsen, & Uhrenfeldt, 2020; Wiklund et al., 2011; Zabatiero et al., 2016). Findings from these studies do not necessarily capture the experiences of the wider population outside the context of surgical or in-patient interventions. These intensive interventions lead to $\sim 15\%$ – 30% mean body weight loss (Christiansen et al., 2007; Danielsen et al., 2016), which contrasts to weight loss experiences of people with class III obesity enrolled in specialist weight management services, where at least 50% of people achieve less than 5% weight loss (Brown et al., 2017). An intense focus on weight loss alters how people with obesity experience exercise, such that exercising only for weight loss contributes to negative affect (Feig et al., 2022).

The aim of this qualitative study was to provide unique insights into the attitudes towards, and experiences of, exercise participation in adults with class III obesity taking part in a 6-month home-based



aerobic and resistance exercise intervention. The study explored participants' experiences of the exercise intervention itself as well as attitudes towards exercise in general.

METHODS

Research design

This qualitative study explores the attitudes towards, and experiences of, adults with class III obesity during a 6-month home-based aerobic and resistance exercise intervention. We have previously reported the effects of the intervention on body weight, physical function and quality of life (Orange, Marshall, et al., 2020). The trial is registered on [ClinicalTrials.gov](https://clinicaltrials.gov) (ID: NCT03900962); a minor difference between the registered protocol and the published paper is documented and justified in the Supplementary Material—Data S1.

Participant recruitment

We recruited adults with class III obesity from a specialist multidisciplinary weight management service in Hull, UK. The specialist multidisciplinary team (MDT) identified participants at weekly meetings and provided eligible participants with verbal and written information about the study. Interested participants were encouraged to contact the research team. Eligibility criteria were as follows: (1) having a BMI of ≥ 40 kg/m² or between 35 and 39.9 kg/m² with one or more serious comorbidities (such as type II diabetes); (2) be referred to the weight management service by a general practitioner; and (3) be aged ≥ 18 years. Key exclusion criteria were as follows: (1) signs or symptoms of uncontrolled cardiovascular or metabolic disease; (2) prior myocardial infarction or heart failure; (3) poorly controlled hypertension ($\geq 180/\geq 110$ mmHg); (4) current participation in a structured exercise regime; and (5) weight change of >4 kg in the last 6 months. All participants gave their written informed consent. Ethical approval for the study was granted by the Sports, Health and Exercise Science Ethics Committee at the University of Hull (reference: 1516193) and site approval was also obtained by the Ethics Committee at City Health Care Partnership CIC (reference: CHCP16/08/01).

Exercise intervention

The exercise intervention is described in detail elsewhere (Orange, Marshall, et al., 2020). Briefly, participants took part in a 6-month, home-based, combined aerobic and resistance exercise intervention. Half the participants completed resistance exercises with maximal intended concentric speed, while the other half maintained a slow (2 s) concentric speed during resistance exercise. Otherwise, all participants followed the same intervention, which was delivered remotely by a qualified exercise professional (Level 3 exercise referral). Participants were given online access to a series of individually prescribed, asynchronous exercise videos on a private YouTube 'playlist'. Each playlist comprised a total of nine resistance exercises, using body weight or resistance bands. Participants completed 1–2 sets of 5–12 repetitions of each exercise twice per week. The technical difficulty of the exercise, the grade of resistance band and the number of sets/repetitions performed were tailored to each individual according to their functional ability at baseline. The intensity of exercise was guided by rating of perceived exertion, where participants exercised at an intensity of 4–7 on a 10-point scale, corresponding to qualitative descriptions of 'moderate' to 'hard' (Carli & Scheede-Bergdahl, 2015). For the aerobic exercise component, participants were encouraged to increase their daily step count by 5% each week, which was self-monitored using a waist-worn pedometer. During



Months 1–3, the exercise professional provided behavioural counselling through weekly telephone calls (Orange, Marshall, et al., 2020), with behaviour change techniques including behavioural goal setting, self-monitoring, action planning, positive reinforcement and online peer support, which collectively sought to operate through the COM-B model of behaviour change (Michie et al., 2011). During Months 4–6, there was no contact with the exercise professional who delivered the intervention, but participants were instructed to continue with their exercise programme and continue self-monitoring their exercise participation and daily step counts.

Interviews

All participants who completed the first 3 months of the exercise intervention were invited to participate in semi-structured, in-depth, one-to-one, in-person interviews. The interviews were scheduled to take place in a classroom at the University of Hull and were carried out by the same researcher who delivered the intervention (STO). Interviews lasted approximately 30 min, were recorded using a digital voice recorder (Olympus WS-650S, Tokyo, Japan) and later transcribed verbatim. The researcher used a conversational-style approach while referring to an interview schedule, which was informed by interview questions used in previous studies that explored people's experiences of exercise (Dikareva et al., 2016; Fiskén et al., 2015) and by the capability, opportunity and motivation components of the COM-B model (Michie et al., 2011). The interview schedule used open-ended questions and prompts to explore the participant's own experiences of exercise prior to and during the exercise intervention, their views on their motivations and preferences for exercise and their beliefs on the perceived benefits of exercise participation (see Supplementary Material—Data S1). It was used flexibly to allow participants to raise additional topics which they considered important. The interview schedule was initially piloted in a previous study (Orange et al., 2019), which led to minor refinements to the question wording and the inclusion of overt prompts.

Qualitative analysis

Transcripts were analysed using reflexive thematic analysis from a post-positivist epistemological perspective. Reflexive thematic analysis was chosen due to its compatibility with the epistemological positioning of the research team and its ability to capture latent and semantic meaning within the dataset (Braun & Clarke, 2021). This involved six iterative phases: (1) familiarising with the data; (2) generating codes using an inductive approach; (3) constructing themes; (4) reviewing themes, (5) defining themes; and (6) producing the report (Braun & Clarke, 2021). One researcher (JR) coded the transcripts, with the mentoring of two other research team members (STO and BTB), who provided subject and analytical expertise respectively. The three researchers (JR, STO and BTB) engaged in constructive and reflexive dialogue (e.g., challenging assumptions) to collaboratively refine codes, construct themes and later agree on final themes and subthemes. When quotations are used, participant names are replaced with pseudonyms.

RESULTS

Participant characteristics

Thirty-four participants completed the first 3 months of the exercise intervention. Of those, 30 participants (88%) participated in interviews. Participant characteristics are presented in Table 1. Reasons for not taking part in interviews were lack of time ($n = 3$) and travel distance ($n = 1$).



TABLE 1 Participant characteristics ($n = 30$).

	Mean \pm SD or number (%)	Range
Age (years)	45.0 \pm 12.5	23–68
Female	17 (57%)	-
Body mass (kg)	130 \pm 27.8	91.6–198
BMI (kg/m ²)	45.8 \pm 8.6	36.4–70.7
Waist circumference (cm)	129 \pm 14.8	103–155
Waist-to-hip ratio	.95 \pm .09	.82–1.14
Step count (per day)	6138 \pm 2936	1246–11,867
$\dot{V}O_{2max}$ (ml.kg.min ⁻¹) ^a	16.5 \pm 4.1	4.9–21.0
EQ-5D-5L index value	.74 \pm .16	.22–1.0
EQ-VAS	45.8 \pm 22.5	10–100
Comorbidities requiring medication		
Type II diabetes	6 (20%)	-
Hypertension	14 (47%)	-
Hyperlipidaemia	4 (13%)	-
Polycystic ovary syndrome	5 (17%)	-
Gastro-oesophageal reflux disease	7 (23%)	-
Chronic pain	5 (17%)	-
Chronic inflammation	9 (30%)	-
Asthma	9 (30%)	-
Depression	3 (10%)	-

Abbreviations: BMI, body mass index; VAS, visual analogue scale; $\dot{V}O_{2max}$, maximal oxygen uptake.

^aPredicted from BMI and 6-min walk test (Vanhelst et al., 2013).

Findings

Three themes were developed: (1) a web of barriers; (2) tailored exercise facilitates positive experiences; and (3) a desire to live a normal life. Subthemes and additional supporting quotations are presented in [Table 2](#).

A web of barriers

Participants described a web of external, physical and psychosocial barriers that they perceived limited their ability to participate in exercise. External barriers included perceived financial concerns and competing demands, such as work commitments and caring responsibilities:

I have to be very flexible around my shift patterns. So, if it was based in a gym or it was based somewhere else, I'd have to fit it around their opening hours and that would never work for me. The only thing that I can see stopping me in the future is affording a gym membership.

(Grace)

All the gyms that are in the really close proximity to our house are very expensive, and I thought I'm not going to bother.

(Christopher)



TABLE 2 Additional quotes to support themes.

Theme and subtheme	Quotation
A web of barriers	
Competing demands	I always think when you've got a family you feel guilty having too much time to yourself and you could be doing other things. (Hilda)
Pain and injury	Just my knee and my arthritis really. But they've just said that like basically I've got to lose weight to make it better. So, basically it's just one thing after another isn't it? (Evelyn)
Failed weight loss attempts	I think in the past when I've tried to do it on my own, because I've not seen quite quick results even though logically, I know results aren't quick, I've given up and thought that it's not working. (Moirá)
Low self-efficacy	I think sort of like feeding into yourself that you can't do anything, you're useless you're no good and then you just, you know, go back into the thing of "I'll just sit on the settee and watch exercise on the tele then." (Bertha) I had just lost all the confidence in anything that I could do, I didn't know what [exercise] I could do, I didn't know what [exercise] I could do that would fit in with my particular illness. (Amanda)
Feeling judged	You can feel a bit intimidated at [the] gym sometimes if you're the wrong shape and things. (Adrian) I'm very self-conscious. I don't like, you know, people... Maybe because I was overweight and still am overweight and maybe because I'm not that type of person. I'm quite, people looking at me and judging me. Maybe they aren't, maybe they're not, but that's how I feel personally. Erm, I'd rather do it on my own. I even draw the curtains when I'm at home when I'm doing my exercises. Unless it's dark, and then I don't. But do you know what I mean? I'm very self-conscious. (Tracy) I find other places really intimidating. So being in a gym... not such a swimming pool, I'm okay in a swimming pool because no one really cares... but yeah, being at home, because you're in your comfort of your own surroundings and there's nobody there to laugh. (Siobhan)
Tailored exercise facilitates positive experiences	
Value of tailored exercise	It's tailored for your ability which I think makes a huge difference. It's like I said with the videos, you're looking at it and everyone is like a size 8 and really fit anyway and going a million miles an hour whereas this you can do at your own speed. (Moirá)
Non-judgemental exercise instructor	Personalized support is massive. It's that accountability every week that other people do not give you. And that's the big thing for me, the fact that there's somebody every week just checks just to say "are you okay? Is it okay?" Because that kind of helps you along. And it is very personalized, it's not a one-size-fits-all approach. (Siobhan)
Home-based exercise	Well it's the convenience and the fact that "well I've got half an hour now, I can do it." You know? Erm, I've got a spare chunk in my morning, I can do it then or I've got a spare chunk in my afternoon and I can do it then. (Christopher) I have to very flexible around my shift patterns so for me personally I can do it as and when I can fit it in. So if it was based in a gym or it was based somewhere else I'd have to fit it around their opening hours and that would never work for me. So something I can do at home is of massive benefit to me because it fits into my life. (Grace)
A desire to live a normal life	
Living a normal life	Erm, to increase my mobility. I was getting to a point where I could hardly get out of a chair, I couldn't walk up the stairs... it was just generally to hopefully lose weight but more to increase my mobility really. (Hilda) Because I've got to that point now in my life where I am sick and tired of being fat. End of. That's it. You know, I want to be able to look down and see my little fella. Simple as. You know, it's been a few years since I've seen it because my belly's in the way. (Nigel)
Improved physical function	I've not lost weight, I've not changed, well obviously somethings changed cos I've got more support in my body, I trust it a bit more I guess if that's the word but I'm yeah, I don't feel like it's gonna let me down as much as it did. (Bertha) Just in general I feel stronger. I've noticed there's stuff I find easier to do. Lifting things I find that easier, in everyday life. And in regards to doing the programme I know when I first started doing some of the exercise with the yellow band was hard and now I'm on the red band for some of them and that still feels easy! So there is definitely a huge difference there. (Moirá) My fitness levels are up. Walking the dogs is miles easier. And that's mainly as well, the strength in my back now. Whereas before I'd be walking the dogs and I'd be [grimaces and holds back] and I'd have to rest. Now, I'm not getting that, I'm not tensing up like I used to. So I can walk a lot further. (Daniel)



TABLE 2 (Continued)

Theme and subtheme	Quotation
Source of motivation	Yes I do, like I said to you today, I've walked to Asda today, and usually I just get the car and do it. And I just thought no bugger it I'm going to walk. I've always been put off by going for a walk because I'm thinking is my back going to play up, I've been real conscious of my back because the amount of weight that I've put on and the amount of stress it's putting on my back. But now I don't feel it as much. (Adrian)
Bringing enjoyment to life events	But in 2016 when we were in ****, I really did not want to walk. I'd start down the promenade and I'd think I don't want to do this. And I'd not be particularly feeling breathless, but I'd think to myself my legs hurt, my ankles hurt, you know? I just don't want to do this. And I'd be looking for any opportunity to come back to the hotel, which is quite boring really cause when you're on holiday you want to go taking in the environment, you're in. This year, we were going to ****, and I could have walked all day. We walked all the way along the **** coast, it took us five or six hours, and I'm talking 30-odd degrees, and it didn't trouble me one little bit, I really really enjoyed it. (Christopher)
How bodies are viewed by others	I feel better in myself, I'm confident about myself, clothes fit a lot better, people I've seen have commented, even people in like at the Spar shop and Tesco's when I go fill up, even they've noticed the weight loss, so that's a bit of a "wow", people you don't know have commented and it's weird. (Jack)

Participants described how pain, discomfort and injury experienced during everyday activities, particularly in the back and lower limbs, affected their ability and motivation to exercise:

I've always been put off by going for a walk because I'm thinking "is my back going to play up?" I've been real conscious of my back because the amount of weight that I've put on and the amount of stress it's putting on my back.

(Adrian)

I was getting a to a point where I could hardly get out of a chair, I couldn't walk up the stairs. When I'd had like a back injury or my knee or whatever it scared me because I was never shown how to exercise without making that worse so I just avoided it completely.

(Hilda)

Participants recalled their previous efforts to lose weight through exercise. They described how falling short of weight loss goals and not seeing visible changes in their physical appearance were barriers to continued exercise participation:

One of the things for me is when I don't see changes over a certain period of time, I get disheartened, I lose motivation, I basically think to myself what's the point. You know, so, that's one of the reasons I've stopped in the past. As I say, the biggest one is not noticing differences. That's one of the big ones that does get me down, and I think what's the point.

(Nigel)

Perceived stigma, judgement and intimidation by others in public spaces throughout childhood and adulthood were described as contributing to exercise avoidance. Participants described a feeling of being watched and felt uncomfortable in the gaze of others:

I'm a bit self-conscious. I know I'm overweight, but whether they're looking or not, I feel as if they are. I feel as if I don't wear anything form fitting and I know you've got to in the gym. And I feel very self-conscious about that and I'm not comfortable at all with it, that I can't wear clothes that will hide my figure as it were. So that's a main factor [for not exercising].

(Niamh)



Because I wasn't skinny like everyone else, everyone pointed that out and in my head people are still going to be like that in the gym. I had bullying all the way through school, so from about the age of 11 I found excuses not to do P.E so I didn't have to get changed out my uniform.

(Moira)

Participants described being aware of the benefits of exercise on physical and mental health. However, participants expressed a low sense of self-efficacy and viewed their bodies as being incapable of exercise, which contributed to exercise avoidance. Gym staff were also viewed to contribute to low self-efficacy:

I think everybody knows it's good to exercise. Exercise has so many benefits and everybody knows them, it reduces everything, it helps with everything, it maintains everything. It's how to do the exercise. What exercises do I do? How do I move my body? How many times do I do it? When should I be doing it? Do you know what I mean? It's like form and things like that. Knowing that you don't know what to do. You look on a picture online and it's not the same. Cause obviously you don't know what your body is capable of doing. You think to yourself "oh I can't do that."

(Grace)

I used to go to **** Gym and they told me to come and have my personal fitness plan and you just feel like what you can do is not good enough. And they're like "oh can you not do that?" and you just feel really inferior and really bad and it just stops you from going.

(Hilda)

I know loads of people who have been to various slimming clubs and exercise things and they've not really been understood, they've just given them a blank thing that's just designed for everybody and they can't do it and then it's just like "oh I'm a failure again, I can't do it."

(Amanda)

Tailored exercise facilitates positive experiences

Participants placed high value on exercise that was individually tailored to meet their unique physical needs of living within a larger body. Tailored exercise was described as a motivating factor for initiating and continuing an exercise programme, and promoted a positive exercise experience:

Everything's catered towards you. It's so about the individual person, it's not like a factory line where everybody gets given the same thing...do you know what I mean? Like they say a monkey's ability to climb a tree and a dolphin's ability to climb a tree. It's not something like that, it's so individually catered so it makes it so accessible to do.

(Grace)

I just didn't know what exercise to do really. I didn't really trust myself to just take things upon myself to do. I haven't done any exercise since I was last at school. That was the last time I ever partook in any sort of exercise and I hated it then, I only did it because I had to. And since being in this programme, I found out that I actually do like exercise, but I was just never shown the one that would get on with me.

(Amanda)



Having support from a non-judgemental exercise instructor was described as valuable and contrasted against past negative experiences:

If I couldn't do it [exercise], I could tell you [exercise instructor] without you judging me, cause that would've put me right off...if I'd of seen like "oh god she's not gonna do it" or... you know, I would've not done it. I needed somebody to be understanding if you can't do it, you know. So that was brilliant.

(Niamh)

Not one point did I feel that I was erm did I feel judged, I've always felt comfortable.

(Bertha)

Participants described how exercising at home can overcome external and psychosocial barriers to exercise. In particular, they described the home as a comfortable and flexible exercise space that circumvents the perceived judgement when exercising in public spaces:

I think it's a lot easier to do at home. I enjoyed the fact I could go disappear to my room and do it and not have people watching apart from the dog!

(Moir)

It just fits in; it just fits in with my life. Sometimes I've done it at 8 o'clock on a night, sometimes I've done it 6 o'clock in the morning. It just fits in with what I'm doing in that week. Everybody can make just half an hour twice a week. When people have got illnesses or are obese and have other complications, most people who are obese have got other health issues haven't they like myself? And sometimes at some points in the day, afternoons might be particularly bad for some people, or mornings might be particularly bad if they're stiff, and you can do it to when you're feeling the best in the day. So, you know some days I've woken up with a bad back and I've thought "oh I don't even fancy doing anything today." And then in the afternoon I've thought "oh do you know what, I'm feeling okay now, I'll do that now while I'm feeling alright." Even when my son was home over Easter and I'm busy I can fit it in. It fits around my illness, it fits around other timetable scheduled things that I've got, I don't have to alter anything. I was at the Doctors every single day of the week I had medical appointments for one thing or another, and yet I could still fit this in cause you can put it in whenever, can't you?

(Amanda)

Positive exercise experiences were viewed as a gateway to more varied and sustained exercise participation:

Even though this was doing the home exercises it's like pushed me to go and join a nice gym. And because of that I'm doing more. I belonged to another gym and I didn't even use it. I was maybe going once a week now I'm going four times a week at least.

(Katie)

I've got my other half inspired to take part in a bit more the exercise so hopefully that'll be a knock-on effect to help me do even more. The fact that we're not just walking around the shops, we're actually getting out and we've even got a bike rack to fit on the car to actually take it out for the day. Not quite got that far yet but we've gone local cause we live fairly accessible to ride different places in the town centre so we can explore. I'd like to get in the country side though and up and down the hills rather than the flat but the flat is good for now. But eventually I'd like to get to a bit of hills.

(Clifford)



A desire to live a normal life

Participants described their experiences of living in a larger body and how this hindered their ability to experience a 'normal' life. Their motivations for sustained exercise participation were attributed to a desire to carry out simple everyday activities:

I'm tired of not being able to do certain things. It sounds really silly, I'm not a vain person but I wanna ride a rollercoaster and I wanna go on an aeroplane, and there is certain aspects of life that is difficult to live when you're overweight where if you were down to an average healthy weight you could do those things without even a second thought. Go down a slide, and have a towel wrap all the way round you, and silly little things like that.
(Grace)

I want to be normal again, I don't want to be the fattest mum at school. And I want to not think that if we're going somewhere 'will the chair fit?', 'will I get my seatbelt on' and things that worry you when you're overweight. When we go for meals the first thing I'm thinking is 'oh God what kind of chair will it be?' I have to sit uncomfortable for two hours. I enjoyed lots of things which I don't enjoy anymore because I'm too overweight and it's embarrassing so I want to get back to being like that. I want to go down the slide with my son between my legs you know the things that you don't do cos you're frightened you'll get stuck.
(Bertha)

Participants described how increased ability to carry out everyday tasks, such as walking, tying shoe laces and lifting everyday objects, were the most conspicuous changes they observed during participation in the exercise intervention:

It helps you getting in and out the car, it helps you getting up and down off the seat, it helps you when you have to run upstairs to the toilet, it helps you...it just...being fitter has just helped me in every single thing that I do in my entire life. I can bend down and tie my shoe laces without having to sit down. So when I'm walking and my shoes come undone, I can just bend down and tie them up, whereas before I would just have to wait until, like walk slowly until I've found somewhere that I could either prop by bum against or sit down on to get down to do it. It's just things like that.
(Amanda)

The perceived improvements in physical function served as a source of motivation to be active, particularly to walk more and were perceived to bring enjoyment to other life events, such as holidays and shopping:

I don't use my car as often as I used to. I actually walk now and I feel guilty to myself if I don't walk because I think well you've got arthritis, you're stiffening up, and I've been shown and I've actually proved it that by walking it isn't making my knees worse, it's not making my back worse, it actually improves me.
(Susan)

I've got this thing about clothing designs for people who are overweight. They make the most ridiculously revealing clothes when you go in. You just think "why would you make something in see through material, why would I want to wear something in like chiffon?" Do you know what I mean? So, I can go to other places, which is quite exciting really. But for the first time ever I didn't go to Evans for my clothes! For the first time ever in like



20-30 years I didn't have to go there! I just like went to, well I'll tell you where I went, to Marks and Spencer outlet place that get the cheaper reject things. It felt really good just to not have to go to one shop.

(Amanda)

Although the desire to live a normal life was the main source of motivation for exercise, some participants highlighted the benefits exercise and weight loss had on how their physical appearance was judged by others:

You get a kick out of people saying to you “have you lost weight?” I mean I went in the butchers not long ago and the butcher said to me “you're looking a bit perkier and slimmer” and it's nice when people notice. It does alter your demeanour as well.

(Christopher)

DISCUSSION

This study provides a unique insight into the views and experiences of exercise participation in adults with class III obesity. People with class III obesity described experiencing a complex web of physical and psychosocial barriers, including lifelong stigma, low physical function and pain during movement, which contributed to a perceived inability to do exercise and a history of exercise avoidance (theme 1). High value was placed on tailored exercise that accommodated the unique needs of living within a larger body and was delivered in a supportive, non-judgemental manner (theme 2). The desire to live a normal life underpinned motivations for sustained exercise participation (theme 3). These findings have important implications for exercise prescription as part of multi-component obesity interventions.

People with class III obesity described experiences of feeling judged and stigmatized in exercise and non-exercise spaces, which was felt to contribute to exercise avoidance. These findings align with those of previous studies (Farrell et al., 2021; Thedinga et al., 2021; Toft & Uhrenfeldt, 2015) and reinforce the perception of ubiquitous weight stigma (Puhl et al., 2021). Our findings extend this knowledge by showing that people with class III obesity avoid exercise because of a deep-rooted belief that they are unable to do, or are unsuited to, exercise. Participants felt judged by others, including gym staff, for not being able to physically perform certain exercises and described difficulties carrying out every day physical tasks, such as climbing stairs and rising from a seated position. The pain and shame felt during physical activities reinforced a sense of low self-efficacy and dampened motivation to continue exercising. Previous work has described how pain and discomfort during movement can contribute to a vicious cycle of exercise avoidance, weight gain and obesity (Shultz et al., 2009).

The unique physical and psychosocial barriers to exercise faced by people with class III obesity intersect with infrastructures and systems that thwart exercise participation. Internationally recognized exercise guidelines for people with obesity are almost identical to those for the general population (American College of Sports Medicine, 2020; Bull et al., 2020; Yumuk et al., 2015); they focus on maximizing energy expenditure, with no regard for the complex needs of living in, and manoeuvring, a larger body. The UK National Health Service (NHS) recommends vigorous physical activities such as running and circuit training for people with obesity (NHS England, 2023), yet our qualitative findings show that adults with class III obesity often view their bodies as being incapable of exercise. Our experiences of delivering exercise to this population have also shown that people living with class III obesity beginning an exercise programme are often physically unable to carry out traditional circuit training exercises that require swiftly manoeuvring their body mass, such as jumping or trunk flexion. By contrast, tailored exercise that accommodates moving in a larger body promotes a positive exercise experience and was viewed as a gateway to more varied and sustained exercise participation. Indeed, tailored exercise is associated with exercise adherence across most adult populations (Collado-Mateo et al., 2021). These



findings suggest a need to go beyond maximizing energy expenditure when designing exercise interventions and instead develop more accessible exercise guidance that validates the lived experiences and addresses the unique physical and psychosocial needs of people living with class III obesity.

Weight loss of 5%–10% is generally the key endpoint in weight management programmes (Jүүл-Hindsgaul et al., 2024). From an individual behaviour change perspective, this is problematic because less than half of people with class III obesity enrolled in specialist weight management services lose more than 5% of body weight (Brown et al., 2017). In our study, over 90% of participants completed two exercise sessions per week for 12 weeks, but only 11% of participants lost more than 5% of body weight during the same period (Orange, Marshall, et al., 2020), demonstrating that adherence to healthy behaviours rather than weight loss might be a more realistic goal. Participants described how not losing weight and not seeing changes in their physical appearance had resulted in exercise avoidance and previous abandonment of weight loss efforts, aligning with earlier research (Carels et al., 2003). Other research has also shown that focusing on weight loss leads to negative experiences of exercise (Feig et al., 2022), and failure to achieve a ‘goal weight’ can set people up for perceived failure (Brenton-Peters et al., 2023). Extending this work, our study highlights how people with class III obesity are motivated to exercise by a desire to live ‘normally’ and be able to carry out activities of daily living, such as tying shoelaces and climbing stairs, rather than by weight loss *per se*. Improvements in physical function were described as the most noticeable changes following the intervention, which served as a source of motivation to be more active. Collectively, these findings suggest that a shift in focus from weight loss to exercise behaviour, and the conspicuous benefits exercise has on physical function, may be more conducive to sustained exercise participation (Ross et al., 2015). This argument aligns with recent clinical practice guidelines recommending the goals of obesity treatment should focus on the value that the person derives from health interventions, regardless of body size or weight (Wharton et al., 2020).

Proposals to adopt a weight-neutral strategy for obesity treatment are further supported by evidence showing that the increased risk of mortality associated with obesity is attenuated or eliminated by regular exercise (Hu et al., 2004; Koolhaas et al., 2017; Zhang et al., 2020). Furthermore, the improvement in cardiometabolic risk factors following exercise is similar in magnitude to that observed in weight loss programmes (Gaesser & Angadi, 2021), and weight cycling is associated with adverse health outcomes (Zhang et al., 2019). We have also shown that the benefits of resistance exercise on physical function are diminished when people simultaneously try to lose weight (via calorie restriction) (Orange, Madden, & Vince, 2020).

A limitation of this study is that the interviews may be prone to bias because they were conducted by the same researcher who delivered the intervention (Bergen & Labonté, 2020). However, the researcher built strong rapport with participants during the intervention, which is likely to have facilitated disclosure of sensitive personal information in interviews and enhanced the richness of the interview data (Gabbert et al., 2021). Another limitation is that participants were recruited from one clinic, which may not be representative of the wider population. Nevertheless, our sample included men and women with a wide range of ages, BMIs and physical activity levels, and the clinic was located in the most deprived 10% of local areas in England (McLennan et al., 2019), which increases the relevance of the findings to socioeconomically disadvantaged communities.

In conclusion, people with class III obesity have a strong perception that they are unable to do exercise; a view that is attributed to a lifetime of perceived judgement by others, low physical function and pain during everyday activities. These complex physical and psychosocial barriers to exercise intersect with exercise prescriptions that are not conducive to, and may in fact be detrimental to, exercise participation. In contrast, tailored, professionally supervised exercise that caters for moving in a larger body promotes positive experiences and may act as a gateway to more sustained and varied exercise participation. A desire to live a normal life and be free to carry out basic activities of daily living underpins motivations for exercise. Taken together, these findings suggest exercise programmes as part of multicomponent treatments for obesity should move away from generic exercise prescriptions designed to maximize energy expenditure, and instead move towards addressing the unique physical and psychosocial needs of people living with obesity.



AUTHOR CONTRIBUTIONS

Samuel T. Orange: Conceptualization; investigation; formal analysis; supervision; methodology; writing – original draft. **Jessica Roebuck:** Investigation; formal analysis; writing – review and editing. **Phil Marshall:** Supervision; conceptualization; methodology; writing – review and editing. **Leigh A. Madden:** Supervision; writing – review and editing; conceptualization. **Rebecca V. Vince:** Funding acquisition; conceptualization; writing – review and editing; supervision. **Beth T. Bell:** Supervision; formal analysis; methodology; writing – review and editing.

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DATA AVAILABILITY STATEMENT

The quantitative research data supporting the findings from this study are openly available in Open Science Framework at <https://osf.io/abgqc/> (doi: 10.17605/OSF.IO/ABGQC). Anonymized transcripts are available upon reasonable request to the corresponding author.

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SUPPORTING INFORMATION

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

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