**ABSTRACT AND KEYWORDS**

**Background**

Despite the advantages of physical activity (PA), older adults are often insufficiently active to maximise health. Understanding factors that influence PA engagement will support well-designed interventions for older people. Our aim was to review the qualitative evidence exploring the factors affecting older adults’ engagement in PA.

**Methods**

We searched 6 electronic databases for studies of community-dwelling older adults (≥70 years) including qualitative methods. We excluded studies of a single disease group, individuals with cognitive impairment, and care home residents. Methodological rigour was assessed with the CASP, and framework synthesis was applied using the COM-B model, which hypothesises that behaviour is influenced by three factors: capability, opportunity, and motivation.

**Results**

Twenty-five studies were included in the review (N = 4978; mean 79 years) and 32 themes were identified. Older adults’ capability was influenced by functional capacity (e.g., strength) and perceived risk of injury from PA (e.g., falls). Opportunity was impacted by the environment ‘fit’ (e.g., neighbourhood safety), the availability of social interaction, and socio-cultural ageing stereotypes. PA was motivated by identifying as an ‘exerciser’, health gains, and experiencing positive emotions (e.g., enjoyment), while negative sensations (e.g., pain) reduced motivation.

**Conclusions**

The qualitative synthesis showcased a complex web of interacting factors influencing PA between the sub-domains of COM-B, pinpointing directions for intervention, including a focus on whole systems approaches. There was a lack of research exploring PA influences in the oldest old and in low-income countries. Future research should seek to involve under-served groups, including a wider diversity of older people.

**Keywords (3-5):** qualitative synthesis, physical activity, older adults, COM-B Model, systematic review

**Key Points (3-5):**

* Older adults’ activity was affected by interacting factors influencing their capability, opportunity, and motivation.
* Perceived capability to engage with PA was influenced by functional capacity and perceived risk of injury from PA.
* The environment ‘fit’ and socio-cultural ageing stereotypes impacted older adults’ opportunity to engage with PA.
* Immediate sensations and emotions associated with PA influenced older adults’ motivation and adherence.
* A systems approach to policy and intervention is needed to cover the wide ranging influencing factors on older adults’ PA levels and experiences.

**Introduction**

Physical activity (PA) and exercise are important lifestyle behaviours promoting healthy ageing and are considered key therapeutic strategies of common geriatric syndromes such as sarcopenia and frailty [1-4]. PA is any bodily movement produced by skeletal muscles that increases energy expenditure, while exercise refers to a sub-category of PA that is structured and repetitive with intention to improve fitness [5, 6]. Known clinical benefits of PA include attenuating decline in muscle function and cardiorespiratory fitness, maintaining functional ability, and managing chronic disease [3, 7, 8]. From a sociological viewpoint, PA can enhance embodied pleasures in later life, improve well-being, enhance social interactions, reduce loneliness, and support quality of life [9, 10].

With the known benefits, it is unsurprising that PA amongst older people is promoted [7, 11]. However, more than a quarter of the global adult population (1.4 billion adults) are insufficiently active for health [11] and only 2.5-22% of community-dwelling older adults achieve current WHO recommended PA levels (150 mins moderate intensity PA per week) [12, 13]. Consequently, understanding factors that influence older adults’ PA engagement is important to aid development and implementation of strategies to improve PA participation and adherence [14, 15]. A theoretical understanding of behaviour change is essential to recognise the factors that could support older adults’ PA experiences and behaviours [16]. One widely used system of behaviour change is the COM-B model (Capability Opportunity Motivation – Behaviour), developed through the comprehensive coverage of 19 theories [17]. According to COM-B, for older adults to engage with PA they need the capability (physical and psychological), opportunity (physical and social), and strength of motivation (automatic and reflective) to participate [17]. Capability refers to the individual’s capacity to engage in the activity concerned, opportunity is the factors that lie outside the individual that make the behaviour possible, and motivation refers to the brain processes that energise and direct behaviour [17]. Research using COM-B suggests that, in younger people, habits, knowledge (capability), subjective norms, social support (opportunity), goals, affect and exercise self-identity (motivation) are key drivers of PA [18, 19]. Identifying the factors which specifically influence older adults’ capability, opportunity, and motivation to engage with PA could provide direction for improved intervention strategies using a systematic approach to help inform and update policy and practice within the burgeoning area of PA, exercise, ageing and health [17, 20].

Previous qualitative reviews of older adults have highlighted the short-term psychosocial advantages of PA (e.g., improved social interaction, enjoyment) as strong motivational influences compared to well-established long-term health benefits [14, 15]. Additionally, central barriers to older adults’ engagement with PA included pain and discomfort, concerns with falling, and access difficulties [15]. More recently, McGowan and colleagues [21] found that inactive older adults considered PA to be a by-product of other more meaningful activities rather than a purposeful activity within itself and, thus, they called for older adults’ health interventions to focus on reducing sedentary behaviour rather than promoting PA per se. Although these have provided an integral insight into older adults’ PA behaviours, they have not explicitly considered PA behaviour change models. The current review aimed to extend previous works [14, 15, 21] through mapping qualitative findings to the COM-B model thereby helping practitioners to move from describing factors influencing PA to supporting and suggesting specific intervention development through a systematic behaviour change model [22]. Our research question was: What factors influence community-dwelling older adults’ participation in physical activity? Specifically, we aimed to explore the PA experiences of individuals ≥ 70 years, as this age group are at higher risk of multiple long-term health conditions, are likely to have difficulties with activities of daily living, and are more likely to need health and care services [23]. Moreover, previous qualitative reviews have not specifically focussed on the oldest old.

**Methods**

This review was reported using the Enhanced Transparency in Reporting the Synthesis of Qualitative Research (ENTREQ) approach [24] (Appendix 1). The protocol was registered on the PROSPERO database: CRD42021160503. To improve the rigour of the review the Critical Appraisal Skills Programme (CASP) quality assessment tool for qualitative studies and the GRADE-CERQual (‘Confidence in the Evidence from Reviews of Qualitative research’) approach were added to the protocol. A concurrent review of the quantitative evidence is underway.

***Search Strategy***

A systematic search of the literature was conducted on six electronic databases: CINAHL, Embase, MEDLINE, WoS, ASSIA, and PsycINFO [07/03/2023] (see Appendix 2 for search strategy and terms). Inclusion criteria were: (a) community-dwelling older adults aged ≥70 years, including studies that examined the older adult population as a subgroup where extrapolation was possible; (b) qualitative methods or mixed-method studies with a qualitative component. Exclusion criteria were: (a) a single disease group (for example post-stroke); (b) studies with an exclusive focus on participants with cognitive impairment; (c) interventional studies (i.e., the researcher intercedes with a PA intervention as part of the study design), due to contextual differences in barriers and motivators and bias towards intervention successes; (d) care home residents; (e) grey literature, such as conference abstracts; and (f) non-English articles due to a lack of available translation services.

***Data Screening and Extraction***

Titles and abstracts were independently screened by 4 authors (JH, JM, SM & AW). After exclusion of irrelevant citations, full-text articles were assessed by 4 review authors independently (JH, JM, SM & MR). Any disagreements were resolved through discussion and involvement of a senior author (AK).

Data extraction was primarily conducted by 1 author (SJM) with 25% of articles independently extracted by a second author (NJC). A pre-determined data extraction template was used. Data was extracted from the results and discussion sections of articles, including participant quotations and author interpretations. No significant differences were observed in data extracted between authors.

***Data Synthesis***

A ‘best fit’ framework synthesis using the COM-B model of behaviour change was used to analyse data. A ‘best fit’ framework synthesis is a structured approach to extract and synthesise findings, facilitating rapid production of context-specific conceptual models explaining health behaviours [25, 26]. Extracted data from included studies were coded line by line in a deductive format against the COM-B model [26] using NVivo software. A coding tree of themes was developed based on the 3 main domains of the COM-B framework and their subconstructs including capability (psychological and physical), opportunity (physical and social) and motivation (reflective and automatic). Had any data not aligned with the COM-B framework, additional themes would have been developed through an iterative process using inductive thematic analysis [27], however this was not required. Coding was completed by one author (SJM) and a 25% sample of codes were audited by a second author (NJC) with no significant discrepancies identified. The authors worked together to improve theme names.

***Quality Rating***

The methodological quality of studies was assessed using the CASP quality assessment tool for qualitative studies [28]. The CASP criteria were applied by one author (SJM) with an overall quality score for each study (Appendix 3). 25% of articles were independently rated by a second author (NJC) with no significant discrepancies observed.

***Confidence in Findings***

The GRADE-CERQual approach was used to guide the assessment of how much confidence to place in findings [29]. Confidence was judged as high, moderate, low, or very low. All findings started as high confidence (i.e., highly likely the review finding is a reasonable representation of the phenomenon of interest) and then downgraded if there were important concerns about any of the CERQual components (Appendix 4).

***Review Author Reflexivity***

We acknowledge that the interpretation and findings of the current qualitative synthesis are influenced by the review authors’ own experiences and views as clinical practitioners and academics [30]. Reflexivity was embraced across the review and synthesis processes through team discussions and through the first author keeping critical reflective notes of team decisions and interpretations of the data.

**Results**

***Description of included studies***

Twenty-five studies were included in this synthesis (Table 1). The number of papers screened, assessed for eligibility, and included are presented in Figure 1. The included studies were published between 1998 and 2023, and were conducted across multiple countries, including Australia (N = 5), United Kingdom (UK) (N = 4), United States of America (USA) (N = 4), Canada (N = 3), New Zealand (N = 2), Sweden (N = 2), Norway (N = 2), Netherlands (N = 1), Finland (N = 1) and Iceland (N = 1). Studies were mainly qualitative (N = 20), with 5 mixed methods studies. The qualitative data included in the review were collected using semi-structured interviews (N = 11), structured interviews / questionnaires (N = 8), and focus groups (N = 3). One study included both interviews and focus groups, one used both questionnaires and interviews, and one used interviews alongside participant observation.

Participants included older adults (N = 4978; mean 79 ± 4 years), of which 64% were female (N = 3195). Only 6 studies reported the ethnicity of participants, reporting mainly Caucasian ethnicities [31-36]. Fifteen studies included details of participants’ socio-economic status. Due to the heterogeneity of measures it was difficult to assess overall socio-economic status of participants included in the review, however most studies appeared to include middle class older adults. Most studies defined PA as any movement above resting levels, and therefore, the type of PA explored in studies varied widely, including activities of daily living [37-39], everyday trip-making [40], sport [36, 41], tai chi [42], home falls prevention exercise [43, 44], and group exercise [45-47] (Table 1).

*FIGURE 1 HERE*

***Quality appraisal and methodological limitations***

Most studies included rigorous methodological processes with 19/25 studies scoring 8 or higher on the CASP assessment (Appendix 3). The most common methodological limitation was poor reporting of researcher reflexivity (N= 17), followed by a lack of detail in ethical considerations (N= 7). Most qualitative findings were in depth explorations of phenomena with 6 studies considered having superficial data that lacked meaning. Overall, the studies reported adequately on research design, data collection, analyses, and recruitment strategies.

***Confidence in the review findings***

Out of 32 review findings sixteen were graded as high confidence, eleven were graded as moderate confidence, and five were graded as low confidence. The CERQual evidence profile (Appendix 4) shows details of the issues encountered that led to our decision to maintain or downgrade confidence assessments for each review finding.

*TABLE 1 HERE*

***Review Findings***

Data were mapped against the COM-B framework (Table 2, 3 and 4). All data were accommodated by the existing framework and placed within the 6 subdomains of the 3 main COM-B themes (Figure 2). These subdomains are interconnected and interact to determine older adult’s PA behaviours. A large proportion of review findings were classified within social opportunity (N [no. of review findings] = 10), followed by physical opportunity (N= 7), reflective motivational processes (N= 5), psychological capability (N= 4), physical capability (N= 4), and automatic motivational processes (N= 2). Review findings classified with high confidence are explained in more detail below (for remaining findings see Appendix 5).

***COM-B component: Capability***

***Physical capability***

*Perceived functional capacity to engage in PA with increasing age:*Factors which decreased older adults’ perceptions of their physical capabilities to be active included reduced strength and mobility, and impaired hearing and eyesight. There was often tension between attitudes to remain active and the perceived natural decline associated with ageing, which caused perceptions that the body was a barrier to physical competence [34, 36, 41, 48]. Fatigue, and functional limitations, as well as feeling ‘too old’ and ‘slowing down’ were a deterrent to PA [35, 37, 38, 40, 41, 44, 45, 48-52]. Physical indicators of exertion, such as breathlessness, provided cues to alter activity levels, and could be off putting for individuals new to activity and for those with increased perceptions of frailty [32, 33, 37-39, 51].

*Physical and psychological manifestations of health conditions limit perceived capability:*Older adults with a health condition experienced limiting symptoms and impairments, such as stiff and painful joints or dizziness, that often changed their perceived physical capabilities to be active [32, 33, 35, 37, 38, 40, 41, 43-45, 48, 49, 51-54]. Health symptoms could vary day to day depending on previous activities and sleep, which influenced future mobility decisions [40], and medication side effects, such as drowsiness, reduced perceived capability to be active [48].

***Psychological capability***

*Perceived vulnerability and risk of injury is a barrier to PA:* Some older adults feared the unpredictability and vulnerability associated with ageing so were more careful with exposure to perceived risks, such as exertion and activities viewed as more dangerous, including resistance training and exercising alone [32, 34, 35, 38, 41, 45, 51]. Those who felt vulnerable were more likely to associate PA with personal risk and injury, including joint damage [33, 43, 51].

Fear of falling reduced confidence and motivation to be active, with worry about difficulties getting up off the floor, fractures, and hospitalisations after a fall, impacting independence [32, 33, 37, 38, 40, 44, 45, 49, 50, 53]. Fear of falling depended on context, such as availability of physical support and treacherous weather, such as icy pavements [40, 45]. Occasionally fear of falling prompted certain exercise to improve functionality and reduce falls [39], however in most instances fear prompted activity avoidance.

*TABLE 2 HERE*

***COM-B component: Opportunity***

***Physical Opportunity***

*Environment fit: affordances of the environment influenced older adults’ PA:*Environmental affordances including the accessibility and availability of exercise facilities, aesthetic environmental features, availability of convenient and safe transport options, availability of meaningful neighbourhood amenities, and the perceived safety and walkability in the neighbourhood, influenced older adults’ PA. The availability of local facilities, including leisure centres designed for older adults needs, and walking routes facilitated PA [31, 32, 35, 36, 38, 48, 53]. While a lack of accessible facilities to exercise, including poor availability of local group exercise programmes, were barriers [32, 38, 39, 43, 45, 47, 48, 52]. Older adults were motivated by the presence of nature and the sense of freedom provided by well-designed, aesthetically pleasing outdoor spaces, such as wooded trails [32-34, 39, 40, 51, 53]. Local parks were particularly important for older adults who struggled to travel longer distances [38]. Those still driving a car felt they had more freedom and convenient access to facilities beyond the local community [38]. Poor bus services, such as unreliable timing and limited routes, as well as logistical challenges in ordering taxis were barriers to PA opportunities for some [38, 40, 45, 48].

The proximity of meaningful amenities, such as shops, and libraries, encouraged purposive walking [32, 35, 38, 40, 53]. Comparatively, a lack of local amenities outside of walking distance, or of poor quality discouraged older adults from leaving the home [38]. Moreover, the safety of neighbourhood design, such as the quality of pavements influenced the walkability for older adults [37, 38, 40, 51, 53]. In particular, the availability of rest stops, such as benches, was important to increase confidence for walking and reduced the fear of becoming uncomfortably fatigued [38, 45, 50, 53]. Groups of youths and fear of crime created concerns about personal safety and were a barrier to outdoor PA [38, 53].

*Weather affects engagement and type of PA:* Weather conditions perceived to be dangerous and uncomfortable (e.g., rain, ice) prevented PA, especially for older adults who viewed themselves to be frail and vulnerable [32, 33, 37-40, 43, 45, 49, 50, 53, 54]. Risk of falls were often mentioned, especially on slippery surfaces [40]. Some older adults overcame this by exercising indoors [39, 49]. Clement weather often promoted PA outside and encouraged movement despite ailments [35, 45]. However, some older women disliked exercising in hot weather due to sweating [37].

***Social Opportunity***

*Benefit of social interaction, relatedness and belonging through PA:*Social interaction during PA, (e.g., exercising with groups of peers) improved enjoyment and reduced feelings of loneliness, which was often more important than the activity itself [31-33, 35, 36, 38, 39, 41-43, 45, 47-54]. Older adults found humour within exercise groups important, as well as a sense of relatedness and comfort when exercising with people of a similar age and functional ability, which acted to improve exercise intensity and effort [32, 33, 36, 41, 45, 49, 52]. A lack of social opportunities during exercise was perceived as a disadvantage [35, 38, 42, 44, 47, 52].

Bereavement and the associated feelings of isolation could motivate interaction through PA, however, loneliness could also reduce the drive to be active through feelings of depression [39, 48, 53] and some older adults disliked group exercise [43, 48], highlighting the need to tailor for preferences in social context [33, 39, 48].

*Importance of connections to place and community conviviality:*Older adults enjoyed being active in familiar neighbourhoods, feeling a sense of belonging, encouraging them to walk and visit amenities where they had a sense of conviviality and local expertise [40, 48]. Consequently, many older adults wanted to be physically active to bolster health to ‘age in place’ and retain that connection with their community [37, 39]. Comparatively, unfamiliar surroundings and a feeling of disconnect within a neighbourhood hindered the desire to leave the home and be active. Reduced social networks in the neighbourhood were often caused by increased population mobility and fewer older residents [38, 53].

*The evolving socio-cultural ageing discourse influences PA participation:* Historical socio-cultural norms of ageing as a period of decline and inactivity prompted some older adults to view ageing as a time to sit and rest, in which a ‘retirement lifestyle’ entitled relaxation [41, 50]. Perceptions of ageing as ‘wear and tear’, with nothing to be done about biological decline made some older adults feel there was no point in exercising [32, 37]. Negative stereotypes of older adults as inactive predisposed a self-stigma, in some instances creating overestimation of perceived dangers of PA and feeling like they were the ‘odd ones out’ exercising [31, 32, 34, 41, 50, 53]. Comparatively, some older adults responded to negative ageing stereotypes by using PA to maintain agency and avoid marginalisation [31, 37, 42, 48]. For instance, sitting too much was perceived as socially undesirable for older women with concerns of being judged as lazy, or not useful [48, 50]. However, challenging stereotypes through engaging with PA was sometimes difficult in a risk averse culture where activities designed for older adults were often sedentary, such as lunch clubs and bingo [50].

The emergence of positive ageing discourses has begun to normalise exercise participation, where older adults are encouraged to use PA as a strategy to self-manage health and are exposed to new and widespread health messages [31, 51, 52, 55]. This has created more PA opportunities and resources for older adults [31-33, 37, 41, 53, 54], however, some older adults had difficulties transitioning to a new culture where suddenly ‘old muscles are supposed to be moved when there was no apparent reason to do so before’ [31, 51, 53]. Some older adults interpreted social and cultural messages as focussing too much on exercise as a commodity, ignoring play and spontaneity [41]. Furthermore, the way society encourages PA has changed alongside altered occupations and lifestyles that are now more sedentary compared to the older generation who often ‘kept fit’ through active travel, occupations, and daily house chores [39, 41, 53]. Hence, creating an incompatibility between the scientific and the socially and culturally constructed meanings of PA required for good health [31].

*Unrelatable media messages of PA in ageing:*Appropriate media messages that had a clear health message inspired older adults to exercise [32, 33, 54]. Nevertheless, many health messages were considered confusing and untrustworthy, and framed in an overly general form when older adults felt that, ‘in reality’, PA and exercise were more complex [31, 41]. Moreover, older people were often illustrated as passive in the media with exercise images often dominated by younger, fitter bodies at the exclusion of older adults [32, 33, 41]. These images created tensions between the pressure to achieve an unrealistic ‘young and slim’ cultural ideal and to avoid negative stereotypes of ageing. Media messages were, thus, off putting and unrelatable to many older adults.

*TABLE 3 HERE*

***COM-B Component: Motivation***

***Automatic Motivational Processes***

*Creation of PA habits and PA as a part of self-identity:*Habitual PA improved older adults’ automatic motivation to participate, with habits established when PA had a purpose and gave feelings of satisfaction [33, 38, 41, 45]. Establishing PA habits was perceived as a challenge and ‘far more difficult than what the experts and magazines would have you believe.’ [31]. However, once established, older adults were dedicated to their exercise programmes [32]. Comparatively, when a sedentary pattern of life was well established older adults found it harder to introduce PA into their daily routine and did not see themselves as ‘exercisers’ [34, 38, 51]. Thus, having an ‘exerciser’ identity through established PA habits facilitated and motivated automatic PA behaviours and this was more likely when habits were formed at a younger age becoming a ‘valued part of their existence’ [34, 37, 38, 41, 46, 50, 55].

*Sensations and emotions associated with PA and inactivity:*Positive feelings during and after PA including enjoyment, individual expression, and euphoria, acted to motivate future activity, ‘fun is important regardless of age’ [31-33, 35, 36, 39-44, 46-49, 51-53]. Comparatively, negative emotions and sensations during exercise could lead to reduced motivation to participate, including boredom, ‘it’s important to enjoy what you do and I find it [walking] quite boring compared to doing other things [hobbies]’ [31, 32, 38, 43, 44, 51]. Discomfort and pain were also frequently mentioned as barriers to PA [31-33, 35, 39, 45, 48, 51]. Muscle soreness after activity was off putting, ‘the first week I ever bowled in my life I thought I was gonna die. I think I used every muscle in my body’ [32, 40]. Older adults who felt low or depressed, due to chronic conditions or death of friends, found initiating PA difficult, often owing to passivity and questioning the meaning of continuing to live [39, 43, 45, 48, 53]. Nevertheless, some older adults’ experiencing depression avoided their negative feelings through moving more [39, 50].

***Reflective Motivational Processes***

*Improvements in health and fitness:*The physical benefits associated with PA motivated participation to prevent disease, and enhance overall fitness, health, and functionality [31-39, 41-45, 47-49, 51-53, 55]. PA was also prompted by diagnosis of chronic illness and used as a tool for rehabilitation and to reduce treatment burden [31-34, 39, 41, 43, 45, 48, 51, 53]. This was strongly linked to a desire for independence through improving physical and mental functionality. Moreover, PA was motivated by improvements in mental health and well-being, including stress management, reductions in anxiety and depression, improved emotion regulation and enhanced self-identity and confidence [32, 36-38, 41-43, 46, 48].

*TABLE 4 HERE*

**Discussion**

Using the COM-B model of behaviour change, the review found a complex web of interacting factors that influenced older adults’ PA between the sub-domains of capability, opportunity, and motivation (Figure 2). Older adults’ perceived capability to engage with PA was influenced by their functional capacity, and their perceived risk of injury from PA. Physical opportunity for PA was impacted by the weather, and the environment ‘fit’. Social opportunity had a considerable influence on older adults’ engagement with PA through the availability of social interaction, and the cultural milieu that dictated the way older adults and significant others thought about PA in later life. For instance, wider socio-cultural ageing stereotypes and discourses, including the influence of media outlets, social norms, and self-stigma, influenced older adults’ PA. Key factors motivating PA were internalising an ‘exerciser’ identity, and the health gains experienced through PA. Moreover, the immediate sensations and emotions experienced during and after PA had a strong influence on older adults’ automatic motivational processes.

Our findings have similarities with previous reviews [14, 15, 21] which showed improved enjoyment of movement through opportunities to socialise, and similar barriers to PA, including perceived physical limitations (e.g., pain) and the influence of society’s attitude towards the ageing population. However, our findings add depth and scope to previous reviews by showcasing the complex interactions between factors that influence older adults’ PA through modelling our themes to the COM-B model. Consistent with an interactionist view, each theme interpreted in the current synthesis does not work alone to determine PA, rather a combination of factors interact to influence behaviour (Figure 2). Our analyses and interpretations illustrated a wide range of meanings older adults associated with PA compared to previous reviews [21], including enjoyment of PA in nature, using PA as a way to manage self-stigma associated with an ageing body, and engaging with PA to improve health and maintain independence. While older adults are likely to experience similar life transitions (e.g., retirement, increased risk of chronic disease), the divergent experiences and influences of PA in the current review suggest that we need to consider older adults’ embodied experiences of PA and avoid compartmentalising older adults to certain types of PA [56].

A key cultural influence impacting older adults’ PA in the current review was the socio-cultural ageing stereotypes and discourses, including tensions between ageing as decline (i.e., decline is inevitable, older people are inactive and need to rest) and positive ageing discourses (i.e., pressure to use PA in the self-management of health and avoidance of disease). In line with social gerontology literature, we found that negative stereotypes of ageing could create self-stigma, which could result in avoidance of PA, or using PA as a way to challenge marginalisation through deconstructing negative ageing stereotypes [57, 58]. Moreover, our review corroborates the socio-cultural pressures related to body image, and the use of PA as a way to control appearance consistent with society’s ‘ideal’ physicality and social expectations [59].

Other factors underlying older adults’ PA in this review included the short-term embodied sensations and emotions associated with movement (e.g., pleasure and pain). Likewise, a burgeoning area of research attested the positive and negative affective experiences that influence PA participation among older adults and the wider adult population [60-62]. For example, older adults tend to avoid negative states such as expectations of daily pain [63]. Results from multilevel models demonstrated that on mornings when older people catastrophized more than usual about arthritic pain, they spent more time in sedentary behaviour and engaged in fewer minutes of moderate-to-vigorous PA [63]. Therefore, practitioners need to consider ways to combat the negative sensations associated with some older adults’ experiences of exercise, such as pain and fatigue, for example, by paying close attention to the individualisation of exercise programmes, such as recommending exercise intensities below the ventilatory threshold and encouraging manageable short bouts of movement to build perceived capability [61].

Alternatively, scholars have reinforced the importance of improving the quality of older adults’ PA experience through improving enjoyment and pleasure. Phoenix and Orr [64] presented a typology of pleasure for PA in older age, including sensual pleasure (e.g., feeling the breeze when walking outdoors); documented pleasure (e.g., accounts of walking routes); the pleasure of habitual action (e.g., providing purpose to everyday life); and the pleasure of immersion (e.g., focussing the mind through movement practices, such as yoga). As such, reframing PA as a pleasurable engagement with movement, rather than purely a health-related and anti-ageing behaviour, is essential for motivation and a key consideration in the design of future interventions [14, 65]. According to our findings, and in agreement with existing literature [14, 15, 21], one such strategy to improve enjoyment for older adults during PA is the availability of meaningful social interactions, using socialising as a way to enhance the quality of PA experiences [66]. For example, in previous research having an exercise partner was viewed as a key enabler of PA for older people, in which PA was perceived as a central part of social life [67]. Sharing PA experiences with others can have various benefits for older adults including shared information about effective ways to be active, verbal encouragement from others, positive role modelling, a sense of social attachment, and a social network to provide meaningful emotional support [68]. In light of these findings, practitioners should consider opening up avenues for development of intervention and policy design within broader social-ecological areas, attending to the complexity of older adults’ PA experiences, rather than a restricted focus on long-term individualistic motivations [69, 70]. For example, researchers and practitioners are beginning to acknowledge the importance of co-design in the development of PA interventions for older people, addressing the complexity of older peoples’ everyday lives in the community, which impact on their enjoyment and engagement with PA [71].

*FIGURE 2 HERE*

**Implications**

A strength of the current review was the use of framework synthesis which allowed PA influences to be mapped onto a theoretical behaviour change model (i.e., COM-B). The COM-B system is at the hub of a behaviour change ‘wheel’ (BCW) that can be used in the development, implementation and evaluation of evidence-based interventions through a systematic framework progressing intervention construction through stages [22]. Stage 1 involves understanding the behaviour, stage 2 involves identifying intervention options, and stage 3 involves identifying content and implementation plans [22]. Using the COM-B model we have addressed stage 1 and provided a ‘behavioural diagnosis’ of the influencing factors on older adults’ PA through a synthesis of qualitative research (Figure 2) that can help practitioners move through to the next phases of intervention design. Using a matrix of links between COM-B and the associated intervention and policy functions, the current behavioural analysis can be used as a foundation to plan appropriate PA interventions for older adults (Appendix 6).

In addition to the utility of the BCW, it is evident from the numerous factors underpinning older adults’ PA in this review, that a systems approach to policy and intervention, and resources guiding complex health intervention development, are needed to cover wider actions across multiple sectors [72, 73]. Cross-sectoral collaborations are required to harness a range of experts and skill sets to address the complexity of older adults’ PA behaviours, considering comprehensive long-term models that consider the social, political, and cultural contexts of ageing [74]. For instance, in the UK, integration of the National Health Service (NHS) with community voluntary organisations has enabled the development of ‘green social prescribing’, in which link workers helped connect service-users through a person-centred approach to appropriate nature-based interventions [75, 76]. National organisations, such as UK Active Partnerships and Sport England are likely to play an important role in the development of whole systems approaches to PA within local communities, as set out in PA strategies, such as ‘Uniting the Movement’ [77], and through developing partnerships with NHS integrated care systems (ICS) and health system leaders [74].

**Strengths and limitations**

The current review explored older adults’ experiences of PA through merging in depth qualitative methodological findings, casting an interpretive, qualitative research lens to understand the diversity of meanings and contextual interpretations that older adults gave to their involvement in PA [78]. This is the only systematic review of qualitative studies to explore the factors influencing PA in adults over 70. Rigorous review and synthesis processes were adopted, including CERQual to pinpoint confidence in findings, and comprehensive framework mapping to the COM-B model. Despite these strengths, limitations in the current review need to be considered. Participants in this review were predominantly White, middle class, women, from high income countries, and there was a lack of representation of the oldest old (≥ 90 years). Therefore, the review lacked diversity in perspectives and experiences, constricting analysis and interpretations to a smaller segment of society. Moreover, the review was restricted to English articles, nevertheless, only 5 non-English studies were excluded from analyses. Literature suggests lower socioeconomic status and Black and minority ethnic groups have significant socio-ecological barriers to PA and subsequently have lower PA levels [79, 80]. Hence, future research exploring PA influences should seek to involve under-served groups, including a wider diversity of older people.

**Conclusions**

Older adults’ complex, divergent reasons for undertaking or avoiding PA are shaped through a range of interacting factors influencing their capability, opportunity, and motivation. Their wider PA context and social culture are key. Our findings are consistent with some of the fundamental facilitators (e.g., social influences) and barriers (e.g., perceived physical limitations) to older adults’ PA identified in previous reviews [14, 15, 21], however, we have extended previous works through providing a map of influencing factors within a theoretical behaviour change model (i.e., COM-B). We hope these findings can be used to improve older adults’ PA levels and to enhance the quality of their PA experiences.

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