Barriers facing people with obesity and type 2 diabetes in weight control: A systematic review

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Article points

1. Although not every obese person will develop diabetes, obesity is a modifiable risk factor for type 2 diabetes.
2. Following a systematic review of the literature, barriers to weight control relate to personal circumstances, individual perceptions and preferences and environmental constraints.
3. Weight loss can be promoted through coordination of resources, education, effective national policies and a supportive network of healthcare practitioners.

Key words

- Barriers to weight control
- Motivation
- Physical activity
- Systematic review

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Type 2 diabetes has both non-modifiable and modifiable risk factors, such as heredity and obesity respectively. Obesity or overweight is a key modifiable risk factor for type 2 diabetes. Therefore, weight control through non-pharmacological interventions such as diet and physical exercise are some of the important measures used to reduce the potential complications and mortality associated with diabetes. Although, there are various policies and guidelines to tackle obesity in the UK, controlling weight gain in clinical practice remains a challenge. This systematic review sought to examine the evidence relating to the barriers preventing people with obesity or overweight and type 2 diabetes from making lifestyle changes, such as increased physical activity and changes to diet as a means of weight control.

Historically, obesity was associated with affluence and an extravagant lifestyle; however, its prevalence is increasing worldwide among the poor and the rich (World Health Organization [WHO], 2015). The benefits of weight loss in obese individuals to avoid comorbid conditions are well documented, and WHO has provided guidelines for combating obesity (e.g. *Interventions on diet and physical activity: what works*). Similarly, the UK Department of Health (DoH) has identified priority areas for targeting obesity (DoH, 2015), and NICE has introduced quality standards to meet these objectives (NICE, 2014). Although there is a link between obesity and type 2 diabetes, not every person who is obese or overweight will develop diabetes (Rajeswaran, 2014); nevertheless, people who are obese or overweight and have diabetes are more prone to have complications compared to people who are not obese. Diabetes can greatly affect an individual's personal, social and family life (WHO, 2015); therefore, obese people who have diabetes may benefit from losing weight (Rajeswaran, 2014).

The interventions for weight management include drug therapy, bariatric surgery and behavioural interventions, such as diet and physical activity. Studies have found that exercise for people with type 2 diabetes is beneficial (Norris et al, 2009; Thomas et al, 2009). However, even though some patients acknowledge the benefits of keeping a healthy weight (Searle and Ready, 1991; Van Rooijen, 2002; Ali et al, 2010), compliance with weight control interventions can sometimes be challenging. NICE (2014) and the DoH both recommend adults take part in a minimum of 75 minutes of vigorous activity or 150 minutes of moderate activity per week. Jelleyman and Yates (2014) suggest that as low as 5% of people achieve this recommendation.

The prevention of obesity in the UK is currently addressed in several policy documents by the DoH (2007) and NICE (2014; 2015), and by initiatives such as the Healthy Schools programme and food labelling regulations. Although NICE (2014) provides a clear guideline on weight management, current projection indicates an increase in the prevalence of obesity, which could lead to both economic and human consequences. To achieve

the goal of international and national strategies for obesity, which seek to maintain healthy weight, the potential barriers to weight control need to be addressed. Diabetes, in all its forms, costs the NHS £10 billion each year to treat; 80% of which is due to treating the complications alone (Diabetes UK, 2014). People with obesity and type 2 diabetes are at high risk of complications due to hyperglycaemia; therefore, it is imperative to identify the factors preventing this population from engaging in physical activity. This systematic review will aim to identify the barriers affecting people with obesity and type 2 diabetes to achieve and maintain weight loss.

Methodology

Search strategy

A search of health-related databases CINAHL, Medline, EMBASE, EBSCOhost, PubMed, PsycINFO, Ovid and the Cochrane database of systematic reviews was conducted from inception to June 2015. Suitable articles were also selected manually from the references of key articles.

The search terms used were "obesity", "type 2 diabetes", "barriers", "weight control" "weight reduction", "overweight", "altered blood glucose level", "physical activity", "exercise", "diet/nutrition", "lifestyle", "social behaviour", "self-esteem" and "psychological impact of diabetes". Synonyms, Boolean operator and truncation symbols were used to focus and expand the search to retrieve a wide range of relevant studies that were deemed appropriate to the topic under review.

Articles were included if they were written in English, were primary research studies or systematic reviews and peer-reviewed. Worldwide articles were included to give a broad perspective on the topic under investigation. The exclusion criterion for the systematic review were non-research studies, such as reports and literature review, unpublished studies and studies relating to weight control among people with other medical conditions.

Selection of studies and data extraction

The abstracts of the research studies that met the criteria for this systematic review were skimmed online using the PQRS approach (preview, question, read and summarise) described by Cronin et al (2008). Articles that were deemed relevant were subjected to a self-developed form based on a critical appraisal skills programme (CASP) checklist to appraise the selected studies (Public Health Resource Unit, 2008), and to standardise and extract information from the studies. The reviewer repeatedly read all the articles, made comparisons between each study and combined the research papers. The final strategy adopted was a narrative synthesis strategy to provide a structured summary of the available evidence relating to the series of studies under review (Pope et al, 2008) to collate common themes.

Results

Methodological characteristics of the study

A systematic search using both electronic and manual searches of bibliographies revealed a vast amount of literature. An initial search of the electronic databases identified over 14 500 potential studies and 733 papers were reviewed at the abstract level (*Figure 1*). Through careful scrutiny, full texts of all relevant articles (n=46) that met the eligibility criteria were retrieved. Twenty-nine articles were discarded at this stage, mainly due to overlapping, focusing on weight control in other medical conditions or in obesity only, and investigating therapeutic approaches to weight control. Four articles were included from manual searches of references, so that 21 articles made the final selection to be included in the systematic review.

In total, there were 3567 participants included in the 21 articles (*Table 1*). Most participants were individuals with diabetes, a small number (n=29) were primary care practitioners, dietitians and nurses (Ali et al, 2008-2009), and 143 were diabetes educators (Shultz et al, 2001). Nine of the studies were conducted in the USA, three in the UK, three in the United Arab Emirates, two in Finland and one each in Canada, South Africa and Australia. The sample size of the primary research studies varied, ranging from 21 participants (Visram et al, 2008) to 605 participants (Wanko et al, 2004). The 21 articles consisted of 12 quantitative studies, eight qualitative studies and one systematic review of 13 papers on the barriers to exercise among adults with type 2 diabetes or at high risk (Korkiakangas et al, 2009).

The data collection methods used by the studies

Page points

1. Health-related databases were searched and references manually searched for articles relevant to identifying the barriers affecting people with obesity and type 2 diabetes to achieve and maintain weight loss.
2. An initial search of the electronic databases identified over 14 500 potential studies and 733 papers were reviewed at the abstract level. After the review stage, 21 articles were selected for inclusion in the systematic review.
3. There were 3567 participants in the 21 articles. Most participants were individuals with diabetes, with a small number of primary care practitioners, dietitians and nurses and diabetes educators.

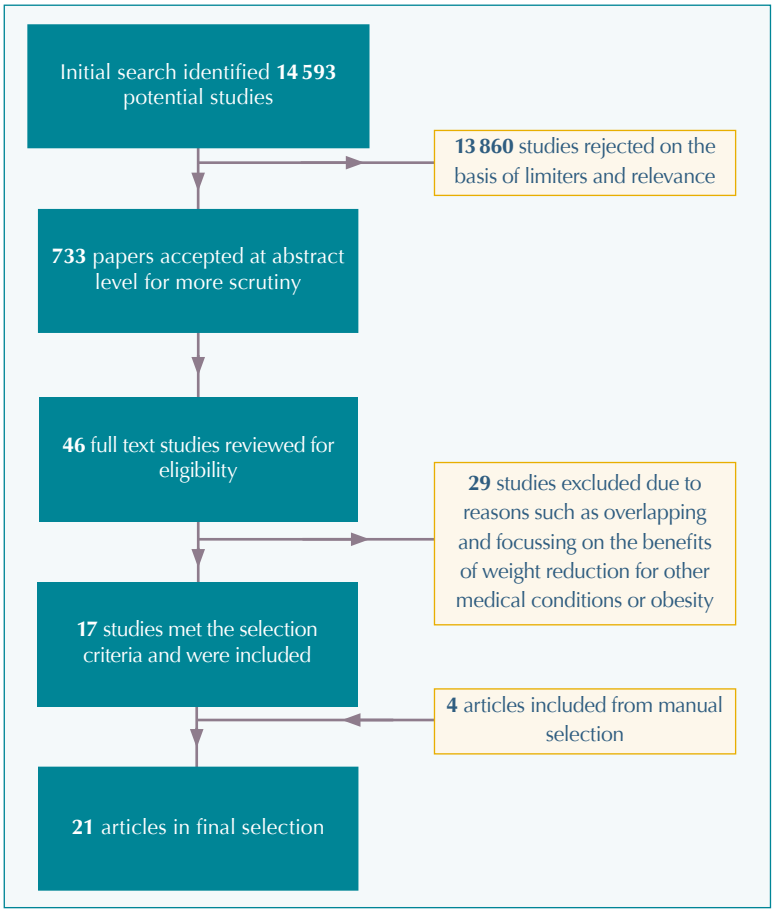

Figure 1. Flow chart for data extraction and management of articles for the systematic review.

were questionnaires, interviews and focus group discussions. The studies used various methods of analysis, predominantly content or thematic analysis for the qualitative studies and descriptive statistics for the quantitative studies. All the studies used non-probability sampling as a way to collect information from key respondents (Polit and Beck, 2012).

Barriers to weight control

All the studies explored the barriers to weight management in obese people with or at high risk of type 2 diabetes. Some of the studies also investigated the motivators for change.

Eighteen studies (86%) identified health problems leading to limited physical and mental capabilities as a barrier to achieving and maintaining weight loss. Half of the primary studies (n=10) included in the review showed that lack of time was a barrier. Almost a third (n=6) reported bad weather conditions as a barrier; however, while most studies meant cold weather, the Ali et al (2010) study conducted in United Arab Emirates reported that hot weather conditions prevented outdoor activities, denoting the impact of both extreme weather conditions.

Other barriers to achieving normal weight included laziness (n=3), stress (n=2), fear (n=3), shyness (n=2), safety concerns (n=3), female gender (n=4) and having a domestic helper (n=2). In some instances, exercise was often thought of as not interesting and boring or not comfortable (n=3).

Six of the 21 studies reported a lack of social support, and an almost equal number (n=5) reported a lack of culturally acceptable facilities for exercise as barriers to weight control. It was identified that societal acceptance of being overweight (Van Rooijen, 2002; Ali et al, 2008-2009) can be a barrier to losing weight. Studies carried out by Dutton et al (2005) and Korkiakangas et al (2009) identified lack of adequate facilities for sport as a problem. One of the oldest studies in the review identified high expenses as a barrier (Searle and Ready, 1991). Personal circumstances, such as starting a first job, moving house or getting married (Thomas et al, 2004) hindered participation in weight control activities. Difficulties also arose from work (n=4), lack of interest (n=3), travel and vacation (Vanderwood et al, 2010). There was also a perception that performing other hobbies and activities such as walking and cooking are a form of exercise (n=2).

Three articles highlighted barriers relating specifically to dietary changes (Ali et al, 2008-2009; 2010; Vanderwood et al, 2010). These included low nutritional knowledge, easy access to junk food and difficulty in controlling appetite. Lack of motivation due to uncontrollable weight was also a barrier to healthy eating.

Motivators to attendance

Korkiakangas et al (2009; 2010), Ali et al (2008-2009; 2010), Donahue et al (2006) and Mier et al (2007) highlighted some of the motivators to attending physical activity. These were personal interest to maintain physical fitness, willingness to prevent deterioration, eagerness to promote independence among the elderly, support,

Table 1. Characteristics of the 21 articles included in the systematic review.

Source	Location	Aim	Sample	Design and method	Findings and results	Limitations
[#1] Ali et al (2009)	United Arab Emirates	To explore barriers to weight management among Emirati women and identify strategies that can influence weight management action	Purposive sample of 29 primary health care physicians, dietitians and nurses.	Qualitative study following in-depth individual interviews and two mailed questionnaires	Personal barriers relate to low nutritional knowledge, easy access to fast food and unhealthy food served at schools. Low physical activity was attributed to work, childcare, medical conditions and access to housemaids and cars. Healthcare system barriers: inadequate health education activities, limited availability of dietitians. Community/policy barriers: cultural barriers such as acceptance of overweight, concern about privacy in fitness clubs and lack of culturally acceptable facilities. Motivators for weight management include professional advice.	• Potential loss of information due to lack of audio-recording • Sought only the opinions of female health professionals
[#2] Ali et al (2010)	United Arab Emirates	To explore barriers and motivators to weight management of people who are at risk of developing type 2 diabetes	Purposive sample of 75 Emirati women at high risk of type 2 diabetes	Qualitative study following focus group data collection	Personal barriers such as difficulty in controlling their appetite, poor knowledge of healthy food and lack of motivation due to uncontrollable weight. Practical barriers included lack of time to engage in physical exercise, difficulty imposed by their medical condition, lack of space and social support from families, having housemaids, hot weather conditions preventing outdoor exercise, safety concerns and lack of culturally acceptable exercise facilities. Motivators include perceptions and feelings about their weight.	• Single gender study • Interview conducted in Arabic before being transcribed into English language • A quarter of the women are of healthy weight
[#3] Al-Kaabi et al (2009)	United Arab Emirates	To assess the physical activity practice and barriers among people with type 2 diabetes	390 people with type 2 diabetes	Quantitative, cross-sectional study of interviewer-administered questionnaires including a selection of barriers to choose from and the importance of activity was measured using 5-point Likert scales. Socio-demographic and biomedical data collected.	Barriers relate to cultural issues such as difficulty for women to attend public recreation centres, domestic helpers, poor attention given to exercise at schools, other disease condition, lack of time, the feeling that exercise is boring, weather, fear of injury, lack of family support, cost, safety and self-belief.	• Some participants had other medical condition such as hypertension • A single locality subject
[#4] Donahue et al (2006)	USA	To describe the physical activity habits and barriers to exercise among patients who are at risk of developing diabetes	258 participants at risk of type 2 diabetes	Quantitative study of data collected from mailed questionnaire	Individual barriers to physical activity: lack of interest, depression, physical limitations and being a female. Social factors: lack of social support from family and friends. Environmental factors: weather and accessibility to the place. Predictors of attendance are those who prioritise physical activity and those with college or higher education.	• Self-reported data with cross-sectional design • Low Cronbach alpha reliability score
[#5] Dutton et al (2005)	USA	To explore the barriers to physical activity among low income African-American individuals with type 2 diabetes	105 people	Quantitative questionnaire	Reported barriers included lack of time, social support and equipment; social obligations such as childcare, special occasions; health problems, accessibility, bad weather and lack of physician advice. Exercise was described as painful.	•Used closed questions to examine the barriers •Focused on low-income ethnic group only
[#6] Erickson (2013)	USA	To explore the level of activity and barriers to physical activities	75 adults with type 2 diabetes enrolled in a worksite diabetes disease management programme	Descriptive, cross-sectional design	Barriers were found to relate to individual perceptions and lack of motivation.	•Small sample size from a single worksite •Self-report of activity level

Table 1 (continued). Characteristics of the 21 articles included in the systematic review.

Source	Location	Aim	Sample	Design and method	Key findings	Limitations
[#7] Korkiakangas et al (2009)	Several countries	To identify the barriers to exercise among adults who are high risk of, or have, type 2 diabetes	13 research studies	Systematic review of 3465 people	Barriers were due to lack of time, exercise is not interesting or uncomfortable, poor physical and mental health, shame, laziness and fear. Other barriers are lack of social support, inadequate sporting facilities, cultural barrier and weather condition.	●Some of the studies used a small sample size ●Some of the research studied a particular ethnic group ●Studies using diverse methodological approaches ●Included both at risk and those with existing diabetes who are at different length of diagnosis ●Some studies included patients with other medical condition such as cardiovascular disease
[#8] Korkiakangas et al (2010)	Finland	To describe the motivators and barriers to physical activity among people who are at risk of developing type 2 diabetes	134 participants (63 in 2003 and 71 in 2008)	Qualitative study of questionnaire with open-ended questions (follow-up study)	Motivators were personal interest to maintain physical fitness and prevent deterioration, promoting independence among ageing population, support, encouragement and positive experiences of physical activities and enjoyment of exercise. Barriers were health problems, weather condition, other hobbies and duties, lack of time, laziness.	●Participants had participated in a previous study and this might have influenced their attitude towards exercise.
[#9] Korkiakangas et al (2011)	Finland	To describe the motivators and barriers to exercise among people who are at risk of developing type 2 diabetes	74 people with a high risk of type 2 diabetes (33 men and 41 women)	Qualitative face-to-face and video conferencing data collection of group counselling sessions	Motivators were pleasure derived from the exercise, encouragement and social support, perceptions about exercise and the desire to be a good role model for their children. Barriers to exercise include weather condition, health problems, work and lack of interest.	●The influence of situation specific factors on the data (e.g. video recording, role of counsellor and group type).
[#10] Lawton et al (2006)	Edinburgh, UK	To explore experiences and views of Indian and Pakistani people with diabetes about participation in physical exercise	Purposive sample of 32 people	Qualitative study following in-depth interviews	Identified barriers were lack of time, working long and anti-social hours, gender (women have difficulty with outdoor sport), lack of culturally sensitive facilities, weather condition, ill-health, health beliefs and perceptions about personal activities, such as walking and swimming as physical exercise.	●Studied a specific ethnic minority ●Some interviews were conducted in a non-English language
[#11] Mier et al (2007)	USA	To explore the perceptions and barriers to physical activity	Convenience sample of 39 Mexican-Americans with type 2 diabetes	Qualitative study following focus groups	Barriers relate to lack of time, pain, depression, being overweight, unsafe neighbourhood and lack of facilities. Motivators to activity were family support and sense of wellbeing derived from physical activity.	●Interviews were mainly conducted in Spanish language. ●The potential influence of stipend given to the participants
[#12] Searle and Ready (1991)	Canada	To determine the level of interest and factors that may inhibit participation in an exercise and weight control programme	479 people with type 2 diabetes	Quantitative study following data from a mailed questionnaire	Barriers to participation were lack of energy, ill-health, lack of time, lack of personal knowledge, too expensive, shyness, transportation and lack of support from either partner or family.	●Variable disease stage and medication in the study group
[#13] Shultz et al (2001)	USA	To compare the perspectives of diabetes educators with the patients on barriers related to following a meal or exercise plan	250 participant (97 people with diabetes and 143 diabetes educators)	Quantitative study following a questionnaire	Patients identified barriers: inconvenient location, lack of adequate materials and equipment, timing, limited space, exercise is physically painful, physical limitations, too overweight to exercise and weather conditions. Educator perceived barriers: too overweight, aversion to sweating, exercise is uncomfortable, timing, location, materials, physical limitations, equipment and weather.	●Different geographical sample of patients versus educators ●A lot of participants were on oral tablets to control their diabetes
[#14] Skinner et al (2008)	USA	To examine the perceptions of adolescents with type 2 diabetes and their parents regarding their weight	104 parent–adolescent dyads	Quantitative study following face-to-face interview with structured questions	Both adolescents and parents underestimated the severity of the problem as they both failed to recognise overweight was associated with poorer diet and exercise.	●The study was conducted in a single academic medical centre ●A mixture of overweight/obese with and without diabetes. Some patients were on insulin

Table 1 (continued). Characteristics of the 21 articles included in the systematic review.

Source	Location	Aim	Sample	Design and method	Key findings	Limitations
[#15] Swift et al (1995)	USA	To examine attitudes and beliefs of patients about exercise	83 people with non-insulin diabetes	Quantitative study following questionnaire survey	Barriers were physical discomfort, lack of support from people, impact of personal weight, fear of hypoglycaemia and low importance associated with exercise.	• Small sample size
[#16] Thomas et al (2004)	UK	To identify reasons that prevent patients from participating in physical activity	406 people with either type 1 or type 2 diabetes	Quantitative questionnaire	Barriers relate to sickness and personal circumstances such as changing a job, childbirth, divorce, lack of time and tiredness. The weather conditions and inadequate local facilities for exercise were also cited as barriers.	• A mixture of people with type 1 and 2 diabetes with a wide range of duration of diabetes and treatments
[#17] Vanderwood et al (2010)	USA	To evaluate factors associated with achievement or maintenance of weight loss goal intervention	188 post-intervention adults at risk of cardiovascular disease and diabetes	Quantitative questionnaire	Barriers to weight loss maintenance were emotional eating, stress, eating out, work, travel and vacations.	• Possible bias resulting from self-reports of weight loss and activity level • Patients were at risk of both cardiovascular disease and diabetes
[#18] Van Rooijen (2002)	South Africa	To examine the knowledge and perceptions of female patients with type 2 diabetes about physical activity	28 women	Qualitative study following focus group interviews	Barriers reported were lack of convenient venue, tiredness, discomfort, ill-health such as arthritis, foot and respiratory problems. Tolerant attitude towards obesity.	• Used a convenient sample of female participants who had participated in a previous study. • Transcribed audio recording in Tswana by a bilingual nurse to English language.
[#19] Visram et al (2008)	Newcastle, UK	To explore factors affecting uptake of an educational and activity programme	21 purposive sample of newly diagnosed people with type 2 diabetes	Qualitative study of data collected from focus group and semi-structured interview	Barriers were perception of exercise, effect of age and fear about exercise.	• Sample size selected in an urban area of northern England • Explore views of patients about barriers relating to both education and activity programmes
[#20] Wanko et al (2004)	USA	To assess the physical activity preferences and barriers to exercise	605 African-Americans with type 2 diabetes	Quantitative study after administering a questionnaire	Barriers were pain/poor health, increasing age, lack of will power, no one to exercise with and not knowing what kind of exercise to do.	• Used urban diabetes clinic population • Self-reporting of activity levels
[#21] White et al (2007)	Australia	To examine the belief of people with type 2 diabetes or cardiovascular disease about physical activity and eating low-fat diet	192 participants with type 2 diabetes or cardiovascular disease or both	Quantitative study after administering a questionnaire	Reported barriers included ill-health, perceived cost and benefit, pressure from other people, laziness, lack of time and bad weather preventing people from active participation.	• A mixture of people with either type 2 diabetes or cardiovascular disease or both.

Page points

1. The reported barriers to receiving weight management services were categorised into three broad areas: individual-related barriers, socio-cultural barriers and environmental barriers.
2. The reviewed studies cite personal circumstances and individual perceptions and preferences as the core barrier to participation in weight control measures.
3. Personal motivation is a key predictor of engagement.

encouragement and enjoyment derived from physical exercise.

Discussion of findings

This section presents an amalgamation of the findings of the current systematic review. The reported barriers were categorised into three broad areas: individual-related barriers, socio-cultural barriers and environmental barriers.

Individual-related barrier

Ill-health was a major barrier reported by nearly all the studies. Lack of energy and poor physical and mental health coupled with advance age was identified by several studies. While some participants could be using it as an excuse, this is consistent with pathophysiology of diabetes in term of its aetiology and symptoms (Marie and Whitaker, 2004; Dixon and Salamanson, 2006). Laziness or lack of interest and motivation, which undermine individual effort to engage with healthcare facilities, was also identified as a barrier to weight loss. Other personal circumstances revealed by the review were lack of time, childcare, lack of convenient venue, and cost. Funding arrangements in the studied country could be a contributor for cost being an identified barrier. These findings are consistent with a range of other studies regarding barriers associated with other medical interventions (Temple and Epp, 2009; Lawal, 2014).

The increased prevalence of obesity with the assumption that behavioural risk factors have a role to play has led to the proposition of a "fat tax" as a potential remedy (Meetoo and Fatani, 2014). Arguably, patients have some responsibilities to achieve and maintain their good health, and the state has a legitimate role to influence people to choose healthy lifestyles (Baggott, 2010). Therefore, practitioners need to consider the patient's motivation, physical and mental health status, ability, interest, cultural values and social preferences in regards to achieving and maintaining weight loss.

Socio-cultural barriers

Some obese people have low self-esteem which can affect their confidence to participate in lifestyle-changing activities (National Obesity Observatory, 2011). Similar results identified in this systematic review identified shyness as a barrier to engaging in weight loss interventions (Searle and Ready, 1991). The studies also identified lack of social support, access to house help and lack of culturally acceptable facilities as barriers. Some women interviewed as part of the included studies, were not comfortable performing exercise with men (Ali et al, 2010). Some cultures have a more tolerant attitude towards obesity (Van Rooijen, 2002; Ali et al, 2008-2009), which affects perceptions and normalises obesity and was, therefore, a barrier to engaging with weight loss strategies.

Environmental barriers

The current systematic review found that external factors such as lack of adequate facilities, accessibility, weather condition and security concerns were a barrier to achieving and maintaining weight loss (Thomas et al, 2004; Dutton et al, 2005). Improving access to services requires a coordinated effort between healthcare practitioners and the activities providers. Srinivasan (2014) emphasised the importance of a cohesive multidisciplinary approach to care for obese people with diabetes. However, multidisciplinary care for obese people with diabetes still seems inadequate in the UK and sometimes individuals will need to make two separate visits in some localities (Srinivasan, 2014).

Predictors of engagement

The studies cite personal circumstances and individual perceptions and preferences as the core barrier to participation in weight control measures. Therefore, personal motivation is a key predictor of engagement (Donahue et al, 2006; Mier et al, 2007; Korkiakangas et al, 2010). Anderson and Funnell (2009) argue that internal motivation is more beneficial in ensuring compliance to health interventions in comparison to external motivation. Maintaining weight or preventing weight regain after weight loss can be challenging for the individual (Rajeswaran, 2013) and Adler and Stewart (2009) opined that tension could arise between empowering people to manage their weight and blaming them for their failure to adhere to the weight control measures. This requires understanding and support from practitioners and the public. As a result, highlighting the impact

of the individual's perceptions about their weight as a barrier, understanding their beliefs and intervening appropriately are all important.

Strengths and limitations

Strengths

The strengths of this systematic review included the inclusion of healthcare professionals in the studied population. Ali et al (2008-2009) and Shultz et al (2001) investigated the perspectives of the practitioners, which demonstrated and highlighted the importance of health professionals' role in promoting weight management.

The authors of the articles had a wide academic and professional experience, which adds to the credibility of the limited studies available on the phenomenon, and the studies covered a large geographical range including America, Europe, the Middle East and beyond.

Limitations

A key limitation of this systematic review is the heterogeneity in the study designs for the included articles. Sample sizes and selection techniques varied, as did the baseline characteristics and socio-economic status of the study populations.

Another potential limitation is the loss of information due to interview methodology. Some studies were conducted in other languages and translated into English (Van Rooijen, 2002; Lawton et al, 2006; Ali et al, 2010), and others did not audio record the interviews (Ali et al, 2008-2009). Thus, the results need to be interpreted within the limit of these methodological constraints.

There were few studies conducted in the UK, so studies from other countries were included. Other countries have different cultural beliefs, health care systems and funding approaches; therefore, considering whether the barriers to achieving and maintaining weight loss are relevant to the UK is difficult (Lawal, 2014).

Implications of the review

The impact of obesity on diabetes and the need to achieve the goals of both international and national strategy for combating obesity justified the rationale for this systematic review. The ability to overcome the potential barriers is important to weight control and the findings have highlighted some of these barriers. While some participants acknowledged the need to keep healthy (Searle and Ready, 1991; Van Rooijen, 2002; Ali et al, 2010), this review has further illuminated the challenges confronting people who are obese in sustaining the effort to maintain weight loss and offers some suggestions on how to address the problems. Weight loss can be promoted through proper coordination of resources, educating patients, effective national policies, and supportive network and healthcare practitioners.

Conclusion

The health consequences of obesity and diabetes require effective management. Regardless of the health concerns and availability of guidelines to tackle obesity, this systematic review of literature revealed that encouraging people who are obese or overweight to be physically active remains a challenge. On the basis of this systematic review, encouraging individuals to change their lifestyle requires promoting autonomy, providing social and culturally acceptable facilities and avoiding blaming or stereotyping. It is important to understand a patient's perception about their weight, and good communication and effective inter-agency collaboration is essential. ■

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Page points

1. Strengths of this systematic review include the inclusion of healthcare professional in the study population and a large geographical range.
2. Limitations of the current systematic review include heterogeneity in the study design and baseline characteristics of the cohort, and the loss of information during interviews due to translating into English from a foreign language.
3. Results from the review suggest that weight loss can be promoted through proper coordination of resources, educating patients, effective national policies and supportive network and healthcare practitioners.

"On the basis of this systematic review, encouraging individuals to change their lifestyle requires promoting autonomy, providing social and culturally acceptable facilities and avoiding blaming or stereotyping."

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