Received: 3 March 2021 | Revised: 2 May 2021 | Accepted: 29 May 2021

DOI: 10.1111/obr.13307

OBESITY/BEHAVIOUR

OBESITY Reviews WILEY

Fear-related barriers to physical activity among adults with overweight and obesity: A narrative synthesis scoping review

Oliver Hamer[1] | Derek Larkin[2] | Nicola Relph[1] | Paola Dey[1]

[1]Faculty of Health, Social Care and Medicine, Edge Hill University, Ormskirk, UK

[2]Department of Psychology, Edge Hill University, Ormskirk, UK

Correspondence
Oliver Hamer, Faculty of Health, Social Care and Medicine, Edge Hill University, Ormskirk, UK.
Email: oliverhamer53@outlook.com; hamero@edgehill.ac.uk

Funding information
Edge Hill University

Summary

Physical activity is a health behavior contributing to successful weight management. Adults with overweight and obesity find it challenging to meet recommended activity guidelines because of a range of barriers, some of which are not yet fully understood. A barrier receiving limited consideration, compared with other literature within this field, is that of fear. The purpose of this scoping review was to establish the extent of literature on fear-related barriers to physical activity in adults with overweight or obesity and to identify gaps in this literature. The review followed the scoping review framework outlined by Arksey and O'Malley and adhered to the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews guidelines. The findings of the identified papers were charted thematically using a framework of fears and age group. In total, 34 studies were included that identified nine different fears related to barriers to activity in this population. However, only a small number of studies ($n = 5$) had explicitly intended to explore fear-related barriers. There were notable knowledge gaps including activity-related fear of pain and movement in adults under 45 years of age. There is a strong rationale to further explore these fears because they may restrict health promoting behavior.

KEYWORDS
barriers, exercise, fear, obesity, physical activity

1 | INTRODUCTION

Overweight and obesity is a growing public health problem worldwide.[1,2] Overweight and obesity is known to increase the risks of a wide spectrum of comorbidities, including cardiovascular disease, type 2 diabetes, cancer, hypertension, and several types of musculoskeletal disorders.[2] It has a multifaceted etiology,[3] with factors such as genetics, medical conditions, stress and environmental exposures contributing to the prevalence of obesity.[4] Energy balance (energy input from food consumption and energy expenditure from physical activity) is also key to weight maintenance and, hence, diet (energy intake) and physical activity levels (energy output) are key behavior determinants of overweight and obesity.[5,6] However, physical activity may have added advantages to dietary intervention alone because of the additional physical and psychological health benefits that are gained irrespective of weight reduction.[6] However, regular physical activity is difficult to achieve because adults with overweight or obesity experience several barriers to participation. These barriers are multifactorial and can include physical, psychological, and environmental components.[7] Evidence suggests that psychological barriers are the primary obstacles preventing adults with obesity from contemplating and partaking in physical activity.[7] However, even though there is a much greater understanding of the role played by psychological barriers such as motivation and depressive symptoms, there are still high levels

of physical inactivity and sedentary behavior among adults with obesity.[7,8] This suggests that interventions that do not target, or target only a limited spectrum of, psychological barriers are failing to recognize that there may be several other factors influencing inactivity.[8,9] To tackle this failure, it is necessary to re-examine the barriers that a population with overweight or obesity may face that could prevent an increase in their levels of physical activity.

An area of research receiving limited consideration, compared with other literature within this field, is that of fear.[8,9] Fear is an emotion that protects an individual against an immediate, "real" and "objective" threat.[10,11] Some exploratory research has highlighted that elevated levels of fear are associated with reduced activity participation in middle-to-older aged adults.[12,13] This has led to several conceptual components of fears, such as fear of falling, pain-related fear, fear of injury and fear of movement (kinesiophobia), characterized as psychological barriers to physical activity (in these groups).[14] Fear-related barriers are important because experiences of fear often result in a series of maladaptive psychological responses that provoke negative cognitions, depression, and increased perceptions of disability.[10,12] These consequences are likely to increase the risk of inactivity among adults with weight concerns and restrict health-promoting behavior.[12,13]

There have been several studies of fear-related activity avoidance and fear of falling related to activity among adults with obesity,[12,13] but there are no systematic reviews that have explored this. Research relating to fear as a psychological barrier to activity is not easily identifiable and would benefit from a scoping review that synthesizes the totality of existing evidence and identifies the gaps in the literature to ensure an informed starting point for further research. Providing a new direction for research may increase the likelihood that the emotion of fear has a greater focus in future explorations into barriers to activity among adults with overweight or obesity.[14] Increased emphasis on fear-related barriers may improve conceptual understanding, supporting the development of more relevant interventions to promote sustained behavior changes. This is important given that regular physical activity decreases the risk of early mortality and morbidity from a range of chronic conditions.[2] The objectives of this scoping review were to identify what is already known in the academic literature about fear-related barriers to physical activity among adults with overweight or obesity and to identify the gaps in this evidence.

2 | METHODS

A scoping review represents a methodology that allows a rapid assessment of emerging evidence, as well as being a first step in identifying research gaps.[15–17] This review followed the framework set out by Arksey and O'Malley,[17] which recommends a five-stage review process:

- Stage 1. Identifying the research question.
- Stage 2. Identifying relevant studies.
- Stage 3. Study selection.
- Stage 4. Charting the data.
- Stage 5. Collating, summarizing, and reporting the results.

The original framework proposed by Arksey and O'Malley also suggests a sixth optional consultation exercise stage with stakeholders in order to collect feedback about the findings identified by the review.[17] Although this may be a valuable exercise, the present review will not include a sixth stage because the first five stages are sufficient to satisfy the aims of the review.[17] The authors adhered to the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) guidelines when reporting this review.[15] The protocol for this scoping review was not previously registered on a database.

For the purpose of this review, physical activity was defined as any bodily movement produced by skeletal muscles that requires energy expenditure and can be categorized into occupational, sports, conditioning, household, or other incidental activities.[18] This definition includes low-intensity routine activities (such as housework or shopping) that are important for adults with overweight or obesity who may be unable to partake in higher intensity activities.[19] Physical inactivity was defined as a level of physical activity that does not meet global recommendations equivalent to 150 min of moderate-intensity physical activity per week.[18] Sedentary behavior was defined as any waking behavior characterized by a low energy expenditure (1.5 metabolic equivalent of task or lower) while sitting, reclining, or lying.[18] Examples of this may include watching television, office work, and driving.[18]

Fear was defined as a reaction to a "real" or "objective" threat that causes cognitive, physiological, and behavioral responses, often resulting in actual or intended flight or fight.[11] This definition shaped the researchers' perception and interpretation of fears throughout the process of study selection (primarily within the qualitative data) and distinguishes fear from anxiety, which is typically a response to anticipated threats (future orientated) that are vague, lack clarity, or are largely unknown to the individual.[10,11,20] All studies that explored psychological and physiological behaviors based on the phenomena of fear as a barrier in the context of physical activity were included. This included all substrates of barriers and enacted avoidance behavior from fearful emotions (in the context of physical activity). All study designs, qualitative or quantitative, were included.

Studies were included if the participants were aged 18 years and over, of any gender, and were classified as either overweight (body mass index [BMI] 25 to 29.9 kg/m^2) or obese (BMI 30 kg/m^2 or greater). BMI or the components of BMI could be self-reported or measured. Studies were also included when the sample included participants with normal BMI when data relating to those with overweight or obesity could be extracted. Studies were excluded if they were not peer reviewed, for example, magazine articles, letters, editorials, newspaper, and commentary articles, or if they were not available in the English language. Studies in which all participants had a condition not related to obesity were excluded.[21]

Primary searches were conducted using five databases: MEDLINE, CINAHL Complete and SPORTDiscus were searched

through EBSCOhost; PsycInfo was searched through Ovid and PEDro was searched through its own website search bars.

The search strategy conducted in each database consisted of three domains relating to overweight and obesity, physical activity, and fear(s). Within the domains, the search terms were combined using the Boolean Operator "OR." The Boolean Operator "AND" was used to combine across domains. Keywords and subject headings for each database search were informed by existing literature relevant to the areas of interest, related systematic reviews, and International Prospective Register of Systematic Reviews (PROSPERO) protocols. Thesaurus searches within the databases provided additional terms that were used for keyword searches. Truncation and wildcard symbols expanded on keywords to ensure that papers would not be missed. Subject headings were exploded to include all other relevant terms. Table S1 displays an example of a search run in MEDLINE.

The first part of paper selection involved screening both the titles and abstracts of the different database search outputs to broadly identify studies based on the inclusion and exclusion criteria. For those studies that met the inclusion criteria, the full articles were retrieved. Following the initial selection of relevant studies, full texts were exported from electronic databases into RefWorks to exclude duplicates. Once duplicates were deleted, full-text articles were screened and included or excluded based on their content. The reference lists of all eligible studies were scanned to identify any additional studies not identified by the electronic search.

Full-text articles that met the inclusion criteria were charted to summarize the findings. Studies that met the inclusion criteria were summarized using the "charting" template described by Arksey and O'Malley.[17] For each extracted article, contextual information on the emotion of fear and physical activity were reported within the limits of the individual articles. Once charted, the extracted studies were checked to ensure the studies conformed to the inclusion criteria and contained the relevant data for the review.[22] The theoretical fear-avoidance model was used to identify key fears, including pain, movement, and injury.[10] This was further supplemented by interviews with 10 adults with obesity that identified fears related to embarrassment, enacted stigma, falling, leisure facilities, cardiac events, crime, and joint damage. Together, these activity-related fears were used as a framework to categorize fears outlined by the included studies. Any further fears identified by the review were added to the framework. Within the fear categories, studies were further subcategorized by the age subgroup of the participants: younger (18 to 45 years), middle-aged (46 to 64 years), and older adults (65 years and over). The charting and framework were piloted to ensure that they could be consistently applied to qualitative, quantitative, and mixed-method studies. The framework allowed gaps in the literature to be identified.

It was not appropriate to perform a statistical pooling analysis of quantitative studies because of the diversity of the data. From the guidance of Arksey and O'Malley,[17] a narrative synthesis was chosen to summarize the data because it allowed the data to be analyzed and contextualized, improving the likelihood it would be understood by the reader.[23,24] In summarizing the findings on fear and its impact on activity, the template set out by Arksey and O'Malley[17] was employed to ensure consistency of comparisons across studies.

Methodological quality was conducted following the Joanna Briggs Institutes (JBI) guidance using JBI critical appraisal tools.[25] These critical appraisal tools include 10 items for assessing qualitative studies and nine for assessing quantitative studies. Given the nature of the scoping review and narrative synthesis, the risk of bias is presented as either low risk when there were three or less bias concerns, medium when there were between four and six concerns, and high when there were more than six concerns; decisions about these thresholds were made in advance of applying the tools.[25]

3 | RESULTS

The search of the five electronic databases produced 6869 hits. Following the screening of titles and abstracts, 6742 abstracts were discarded. The full texts of the remaining 127 were retrieved and reviewed; 21 were immediately discarded as they were duplicates. From the remaining texts, 74 were discarded as they did not meet the review inclusion criteria. Two additional studies were identified from the reference lists of the full-text articles. No systematic reviews were identified. This process identified 34 studies meeting the inclusion criteria (Figure 1).

Of the 74 papers excluded because they did not meet the inclusion criteria, 34 papers were validations of measurement instruments, 17 papers did not report on overweight or obese groups, seven included children, six included participants with chronic conditions not ordinarily associated with obesity, five were biomechanics and injury studies, and five reported on fears in other contexts (e.g., dental practices). An overview of the characteristics and key findings of the 34 included studies is outlined in Table S2. The 34 studies included were all cross-sectional designs and were either surveys ($n = 18$), interview studies ($n = 10$) or focus group studies ($n = 6$). The studies were set in 11 countries, mainly in the United States ($n = 13$), Australia ($n = 6$), and the United Kingdom ($n = 6$). The sample size ranged from seven to 5663, and participant ages between 18 to 85 years. Most studies included middle-to-older-aged adults ($n = 22$) (e.g.,[26–28]). Only a small number of studies ($n = 5$) had explicitly intended to explore fears related to physical activity[13,26–29]; the other studies were broader investigations, which revealed fears as barriers.

All studies suggested that fear had negative consequences. From the 34 studies, the review identified that adults with overweight and obesity reported nine fear-related barriers (Table 1): fears of embarrassment ($n = 12$), enacted stigma ($n = 13$), falling ($n = 6$), injury ($n = 6$), pain ($n = 3$), movement ($n = 4$), fears of cardiac events ($n = 1$), fears of joint damage ($n = 1$), and fears of crime ($n = 1$). Some studies addressed more than one fear category. There were no studies about fears of leisure facilities, and no new fears were identified that were not in the framework (Table 1). The following sections synthesize the evidence for each of the identified fears.

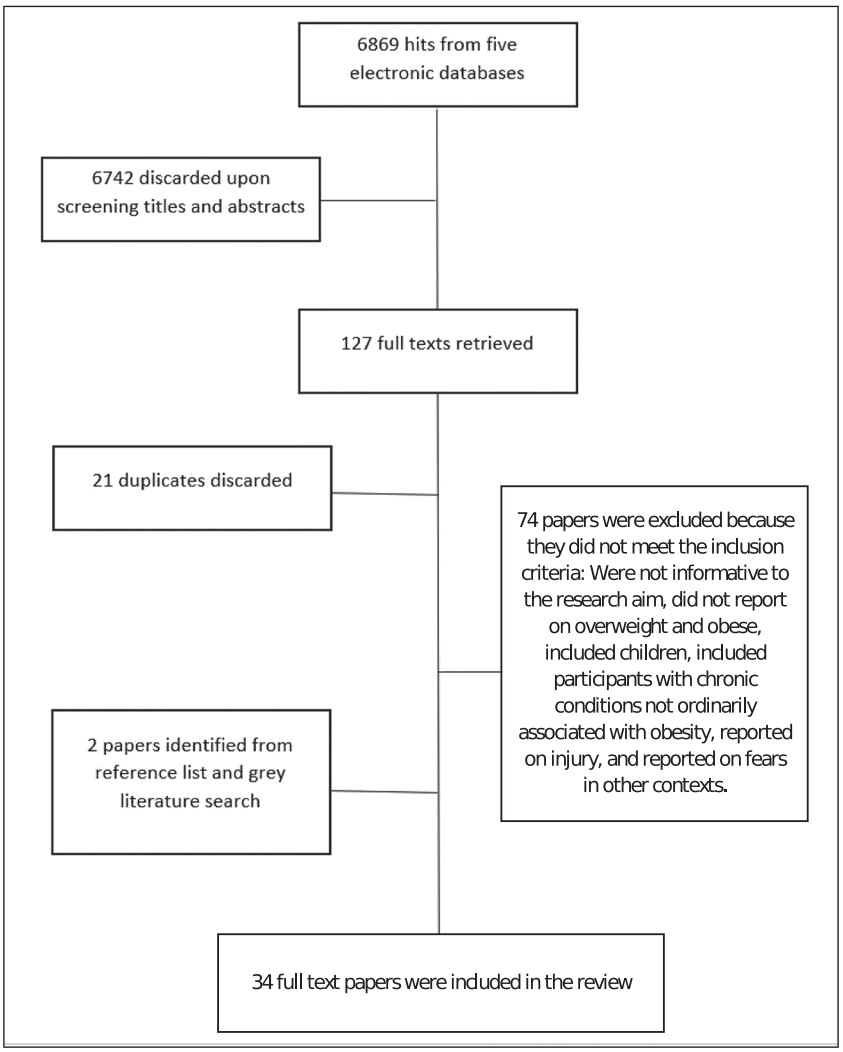

FIGURE 1 Flow diagram showing the study selection process

TABLE 1 Number of papers covering different fears and within fear categories, the age subgroups included in the studies

		Number of papers by age subgroup		
Fear category	**Total number of papers**	**18 to 45 years**	**46 to 59 years**	**60 plus years**
Fear of embarrassment	12	10	5	3
Fears of enacted stigma	13	10	3	1
Fears of falling	6	1	2	4
Fears of injury	6	4	1	3
Pain-related fears	3		2	1
Fears of movement	4		2	2
Fears of cardiac events	1		1	
Fears of joint damage	1	1	1	1
Fears of crime	1		1	1

3.1 | Fear of embarrassment

The review charted 12 studies that highlighted a fear of embarrassment as a barrier to physical activity for adults with overweight or obesity. Of these, eight were qualitative studies, and four were quantitative studies. The age of participants across these studies ranged from 18 to 75 years of age. More of these studies were focused on younger adults under 45 years of age compared with older adults. The key findings from these studies showed that a fear of being embarrassed (while performing physical activity) can be a barrier to activity in adults with a body mass index (BMI) over 25 kg/m^2.[30] The studies highlighted that these fears may be associated with lower

levels of physical activity and activity avoidance, particularly in adults with obesity.[30] This fear was experienced across several modes of activity, such as, swimming, resistance exercise and jogging.[31,32] This fear was particularly heightened in contexts such as gyms, leisure centers and fitness facilities.[13,33] The literature suggests that this fear is related to negative body image perceptions that include wearing tight exercise attire and exercising while others observe.[26,34–37] Because of this fear, adults with overweight and obesity frequently place a greater importance on avoiding embarrassment than the health-related benefits of physical activity.[38,39]

3.2 | Fear of enacted stigma

This review has identified 13 studies that identify a fear of enacted stigma as a barrier to physical activity in adults with overweight or obesity. Of these, 11 were qualitative studies and two were quantitative studies. The age of participants across these studies ranged from 18 to 75 years of age. More of these studies were focused on adults under 45 years compared with other fear-related studies ($n = 7$). The findings from these studies showed that a fear of enacted stigma was a barrier to activity for adults with overweight and obesity. The literature suggests that this fear may be associated with reduced activity participation and activity avoidance.[34,40] The fear was experienced in several contexts of activity, particularly in group fitness sessions, gyms, and exercise prescription sessions.[36,39] The studies suggested that this fear may be greater in women, those aged between 18 and 35 years, and in those with a BMI greater than 40 kg/m^2.[41] It appears that this may be related to concerns about being victims of discrimination and torment, particularly, when this population is inappropriately compared to their leaner counterparts or blamed for their obesity.[35,36] Several studies have shown that stigma-related fear may exacerbate poor self-efficacy, confidence issues, feelings of laziness, and activity avoidance beliefs.[42,43] The literature also indicated that heightened stigma-related fear is associated with higher psychological distress and lower quality-of-life scores in adults with overweight and obesity (across all age groups).[38,42–44]

3.3 | Fear of falling

This review found six studies that identified fall-related fears as an important barrier to physical activity in adults with overweight and obesity.[13,26,45–48] All were quantitative studies. The age range of participants was between 18 and 85 years, but typically consisted of adults aged 60 years or over. There was limited literature relating to fear of falling in younger adults under 45 years of age.[13] The key finding was that a fear of falling could increase the risk of inactivity in adults with overweight and obesity. One study concluded that manifestations of fear of falling are likely related to a subjective lack of safety and the possibility others may ridicule or mock them in the event of a fall (thus activity was generally avoided).[13] For older adults with weight concerns, lower limb stability appears to be the primary concern, while the key concern for younger-to-middle-aged adults is a desire to avoid humiliation following a fall.[26] The literature suggested that a heightened fear of falling may compromise quality-of-life by limiting mobility, diminishing the sense of well-being, and reducing social interactions.[48] A further consequence was that it could lead to actual falls, resulting in inactivity and poor health.[48,49] This seemed to be a greater concern for older adults and in those with a BMI above 40 kg/m^2.[45,46] Notably, the existing evidence is somewhat limited for those under the age of 50 years and overweight adults.[26,45] From the existing literature, fear of falling appears to have the most detrimental consequences for physical activity in adults with obesity above 60 years of age, because it leads to greater levels of inactivity.[26]

3.4 | Fear of injury

This review identified six studies that have reported on a fear of injury in adults with overweight and obesity.[14,30,45,50–52] Of these studies, the review identified five quantitative studies and one qualitative study. The age of participants across these studies ranged from 18 to 81 years. More of these studies were focused on middle-to-older aged adults ($n = 4$) compared with studies that included younger adults. There was some suggestion that fear of injury could be one of the most important fear-related barriers to activity in adults with overweight and obesity.[45,50] One of the six studies reported that fears of injury were similarly high in those with and those without overweight and obesity,[14] but this study just focused on participants who had given up physical activity. Several studies showed an association between heightened fear of injury and reduced activity participation.[30,45,50] The findings suggest that this fear may be greater in older adults (65 years or over) and those with a BMI above 30 kg/m^2.[28] The studies suggested that fear of injury may be intensified by activity that is located outdoors because of the exposure to slippery and uneven surfaces and that it may manifest from a lack of knowledge in how to perform activity (particularly resistance exercises), concerns over their longer-term health and low exercise-efficacy.[51,52] However, the knowledge relating to how fear of injury may manifest is limited to older adults with a dearth of literature in younger adults.[28,29,35]

3.5 | Fears related to pain (pain-related fears)

This review identified three studies that have explored pain-related fears in adults with overweight and obesity.[19,29,53] Of these studies, two were quantitative and one qualitative. The participants of these studies included middle-to-older aged adults. The review highlighted that the literature has yet to explore pain-related fear in younger adults under 45 years of age.[29,53] The findings from the studies in this review highlighted that pain-related fear contributed to activity avoidance and increasing levels of inactivity in adults with overweight and obesity.[53] This was particularly concerning in older adults with obesity in that a fear of pain led them to cease participation of all physical activity.[29] The studies suggested that this fear may be related to concerns about

physical discomfort and pain within the joints (during and post activity).[29] The qualitative study highlighted that these fears may manifest from previous instances of injury, cramps, and safety concerns about undertaking activity.[19] This review indicated that pain-related fear may be among the most frequent concerns for adults with obesity.[53,54]

3.6 | Fear of movement

This review identified four studies that have explored fear of movement in adults with overweight and obesity.[12,27–29] All were quantitative studies and from the same research group. The age range of participants within these studies varied, but typically consisted of adults aged 60 years and older. Only one of the studies explored fear of movement in adults under 60 years of age (mean age 48.2 years).[27] The studies suggested that heightened fear of movement was associated with reduced physical activity participation in older adults with obesity.[29] The findings relating to middle-aged adults indicated that a fear of movement may also contribute to heightened perceived disability, which could exacerbate fear-avoidance beliefs.[27] Fear of movement is likely intensified by experiences of pain, injury, or functional limitations.[27] It may lead to some deterioration of quality-of-life in older adults with obesity.[12] It is unclear if fear of movement has similar consequences for overweight adults or adults under 45 years of age. This review identified a gap in knowledge as there has been no exploration of these fears in younger adults with obesity and in overweight adults of all age ranges (25.0 to 29.9 kg/m^2).[27]

3.7 | Fear of cardiac events

One study explored fear relating to cardiac events in the context of activity.[19] The study employed qualitative methods and recruited participants with overweight and obesity with a mean age of 48.5 years. The findings from the study highlighted that adults with overweight and obesity avoid physical activity for fear it may lead to a heart attack (or stroke). This fear appeared to compromise the duration and intensity of physical activity because participants did not want to exert too much stress upon their bodies[19] and was likely intensified by participation or anticipation of higher intensity exercises and resistance exercise.[19] The study did not explore if this fear increases with rise in BMI or age. Literature about this fear is limited and does not focus on younger adults.

3.8 | Fear of joint damage

One qualitative study explored fear of joint damage.[55] Study participants ranged in age from 29 to 71 years. This study suggested that adults with overweight and obesity experienced fear of joint damage that contributed to activity avoidance, and which was described as a barrier to activity.[55] The study indicated that fear of joint damage was intensified by heavy load-bearing exercises, such as jumping or running. The study also suggested that chronic musculoskeletal pain may be a factor in the manifestation of fear relating to joint damage.[55] The research suggested that this fear may impact on quality of life and provoke negative cognitions. There were no studies in this review that explored this fear in younger adults under 30 years of age.

3.9 | Fear of crime

One quantitative study identified fear of crime as a barrier to physical activity in older adults who were overweight.[56] The mean age of participants in this study was 55 years. The study reported that a fear of crime was associated with lower participation in activity among older adults with overweight[56] and was likely intensified by depressive conditions and a perception that the community was unsafe. The study suggested that this fear may reduce opportunities for activity in older adults because they would not exercise outdoors in dark situations.[56] These fears have not yet been explored in younger adults with overweight or obesity.

3.10 | Effect size and numeration analysis of included studies

Where the data were available, effect sizes and numeration analysis were extracted. Table 2 shows the effect sizes for quantitative studies and numeration analysis to highlight the importance of fear-related barriers within the qualitative studies.

3.11 | Critical appraisal of included studies

Table 2 presents the levels of risk of bias in the studies. The qualitative studies had more concerns about bias. The main bias concerns in qualitative studies were the lack of reporting of the philosophical perspective, the researchers' influence on the data analysis, and the cultural or theoretical underpinning of the methodology. In some studies, there was also a lack of congruity between the research methodology and the interpretation of results.

The cross-sectional quantitative studies had fewer bias concerns. When there were concerns, these were because the studies did not identify or provide strategies to deal with confounding factors, did not objectively measure the condition in a valid or reliable way, and/or failed to clearly describe the inclusion criteria; these concerns were found mainly in studies relating to fears of pain, crime, and cardiac events.

4 | DISCUSSION

The findings of this scoping review highlight fear as an important factor in whether adults with overweight or obesity participate in

TABLE 2 Risk of bias assessment and effect size or numeration analysis of included studies

Fear	Author	Study type	Numeration analysis for qualitative studies or effect size for quantitative studies	Risk of bias
Embarrassment ($n = 12$)	Lim et al.[32]	Qualitative study	No numeration analysis reported	Medium risk
	Sand et al.[38]	Qualitative study	No numeration analysis reported	Medium risk
	Lewis et al.[33]	Qualitative study	Some participants (25%–50%) shared examples of fearing that people would laugh at them if they went swimming at a public swimming pool or to exercise at a gym ($n = 15$)	Low risk
	Denison et al.[37]	Qualitative study	No numeration analysis reported	Low risk
	Zabatiero et al.[8]	Qualitative study	No numeration analysis reported	Low risk
	Ashton et al.[36]	Qualitative study	No numeration analysis reported	Medium risk
	Thomas et al.[34]	Qualitative study	Themes of fear of enacted embarrassment and stigma as a barrier to activity were reported by 5% of participants (n = 4)	Medium risk
	Dikareva et al.[43]	Qualitative study	No numeration analysis reported	Low risk
	Wiklund et al.[35]	Qualitative study	No numeration analysis reported	Low risk
	Baruth et al.[39]	Qualitative study	No numeration analysis reported	Medium risk
	Alqout and Reynolds[41]	Qualitative study	No numeration analysis reported	Low risk
	Ball et al.[31]	Cross-sectional study	In females, BMI ≤ 25 3.4% compared with BMI > 25, 7.1%, $p < 0.05$	High risk
Enacted stigma ($n = 13$)	Farhangi et al.[44]	Cross-sectional study	Fear enacted stigma subscale, 12.88 in overweight and obese women.	Low risk
	Chang et al.[40]	Qualitative study	No numeration analysis reported	High risk
	O'Brien et al.[42]	Qualitative study	No numeration analysis reported	Medium risk
	Sand et al.[38]	Qualitative study	No numeration analysis reported	Medium risk
	Lewis et al.[33]	Qualitative study	Some participants (25%–50%) shared examples of fearing that people would laugh at them if they went swimming at a public swimming pool or to exercise at a gym ($n = 15$)	Low risk
	Denison et al.[37]	Qualitative study	No numeration analysis reported	Low risk
	Zabatiero et al.[8]	Qualitative study	No numeration analysis reported	Low risk
	Ashton et al.[36]	Qualitative study	No numeration analysis reported	Medium risk
	Thomas et al.[34]	Qualitative study	Themes of fear of enacted embarrassment and stigma as a barrier to activity were reported by 5% of participants ($n = 4$)	Medium risk
	Dikareva et al.[43]	Qualitative study	No numeration analysis reported	Low risk
	Wiklund et al.[35]	Qualitative study	No numeration analysis reported	Low risk
	Baruth et al.[39]	Qualitative study	No numeration analysis reported	Medium risk
	Alqout and Reynolds[41]	Qualitative study	No numeration analysis reported	Low risk
Falling ($n = 6$)	Jeon[46]	Cross-sectional study	Increase of 0.08 in Falls Efficacy Scale score for each unit increase in BMI	Low risk
	Rosic et al.[13]	Cross-sectional study	Mean Modified Falls Efficacy Scale in obese women 7.7 (2.8). Threshold for fear of falling is 8, where lower score indicating higher levels of fear of falling	Low risk
	Deshpande et al.[47]	Cross-sectional study	Mean BMI in those with no fear = 26.17 kg/m^2 compared with mean BMI in those with severe fear 27.7 kg/m^2. $p = 0.063$	Low risk
	Larsson and Mattsson[48]	Cross-sectional study	No data presented	Low risk
	Neri et al.[26]	Cross-sectional study		Low risk

(Continues)

TABLE 2 (Continued)

Fear	Author	Study type	Numeration analysis for qualitative studies or effect size for quantitative studies	Risk of bias
			Falls Efficacy Scale International score was 30.1 in those with obesity compared to 26.7 in those with normal BMI $p < 0.05$	
	Sallinen et al.[45]	Cross-sectional study	Prevalence of fear of falling was 41% in severely obese, 19% in moderately obese and 17% in normal BMI, $p < 0.0001$	Low risk
Injury ($n = 6$)	Chang et al.[52]	Cross-sectional study	Prevalence: BMI ≥ 25 kg/m^2 = 14.5% compared to 0% BMI < 25 kg/m^2, $p = 0.069$	Medium risk
	Ramírez-Vélez et al.[14]	Cross-sectional study	No difference in prevalence between those who were obese 87.1% and those who were not 87.1%	Low risk
	Guess[50]	Qualitative study	No numeration analysis reported	Low risk
	Napolitano et al.[51]	Cross-sectional study	Comparison in 5-point Likert scale where 5 = *strongly agree*—obese 1.64 vs. overweight 1.51 vs. normal 1.19, $p < 0.05$	Low risk
	Wouters et al.[30]	Cross-sectional study	Decrease of 5.6 in the fear of injury subscale of the Physical Exercise Belief Questionnaire one year post bariatric surgery	Low risk
	Sallinen et al.[45]	Cross-sectional study	Prevalence of fear of injury was 14% in severely obese, 8% in moderately obese and 6% in normal BMI, $p = 0.092$	Low risk
Pain ($n = 3$)	Somers et al.[53]	Cross-sectional study	Pain-related fear measured using the TSK was 33.56 in overweight and obese; pain-related fear was significantly associated with walking at fast speed ($B = 0.22$, $p = 0.05$)	Low risk
	Vincent et al.[12]	Cross-sectional	Score on Pain Catastrophizing Scale for obese adults was 12.4	Low risk
	Wingo et al.[19]	Qualitative study	No numeration analysis reported	Medium risk
Movement ($n = 4$)	Vincent et al.[29]	Cross-sectional study	Score on fear of movement for obese adults was (TSK) 25.2	Low risk
	Vincent et al.[27]	Cross-sectional study	TSK score for obese adults was 26.1 vs 23.0 for normal BMI adults, $p = 0.03$	Low risk
	Vincent et al.[28]	Cross-sectional study	TSK-11 scores for overweight adults were 22.7 ± 7.1 vs. severely obese adults 24.0 ± 6.3. $p = 0.77$	Low risk
	Vincent et al.[12]	Cross-sectional study	TSK score for obese adults was 27.1 vs. 22.0 for normal BMI adults $p = 0.002$; increasing TSK score with increasing obesity category	Low risk
Cardiac events ($n = 1$)	Wingo et al.[19]	Qualitative study	No numeration analysis reported	Medium risk
Joint damage ($n = 1$)	Cooper et al.[55]	Qualitative study	No numeration analysis reported	Low risk
Crime ($n = 1$)	Kodjebacheva et al.[56]	Cross-sectional study	No data presented	Medium risk

Threshold applied to critical appraisal (no of items suggesting biases): 1–3 low, 4–6 medium, 7+ high risk of bias.
Abbreviations: BMI, body mass index; TSK, Tampa Scale of Kinesiophobia.

physical activity. Studies were consistent in suggesting that these fears were barriers. When reported, all but one study suggested an increase in fears among those with overweight and obesity, and in the one study that suggested similar levels within those with and without overweight and obesity, only participants who had given up activity were included. This review demonstrates that fear is likely a barrier that often leads to the avoidance of physical activity. Specifically, fears related to movement, injury, falling, enacted stigma and embarrassment, may predict physical inactivity in adults with overweight and obesity. However, given the cross-sectional nature of quantitative studies included, it could also be that activity-related fears lead to physical inactivity which may result in obesity.[57,58] It is also possible that the relationship between fear(s) and activity avoidance is bidirectional in that inactivity may be exacerbated by weight concerns because adults with obesity have heightened physical reactions to activity (e.g., musculoskeletal pain and catastrophizing of

pain), which then leads to greater activity-related fears.[19] Longitudinal studies are needed to further articulate these relationships.

Although many of these fears will also be present in those who are not obese, the review findings suggest that fear-related barriers are more prevalent and have greater avoidance consequences in adults with obesity when compared with adults who are overweight.[19] Several studies highlighted that adults with overweight or obesity likely interpret physical responses (particularly breathlessness and muscle tightness) differently than healthy weight adults, which may manifest into, or intensify, fear (provoking greater activity avoidance).[19,55] This may be because of intensified catastrophizing (which manifests into fear) or depressive cognitions that are associated with heightened BMI.[54,58]

The literature also indicates that age may play a role in the manifestation of fearful cognitions because of the wider range and frequency of fear-related barriers reported by middle-to-older aged adults with obesity.[29,55] However, the literature revealed a wide spectrum of fears that had negative consequences for activity in all age groups.[55] Younger adults with overweight and obesity reported greater fears relating to embarrassment and stigma, while middle-to-older aged adults generally reported more fears of pain, falling, injury, and movement.[29,37] Younger adults' fears were often the result of depressive cognitions around body image and how other people may perceive their weight.[42] Because of this, they would avoid crowded environments in the fear they would be humiliated or stigmatized. These fears were associated with activity avoidance which led to an increase in sedentary behavior and higher levels of inactivity.[14,44] The evidence to support this was largely consistent throughout most studies, supported by both qualitative and quantitative findings.[32,40,44] However, most of the qualitative studies had at least medium risk of bias, and further research is needed to understand the reasons underlying these relationships.[34,36,39] Older adults' fears were often related to the desire to avoid pain and functional disability.[19] This meant that they would avoid specific modes of, and higher intensity of activities because of fears of injury.[13] Several studies showed that most fears intensified as BMI increased and that activity avoidance was at its highest in adults with a BMI over 40 kg/m^2.[19,29] However, although this evidence was consistent across several quantitative studies, the focus of and methodological concerns about the qualitative data limits further elucidation of quantitative findings.[28,29,50,51] Because of this, further research is needed to understand the mechanisms underlying the relationship between pain, movement, and activity avoidance in adults with overweight and obesity. Evidence to support other fears of activity such as those related to cardiac events and joint damage was limited because of small sample sizes and dearth of literature.[19,55] Further research is needed to confirm and quantify these fears as a risk factor for inactivity in a large sample of adults with overweight and obesity.

Several studies included in this review suggest that by tackling many of these fear-related barriers to activity, we could reduce activity avoidance and encourage adults with overweight and obesity back into physical activity.[19,55] There was a consensus among the studies in this review that without psychological intervention explicitly addressing activity-related fears, it is likely that adults with overweight and obesity would remain inactive.[19,55] However, with a lack of literature on fears that are not related to stigma and embarrassment, there is a need for further longitudinal research to confirm and quantify these as a risk factor for inactivity in adults with overweight and obesity. An example of this is the lack of literature that has explored pain-related fears in younger adults with obesity (in the context of physical activity). There is a strong rationale to explore this further because chronic pain complaints are common in younger adults with obesity (under 45 years) and because chronic pain often leads to the manifestation of pain-related fears, exacerbating activity avoidance.[54,57] Equally, there is also a similar gap in existing knowledge regarding fears relating to movement and how it impacts on physical activity for younger adults with overweight and obesity. Although, it might be argued, these fears need first exploring among middle-aged or older adults with obesity because of the greater risk to health posed by inactivity in this population, behaviors track across age groups, and lead to greater accrued exposure to risk and potentially premature morbidity and mortality.[29]

This review provides some evidence to suggest adults with overweight and obesity may need greater levels of support to engage in physical activity.[59] The findings have implications for practitioners in that fear-related barriers could restrict health-promoting behavior, preventing engagement with interventions to promote physical activity. An evident gap in the literature was a lack of investigation on fears related to leisure facilities, albeit the literature did suggest increased fears of embarrassment and enacted stigma in these environments. Planning intervention strategies that focus on the emotion of fear could be a foundation to addressing the range of barriers that impact on adults with overweight and obesity. The extents to which fear-related barriers restrict individual attempts to engage in activity largely depend on societal, personal, cultural, and experiential factors.[13,55] Therefore, it is important that practitioners develop a therapeutic relationship with patients with weight concerns to understand the individual's personal circumstances, lived experiences, and beliefs regarding activity-related fears.[59] By increasing understanding of the perception of activity related fears, practitioners may be better positioned to offer more effective solutions to the problem of inactivity among adults with overweight and obesity.[55] Existing psychological models such as the fear-avoidance model may provide a starting point for practitioners to conceptualize fear-avoidance beliefs in this population.[57]

A key strength of this scoping review is that the study design allowed for an examination of the broader field of evidence related to fear and physical activity. Because a review relating to the current study aims had not been conducted previously, the scoping review methodology provided benefits in that more expansive inclusion criteria ensured all relevant studies were included. The review provides a unique insight into what is currently known about activity-related fears and how they may be perceived as a barrier or facilitator in adults with overweight and obesity. The findings identify specific gaps in existing knowledge base that are useful in shaping future research initiatives.

An important limitation of this body of evidence is that only a small number of studies ($n = 5$) explicitly intended to explore fear-related barriers to activity. Consequently, the data relating to fears lacked sufficient validity to outline a conceptual framework.[55] It is evident that further research is needed to develop an improved understanding of the constructs relating to activity-related fears in populations of adults with overweight and obesity. Limitations aside, this review achieved its aim to summarize existing research findings relating to how fear impacts on physical activity in adults with overweight and obesity.

5 | CONCLUSIONS

In conclusion, this review accomplished its primary aim of identifying how fear impacts upon physical activity for adults with overweight and obesity. The review summarizes the literature relating to fear as a barrier to physical activity in adults with overweight and obesity. The range and strength of the literature varied dependent on which explicit fear was reported. For example, the fears of embarrassment, enacted stigma, and injury have been explored in several age groups and with adults with overweight and with obesity. However, there is a lack of literature relating to how other fears such as pain, movement, and falling impact on physical activity for younger adults with obesity (under 45 years of age). There is a strong rationale to explore these fears, particularly pain-related fears of physical activity, because chronic pain complaints are common in younger adults with obesity[54] and because chronic pain often leads to the manifestation of pain-related fears, exacerbating activity avoidance.[57] Focusing on younger people with obesity is important, because of the potential for premature morbidity and mortality associated with longer exposure to higher body weights and physical inactivity. This review highlights existing evidence that fear beliefs have some relationship with the avoidance of physical activity; however, further research is needed to clarify the relationships and to identify how they may restrict health-promoting behavior, preventing engagement with interventions. Fear-related activity avoidance has previously been conceptualized by Vlaeyen et al., within the theoretical factors of the fear-avoidance model.[57] This model may provide a starting point for practitioners to conceptualize fear-avoidance beliefs. Fear-avoidance beliefs have detrimental consequences to all populations, but a case may be made that adults with obesity are in danger of more serious health detriments as an outcome of these beliefs because these fears are greater or the consequences of fear-related lack of activity are greater.

ACKNOWLEDGMENTS

The authors sincerely thank all the participants who voluntarily gave up their time to contribute to the consultation stage of the research. Without their participation, the study would not have been possible. This research was supported with funding from Edge Hill University.

CONFLICT OF INTEREST

Authors declare no competing interests and no conflicts of interests.

ORCID

Oliver Hamer https://orcid.org/0000-0002-9631-0032

REFERENCES

1. Roberto CA, Swinburn B, Hawkes C, et al. Patchy progress on obesity prevention: emerging examples, entrenched barriers, and new thinking. *Lancet*. 2015;385(9985):2400-2409. https://doi.org/10.1016/S0140-6736(14)61744-X
2. Kyrou I, Randeva HS, Tsigos C, Kaltsas G, Weickert MO. Clinical problems caused by obesity. In: Feingold KR, Anawalt B, Boyce A, et al., eds. *Endotext*. South Dartmouth (MA): MDText.com, Inc; 2018.
3. Kadouh H, Acosta A. Current paradigms in the etiology of obesity. *Tech Gastrointest Endosc*. 2017;9:2-11.
4. Benton D, Young HA. Reducing calorie intake may not help you lose body weight. *Perspect Psychol Sci*. 2017;12(5):703-714. https://doi.org/10.1177/1745691617690878
5. O'Hara L, Taylor J. What's wrong with the 'war on obesity?' A narrative review of the weight-centered health paradigm and development of the 3C framework to build critical competency for a paradigm shift. *SAGE Open*. 2018;8(2). https://doi.org/10.1177/2158244018772888
6. Hruby A, Hu FB. The epidemiology of obesity: a big picture. *Pharmacoeconomics*. 2015;33(7):673-689. https://doi.org/10.1007/s40273-014-0243-x
7. Aibar-Almazán A, Martínez-Amat A, Cruz-Díaz D, et al. Sarcopenia and sarcopenic obesity in Spanish community-dwelling middle-aged and older women: association with balance confidence, fear of falling and fall risk. *Maturitas*. 2017;107:26-32. https://doi.org/10.1016/j.maturitas.2020.06.019
8. Zabatiero J, Hill K, Gucciardi D, et al. Beliefs, barriers and facilitators to physical activity in bariatric surgery candidates. *Obes Surg*. 2015;26(5):1097-1109. https://doi.org/10.1007/s11695-015-1867-4
9. Ayotte BJ, Margrett JA, Hicks-Patrick J. Physical activity in middle-aged and young-old adults: the roles of self-efficacy, barriers, outcome expectancies, self-regulatory behaviors and social support. *J Health Psychol*. 2010;15(2):173-185. https://doi.org/10.1177/1359105309342283
10. Asmundson JG, Vlaeyen YW, Crombez G. *Understanding and Treating Fear of Pain*. Oxford: Oxford University Press; 2004. https://doi.org/10.1192/bjp.188.3.297, 188, 297
11. Adolphs R. The biology of fear. *Curr Biol*. 2014;23(2):R79-R93. https://doi.org/10.1016/j.cub.2012.11.055
12. Vincent HK, Lamb KM, Day TI, Tillman SM, Vincent KR, George SZ. Morbid obesity is associated with fear of movement and lower quality of life in patients with knee pain-related diagnoses. *PM&R*. 2010;2:713-722. https://doi.org/10.1016/j.pmrj.2010.04.027
13. Rosic G, Milston AM, Richards J, Dey P. Fear of falling in obese women under 50 years of age: a cross-sectional study with exploration of the relationship with physical activity. *BMC Obes*. 2019;6:1-7. https://doi.org/10.1186/s40608-019-0230-z
14. Ramírez-Vélez R, Cruz-Salazar SM, Martínez M, et al. Construct validity and test-retest reliability of the International Fitness Scale (IFIS) in Colombian children and adolescents aged 9–17.9 years: the FUPRECOL study. *PeerJ*. 2015;5:e3351. https://doi.org/10.7717/peerj.3351
15. Tricco AC, Lillie E, Zarin W, et al. PRISMA extension for Scoping Reviews (PRISMA-ScR): checklist and explanation. *Ann Intern Med*. 2018;169(7):467-473. https://doi.org/10.7326/M18-0850
16. Whittemore R, Chao A, Jang M, Minges KE, Park C. Methods for knowledge synthesis: an overview. *Heart Lung*. 2014;43(5):453-461. https://doi.org/10.1016/j.hrtlng.2014.05.014
17. Arksey H, O'Malley L. Scoping studies: towards a methodological framework. *Int J Soc Res Methodol*. 2005;8:19-32. https://doi.org/10.1080/1364557032000119616

18. World Health Organization. *Global status report on noncommunicable diseases 2014*. Geneva, Switzerland: WHO; 2014. Available from: http://www.who.int/nmh/publications/ncd-status-report-2014/en/
19. Wingo BC, Evans RR, Ard JD, et al. Fear of physical response to exercise among overweight and obese adults. *Qual Res Sport, Exerc Health*. 2011;3(2):174-192. https://doi.org/10.1080/2159676X.2011.572994
20. Barlow DH. Unraveling the mysteries of anxiety and its disorders from the perspective of emotion theory. *Am Psychol*. 2000;55(11):1247-1263. https://doi.org/10.1037//0003-066x.55.11.1247
21. Katzmarzyk PT, Lear SA. Physical activity for obese individuals: a systematic review of effects on chronic disease risk factors. *Obes Rev*. 2012;13(2):95-105. https://doi.org/10.1111/j.1467-789X.2011.00933.x
22. Bussiek PV, De Poli C, Bevan G. A scoping review protocol to map the evidence on interventions to prevent overweight and obesity in children. *BMJ Open*. 2018;8(2):e019311. https://doi.org/10.1136/bmjopen-2017-019311
23. Pawson R. Evidence-based policy: in search of a method. *Evaluation*. 2002;8(2):157-181. https://doi.org/10.1177/1358902002008002512
24. Arai L, Britten N, Popay J, Roberts H, Petticrew M, Rodgers M. Testing methodological developments in the conduct of narrative synthesis: a demonstration review of research on the implementation of smoke alarm interventions. *Evidence and Policy: A J Res Debate Practice*. 2007;3(3):361-383. https://doi.org/10.1332/174426407781738029
25. The Joanna Briggs Institute (JBI). Critical appraisal tools for use in JBI systematic reviews. 2020; Available from: https://jbi.global/critical-appraisal-tools
26. Neri SG, Gadelha AB, Correia AL, Pereira JC, Safons MP, Lima RM. Association between obesity, risk of falls and fear of falling in older women. *Rev Bras Cineantropom Desempenho Hum*. 2017;19(4):450-458. https://doi.org/10.5007/19800037.2017v19n4p450
27. Vincent HK, Omli MR, Day T, Hodges M, Vincent KR, George SZ. Fear of movement, quality of life, and self-reported disability in obese patients with chronic lumbar pain. *Pain Med*. 2011;12(1):154-164. https://doi.org/10.1111/j.1526-4637.2010.01011.x
28. Vincent HK, Seay AN, Montero C, Conrad BP, Hurley RW, Vincent KR. Kinesiophobia and fear-avoidance beliefs in overweight older adults with chronic low-back pain: relationship to walking endurance—part II. *Am J Phys Med Rehabil*. 2013;92(5):439-445. https://doi.org/10.1097/PHM.0b013e318287633c
29. Vincent HK, George SZ, Seay AN, Vincent KR, Hurley RW. Resistance exercise, disability, and pain catastrophizing in obese adults with back pain. *Med Sci Sports Exerc*. 2014;46(9):1693-1701. https://doi.org/10.1249/MSS.0000000000000294
30. Wouters EJ, Larsen JK, Zijlstra H, van Ramshorst B, Geenen R. Physical activity after surgery for severe obesity: the role of exercise cognitions. *Obes Surg*. 2011;21(12):1894-1899. https://doi.org/10.1007/s11695-010-0276-y
31. Ball K, Crawford D, Owen N. Obesity as a barrier to physical activity. *Aust N Z J Public Health*. 2000;24:331-333. https://doi.org/10.1111/j.1467-842X.2000.tb01579.x
32. Lim S, Smith CA, Costello MF, MacMillan F, Moran L, Ee C. Barriers and facilitators to weight management in overweight and obese women living in Australia with PCOS: a qualitative study. *BMC Endocr Disord*. 2019;19(1):106. https://doi.org/10.1186/s12902-019-0434-8
33. Lewis S, Thomas SL, Blood RW, Castle DJ, Hyde J, Komesaroff PA. How do obese individuals perceive and respond to the different types of obesity stigma that they encounter in their daily lives? A qualitative study. *Soc Sci Med*. 2011;73(9):1349-1356. https://doi.org/10.1016/j.socscimed.2011.08.021
34. Thomas SL, Hyde J, Karunaratne A, Komesaroff PA. "They all work… when you stick to them": a qualitative investigation of dieting, weight loss, and physical exercise, in obese individuals. *Nutrition*. 2008;7(1):34. https://doi.org/10.1186/1475-2891-7-34
35. Wiklund M, Olsén MF, Willén C. Physical activity as viewed by adults with severe obesity, awaiting gastric bypass surgery. *Physiother Res Int*. 2011;16:179-186. https://doi.org/10.1002/pri.497
36. Ashton LM, Hutchesson MJ, Rollo ME, Morgan PJ, Thompson DI, Collins CE. Young adult males' motivators and perceived barriers towards eating healthily and being active: a qualitative study. *Int J Behav Nutr Phys Act*. 2015;12(1):93. https://doi.org/10.1186/s12966-015-0257-6
37. Denison FC, Weir Z, Carver H, Norman JE, Reynolds RM. Physical activity in pregnant women with Class III obesity: a qualitative exploration of attitudes and behaviours. *Midwifery*. 2015;31(12):1163-1167. https://doi.org/10.1016/j.midw.2015.08.006
38. Sand AS, Emaus N, Lian OS. Motivation and obstacles for weight management among young women—a qualitative study with a public health focus—the Tromsø study: fit futures. *BMC Public Health*. 2017;17(417):1-11. https://doi.org/10.1186/s12889-017-4321-9
39. Baruth M, Sharpe PA, Parra-Medina D, Wilcox S. Perceived barriers to exercise and healthy eating among women from disadvantaged neighborhoods: results from a focus groups assessment. *Women Health*. 2014;54(4):336-353. https://doi.org/10.1080/03630242.2014.896443
40. Chang MW, Nitzke S, Guilford E, Adair CH, Hazard DL. Motivators and barriers to healthful eating and physical activity among low-income overweight and obese mothers. *J Am Diet Assoc*. 2008;108(6):1023-1028. https://doi.org/10.1016/j.jada.2008.03.004
41. Alqout O, Reynolds F. Experiences of obesity among Saudi Arabian women contemplating bariatric surgery: an interpretative phenomenological analysis. *J Health Psychol*. 2014;19(5):664-677. https://doi.org/10.1177/1359105313476977
42. O'Brien OA, Lindsay KL, McCarthy M, et al. Influences on the food choices and physical activity behaviours of overweight and obese pregnant women: a qualitative study. *Midwifery*. 2017;47:28-35. https://doi.org/10.1016/j.midw.2017.02.003
43. Dikareva A, Harvey WJ, Cicchillitti MA, Bartlett SJ, Andersen RE. Exploring perceptions of barriers, facilitators, and motivators to physical activity among female bariatric patients: implications for physical activity programming. *Am J Health Promot*. 2016;30(7):536-544. https://doi.org/10.4278/ajhp.140609-QUAL-270
44. Farhangi MA, Emam-Alizadeh M, Hamedi F, Jahangiry L. Weight self-stigma and its association with quality of life and psychological distress among overweight and obese women. *Eat Weight Disord*. 2017;22(3):451-456. https://doi.org/10.1007/s40519-016-0288-2
45. Sallinen J, Leinonen R, Hirvensalo M, Lyyra TM, Heikkinen E, Rantanen T. Perceived constraints on physical exercise among obese and non-obese older people. *Prev Med*. 2009;49(6):506-510. https://doi.org/10.1016/j.ypmed.2009.10.001
46. Jeon BJ. The effects of obesity on fall efficacy in elderly people. *J Phys Ther Sci*. 2013;25(11):1485-1489. https://doi.org/10.1589/jpts.25.1485
47. Deshpande N, Metter EJ, Lauretani F, Bandinelli S, Guralnik J, Ferrucci L. Activity restriction induced by fear of falling and objective and subjective measures of physical function: a prospective cohort study. *J Am Geriatr Soc*. 2008;56(4):615-620. https://doi.org/10.1111/j.1532-5415.2007.01639.x
48. Larsson UE, Mattsson E. Perceived disability and observed functional limitations in obese women. *Int J Obes Relat Metab Disord*. 2001;25(11):1705-1712. https://doi.org/10.1038/sj.ijo.0801805
49. Powell LE, Myers AM. The Activities-specific Balance Confidence (ABC) Scale. *J Gerontol a Biol Sci Med Sci*. 1995;50A(1):M28-M34. https://doi.org/10.1093/gerona/50a.1.m28
50. Guess N. A qualitative investigation of attitudes towards aerobic and resistance exercise amongst overweight and obese individuals. *BMC Res Notes*. 2012;5(191):1-12. https://doi.org/10.1186/1756-0500-5-191

51. Napolitano MA, Papandonatos GD, Borradaile KE, Whiteley JA, Marcus BH. Effects of weight status and barriers on physical activity adoption among previously inactive women. *Obesity*. 2011;19:2183-2189. https://doi.org/10.1038/oby.2011.87
52. Chang C, Khurana S, Strodel R, Camp A, Magenheimer E, Hawley N. Perceived barriers to physical activity among low-income Latina women at risk for type 2 diabetes. *Diabetes Educ*. 2018;44(5):444-453. https://doi.org/10.1177/0145721718787782
53. Somers TJ, Keefe FJ, Pells JJ, et al. Pain catastrophizing and pain-related fear in osteoarthritis patients: relationships to pain and disability. *J Pain Symptom Manage*. 2009;37(5):863-872. https://doi.org/10.1016/j.jpainsymman.2008.05.009
54. Okifuji A, Hare BD. The association between chronic pain and obesity. *J Pain Res*. 2015;8:399-408. https://doi.org/10.2147/JPR.S55598
55. Cooper L, Ells L, Ryan C, Martin D. Perceptions of adults with overweight/obesity and chronic musculoskeletal pain: an interpretative phenomenological analysis. *J Clin Nurs*. 2018;27:e776-e786. https://doi.org/10.1111/jocn.14178
56. Kodjebacheva G, Koleilat M, Kruger DJ. Depressive symptoms mediate the association between fear of crime and higher body mass index. *Am J Health Promot*. 2015;30(2):130-132. https://doi.org/10.4278/ajhp.140103-ARB-6
57. Vlaeyen JW, Linton SJ. Fear-avoidance model of chronic musculoskeletal pain: 12 years on. *Pain*. 2012;153(6):1144-1147. https://doi.org/10.1016/j.pain.2011.12.009
58. Brown BB, Werner CM, Smith KR, Tribby CP, Miller HJ. Physical activity mediates the relationship between perceived crime safety and obesity. *Prev Med*. 2014;66:140-144. https://doi.org/10.1016/j.ypmed.2014.06.021
59. McIntosh T, Stewart D, Forbes-McKay K, McCaig D, Cunningham S. Influences on prescribing decision-making among non-medical prescribers in the United Kingdom: systematic review. *Fam Pract*. 2016;33(6):572-579. https://doi.org/10.1093/fampra/cmw085

SUPPORTING INFORMATION

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

How to cite this article: Hamer O, Larkin D, Relph N, Dey P. Fear-related barriers to physical activity among adults with overweight and obesity: A narrative synthesis scoping review. *Obesity Reviews*. 2021;e13307. https://doi.org/10.1111/obr.13307