

## Barriers to and Facilitators of Long Term Weight Loss Maintenance in Adult UK People: A Thematic Analysis

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### ABSTRACT

Adult obesity and overweight is affecting every region of the world and is described as one of today's most significant and neglected public health problems. The problem has taken the shape of an epidemic not only because the prevalence of obesity has witnessed a dramatic progress in a short period of time, but also because obesity has paved the way for increased risks for morbidity and mortality associated with it. It has been predicted that about half of the adult men and more than a quarter of adult women would be obese by 2030 in the UK and this figure could rise up to 50% in 2050 for whole of the adult UK population. Although a modest 5–10% weight loss maintained in the long term can significantly decrease health risk, few people engage in weight loss activities. Against this background, this review paper aims to investigate the reasons helping and/or hindering adults in the UK maintain weight loss in the long term; using online and organizational data sources and thematically analyzing the data. Self-body perception, enhanced self-confidence, social support, self-motivation, incentives and rewards, increased physical activity levels and healthy eating habits facilitated people in maintaining weight loss in the long term and overall quality of life. Extreme weather conditions, natural phenomena such as accidents, injuries and ill-health, work commitments, inability for time management and to resist the temptation for food constrained the successful long-term weight loss maintenance.

**Keywords:** Barriers and facilitators and weight maintenance, weight control, weight loss, weight maintenance, weight management

### INTRODUCTION

Obesity is a complex, multifaceted condition characterized by excess or abnormal deposition of body fat that may jeopardize an individual's health.<sup>[1,2]</sup> It is caused by the interplay of many complex biological, psychological, socio-cultural, environmental and economic factors.<sup>[3]</sup> Almost all developed and developing countries in the world are afflicted by obesity epidemic, its prevalence has grown up from 312 million in 2004 to more than 1.4 billion obese adults in 2008.<sup>[4-6]</sup> Although not identical, terms

obesity and overweight are often substituted for one another in practice and the figures for both of them are often combined; adding to the confusion and discrepancy in true estimates.<sup>[7,8]</sup>

Obesity affects all ages and both genders; differences can be observed in the prevalence of obesity across and within continents, countries, and states. There are regional differences in the prevalence of obesity within Europe; number of overweight and obese individuals is increasing in England when compared with other European countries.<sup>[9,10]</sup> Estimates from a health survey in England shows that a quarter of adult men and women were obese in 2004. It has been predicted that about half of the adult men and more than a quarter of adult women would be obese by 2030 in UK and this figure could rise up to 50% in 2050 for whole of the adult UK population.<sup>[11,12]</sup>

Excess body weight is associated with poor health and a range of noncommunicable diseases: Type 2 diabetes,<sup>[13,14]</sup> hypertension,<sup>[13,15]</sup> cardiovascular diseases,<sup>[13,16]</sup> stroke,<sup>[17]</sup> osteoarthritis,<sup>[18,19]</sup> gall stones,<sup>[20]</sup> benign prostatic hyperplasia,<sup>[21]</sup> obstructive sleep apnea<sup>[22,23]</sup> and some cancers like adenocarcinoma of esophagus and gastric cardia; endometrial, breast, and colon<sup>[6,13,24-26]</sup> leading to a massive impact on public health and related health economics. A fair estimate of this massive burden can be estimated by the fact that National Health Service and special health boards had planned to spent an amount of  $\leq$  m 7,846.0–8,623.0 on health alone between a period of 2008–2011.<sup>[27]</sup>

Preventing obesity is a complex process and a key public health challenge. There are a number of interventions and strategies to tackle overweight and obesity throughout the world, depending on country, region and target population.<sup>[28]</sup> In the UK, number of initiatives such as saving lives: Our healthier nation, choosing health: Making healthier lives easier, the Scottish government's healthy eating, active living: An action plan to improve diet, increase physical activity and tackle obesity, the keep well initiative etc., have been formulated in light of the evidence-based causes of obesity in the UK and implemented to help people lose weight.<sup>[28-34]</sup> Although a modest weight loss maintained in the long term can significantly decrease health risk, few people engage in weight loss activities. Research studies have demonstrated the determinants of short-term weight loss maintenance. However,

a few have attempted to explore the factors associated with long-term weight loss maintenance. Against this background, this review paper aims to investigate the reasons helping and/or hindering UK adults maintain weight loss in the long-term using online and organizational data sources and analyzing the data thematically.

## METHODS

The scope of the literature search was determined by the probable applicability of research papers to the specific context of long-term weight loss maintenance. Compared to short term success, minimal literature is available on the factors associated with long-term weight loss maintenance. Therefore, a visionary search strategy was needed to identify relevant studies over diverse fields, including those neither published in peer-reviewed journals nor addressed in online databases to gain access to the relevant literature, to maximize support and gain evidence for the study.

The PICO framework<sup>[35,36]</sup> was used to design inclusion and exclusion criteria for the literature review [Table 1]. Philosophy and opinion-based papers were not included in the review. A literature search was carried out using a number of online databases and search engines, academic and organizational papers on the topic of obesity and weight loss maintenance up to February 2014. Searches were restricted to dates (1991–2014; this period was chosen as the obesity prevalence is considered to be more conspicuous during past 20 years), language (English) and document type. To balance specificity and sensitivity of the search terms and fields, iterative refinements were carried out. The initial strategy was to include the term *obes\** and adults that generated a range of articles too wide to go further with, results were mainly focusing on short term weight loss. Filters were applied for humans and years of publication that narrowed down the search. Relevant articles were sought by using the term weight maintenance and adults. Further search was carried out using the terms (barriers) and (facilitators) and (weight maintenance), directly focusing on the research question [Table 2]. Weight loss maintenance programs in group settings as well as maintenance at individual level were included in literature search, permitting investigation of

**Table 1:** Inclusion and exclusion criteria

	<b>Explanation</b>	<b>Included</b>	<b>Excluded</b>
Population	Adults (18 and above) men and women	Obese and overweight adults Adults with physical disorders/illnesses (such as high blood pressure, diabetes, bones and soft tissue disorders)	Children Adults over 65 years of age Hospital settings
Intervention	Group setting and/or at individual level	All	Pharmacological interventions used for weight loss and maintenance Surgical interventions used for weight loss and maintenance
Comparator	None/any		
Outcome	Weight loss and maintenance after initial loss	Weight loss and maintenance after initial loss	No health outcome (no identifiable weight loss)
Study design	Any	Qualitative Quantitative Reviews and trials Academic and organizational papers	Philosophical and opinion based papers

**Table 2:** Literature search strategy

<b>Database</b>	<b>Terms included</b>	<b>Number of articles retrieved=<i>n</i> (excluding duplicates)</b>	<b>Potentially relevant articles by abstract and titles and keywords</b>
PsycINFO (EBSCOhost)	Weight maintenance and adults, weight management and adults, weight control	126	29
Ovid MEDLINE (R)	Weight maintenance and adults, weight management and adults, weight control/loss	222	24
Web of science	Weight maintenance and adults, weight management and adults	137	6
Cochrane central register of controlled trials (central) (cochrane library)	Weight maintenance and adults, weight management and adults	152	13
Google scholar	Weight maintenance and adults, weight management and adults, barriers and facilitators and weight maintenance and adults	893	41
National institute for clinical excellence	Weight maintenance and adults, weight management and adults	78	2

the relative influence of barriers and facilitators on weight loss maintenance with and without on-going peer support.

To discover grey literature (documents published by organizations, rather than academic journal articles or books), Google Scholar was used to sought organizational websites related to health and obesity. Citation searches and author searches were carried out on a few included articles as a final check against missing key reports.

Relevant articles to be included in this section were selected in three different stages on the basis

of inclusion and exclusion criteria [Table 1]. Preliminary scrutiny of the titles sieved out articles on the wrong topic, articles that seemed relevant were saved. Articles relevant by abstracts were considered in the next stage. Among these, articles which did not meet the inclusion and exclusion criteria, not found by abstract, not available free of cost, or the wrong article type were disqualified. A search with Google Scholar at a later stage revealed a number of items not found through other search engines, but some of these were difficult to find or not easily or freely available. Full

texts of the remaining potentially relevant articles were obtained at the final stage of selection. At the end, all full-text articles were read, and those considered to have met the proposed criteria were included in this review. Twenty-two articles of relevance were found-nine qualitative studies,<sup>[28,37-44]</sup> five quantitative studies,<sup>[45-49]</sup> five reviews<sup>[50-54]</sup> and three randomized control trials<sup>[55-57]</sup> [Table 3]. These studies included a mix of peer-reviewed papers published in academic journals and reports and were critically appraised, using Critical Appraisal Skills Program (CASP) tool to avoid the risk of poorly found research evidence on these studies.<sup>[58]</sup> The studies in which the study aims, study design and methodology were clearly defined, analysis was carried out appropriately, results were reported and presented well were given ratings ranging from poor to good against the CASP tool. The studies

who were rated fair and good were included in the review.

The review generated common themes for the study. The themes were described as facilitators of and barriers to long-term weight loss maintenance. The themes were then segregated into several sub themes, and codes common to the studies included in the review [Table 4]. Initially, the codes were tabulated in an unorganized fashion, and an apparent count was made of how many times each code was repeated (borrowing from content analysis). The next stage involved combining or bringing together similar ideas, taking apart the different ones and finally removing the duplicates to give a handy number of distinct themes and subcategories which were easy to manage and dealt with at a later stage. The themes and subcategories obtained were then cross-examined in light of the

**Table 3:** Articles included in the review

Authors, year	Type of study	Study participants	Methods/measures
Bidgood and Buckroyd, 2005	Qualitative	Overweight and obese adult men and women	Semi-structured interviews and focus groups
Burdett, 2010	Qualitative	Overweight and obese adult women	Semi-structured interviews
Adolfsson <i>et al.</i> , 2002	Qualitative	Obese adult men and women	Semi-structured interviews
Visram <i>et al.</i> , 2009	Qualitative	Overweight and obese adult men and women	Semi-structured interviews
Herriot <i>et al.</i> , 2008	Qualitative	Obese adult men and women	Focus groups
Dohm <i>et al.</i> , 2001	Qualitative	Overweight adult men and women	Community based survey
Mattes, 2002	Qualitative	Overweight and obese adult men and women	Qualitative survey
Dattilo <i>et al.</i> , 2012	Qualitative	Overweight women	Semi-structured interviews
Wycherley <i>et al.</i> , 2012	Qualitative	Overweight and obese adult men and women with type 2 diabetes mellitus	Semi-structured interviews
Raynor <i>et al.</i> , 2011	Quantitative	Overweight adults, normal weight adults and weight loss maintainers	Telephonic interviews
Phelan <i>et al.</i> , 2009	Quantitative	Overweight and obese adult men and women	Longitudinal study
Craig <i>et al.</i> , 2011	Quantitative	Overweight adult men and women	Descriptive statistical study
Thomas <i>et al.</i> , 2010	Quantitative	Young adults who had lost at least 5% of their body weight in a specified time period	Case control study
Weiss <i>et al.</i> , 2007	Quantitative	Adults who had lost weight one year before the survey	Secondary data analysis
Garip and Yardley, 2011	Systematic review	Overweight and obese adult men and women	Meta-ethnography
Brown and Gould, 2011	Systematic review	Overweight and obese adult men and women	Meta-ethnography
Wu <i>et al.</i> , 2009	Systematic review	Overweight and obese adult men and women	Systematic review
Fogelholm and Kukkonen-Harjula, 2000	Systematic review	Overweight and obese adult men and women	Systematic review
Catenacci and Wyatt, 2007	Systematic review	Overweight and obese adult men and women	Systematic review
Keränen <i>et al.</i> , 2009	RCT	Overweight and obese adult men and women	RCT
Jakicic <i>et al.</i> , 2011	RCT	Overweight adult men and women	RCT
Gray <i>et al.</i> , 2012	RCT	Overweight and obese adult men	Semi-structured interviews, focus group and survey

RCT=Randomized control trial

**Table 4:** Themes, sub themes and codes

Themes	Sub themes	Codes
Facilitators	Diet	Reducing calorie intake and snacking
		Increased fruits and vegetables intake
		Portion control
		Regular breakfast
		Increased water intake
	Physical activity	Watching food labels for calorie content
		Regular walking, jogging
		Aerobic exercises such as swimming, cycling etc.
	Social support	Use of gym facilities
		Family
Support from professionals whilst participating in a weight loss program		
Self-motivation		
Behavioural improvements	Incentives and rewards	
	Camaraderie	
	Self-body perception	
	Self-motivation	
Past stigmatizing experiences	Confidence	
	Psychological boost such as enhanced mood etc.	
	Negative verbal comments	
Barriers	Weather	Public embarrassment related to excess body weight
		Extreme winters
	Sickness	Episodes of illnesses and long term physical conditions such as arthritides
		Work and job commitments-long work hours, heavy work load, stress
	Lack of time management	Inability to afford healthy food choices
		Inability to afford exercise equipments and gym
	Problems at home	Christmas, Easter etc.
		Holidays
	Festivities	Previous unsuccessful weight loss attempts
		Eating for reasons other than hunger
Lack of self-perception of body image		
Lack of motivation	Negative verbal comments	
	Public embarrassment related to excess body weight	

research questions; themes that seemed irrelevant to the study questions were dumped.

## RESULTS

The resulted themes are shown in table 3 and 4.

## DISCUSSION

### Facilitators

Self-body perception, self-motivation, behavioral improvements and past stigmatizing experiences helped people lose weight and maintaining weight loss in the long term.<sup>[28,37,40]</sup> Support from professionals while participating

in a weight loss program, friends and family emerged as potential facilitators of weight loss in the long-term.<sup>[38,39]</sup> In some cases, sharing common interests and characteristics (age, similar physical conditions etc.) during weight loss program participation provided common platform to discuss potential issues, psychological boost and self-confidence which helped them in long-term weight loss maintenance.<sup>[57]</sup> This gives an insight into a possible relation between camaraderie and long-term weight loss maintenance, which needs to be explored further. However, these were small qualitative/quantitative studies wherein transferability cannot be claimed, however the same themes were apparent from different studies and thus increased their validity.



Literature demonstrates that adherence to low energy density diet, greater intake of fruits, vegetables and whole grains and decreased sugar consumption helped people with weight loss maintenance in the long term.<sup>[45,46]</sup> In addition, portion control, taking regular breakfast, increased daily water intake, studying food labels for calorie content while shopping for grocery facilitated long-term weight loss maintenance.<sup>[57]</sup>

Successful long-term weight loss maintenance was related to increased physical activity as well. Regular walking, jogging, aerobic exercises such as swimming, cycling, etc., had a noticeable impact on weight loss maintenance.<sup>[46,49]</sup> Appropriate and affordable exercise facilities in the neighborhood, getting incentives, and small rewards such as the provision of fee concession; free leisure cards etc., by gym authorities further facilitated long-term weight loss maintenance.<sup>[43]</sup> Not surprisingly, greater improvements were seen in those engaged both in physical activity and healthy eating.<sup>[56]</sup>

### Barriers

Internal conflicts and psychological factors such as lack of willpower, lack of self-sabotage, self-perception of body image, past stigmatizing experiences related to excess body weight emerged as barriers to weight loss maintenance in the long term.<sup>[28,40,50]</sup> Interestingly, past stigmatizing experiences such as negative verbal comments and public embarrassment related to excess body weight were emerged as both facilitator and barrier to long-term weight loss maintenance. While these experiences motivated some people lose and maintain weight in the long term, they constrained others in following healthy eating habits and exercise regimes.<sup>[28,40]</sup>

Emotional factors (e.g., feeling unable to manage weight), work commitments, family-related issues such as problems at home, occasions/festivals (e.g. Christmas), inability to afford healthy food choices, exercise equipments and gym, incapacity for time management due to work and job commitments, restricted people follow the changed dietary patterns and exercise schedules and thus maintaining weight loss in the long-term.<sup>[48,53]</sup> Psychological factors, lifestyle, coping responses and cognitive attributions were other barriers to long-term weight loss maintenance.<sup>[40,41]</sup> These factors included inability to resist the temptation

for junk food, huge portion size, eating for reasons other than hunger, depression, previous unsuccessful weight loss attempts, etc. These factors were primarily attributed to lack of self-motivation, lack of coping responses, internal conflicts and self-control.<sup>[28,37,44]</sup>

Research showed that those adults who were sedentary or not meeting public health recommendations for physical activity had a higher probability of weight regain than those who were meeting these guidelines.<sup>[46,49]</sup> This aspect of physical inactivity resulted primarily from a lack of willpower and motivation (largely self-motivation). In addition, environmental factors such as bad weather conditions specially extreme winters; and poor health, episodes of sickness and associated physical conditions such as arthritides further imposed restrictions on adherence to exercising.<sup>[47,50]</sup> Interestingly, a dose-response relationship was explored between physical activity and weight loss maintenance, suggesting a likely causal relationship between the two variables and thus increasing its credibility.<sup>[53,54]</sup>

## CONCLUSIONS

The findings of the paper are widely dispersed and plentiful, providing an opportunity for literature to emerge demonstrating the relationship between long-term weight loss maintenance and its determinants. Self-body perception, self-motivation and stigmatizing experiences facilitate weight loss maintenance in the long term whereas weather, work commitments, internal conflicts and family related issues constraint the process in the long term. Apart from the traditional ways of cutting calories, adopting practices such as portion control, watching food labels, taking regular breakfast and increased water intake can help maintaining weight loss in the long term successfully. Self-motivation, motivation by family and friends, enhanced self-esteem, together with physical activity and healthy diet facilitate long-term weight loss maintenance and thus improve the overall quality of life. Additionally, the importance of camaraderie during weight loss program participation and maintaining it after program completion appeared as a valuable asset in this regard. However, scanty literature is available which talks about these concepts; the evidence could be further improved

by carrying out longitudinal studies specially focusing on this theory. Moreover, the majority of studies have addressed the factors associated with short term weight loss maintenance which demonstrates the need to focus on the determinants of long-term weight loss maintenance. In order to provide high-quality evidence in the subject area; there is a need to carry out randomized control trials establishing causality between long-term weight loss maintenance and its determinants. Rigorous scientific enquiry is needed from future studies to address gap in the knowledge related to barriers and facilitators associated with obesity and long-term weight loss maintenance in adults.

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