



Review

Barriers, motivators, and facilitators of physical activity in dementia patients: A systematic review



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ABSTRACT

Purpose: Physical activity (PA) has the potential to slow the progression of dementia patients' cognitive and physical decline. A better understanding of the factors that facilitate or hamper dementia patients' PA participation will increase the success rate of implementing PA in dementia patients' daily care. We systematically screened the barriers, motivators, and facilitators of PA participation in dementia patients, complementing previous analyses of quantitative correlates of PA in community-dwelling dementia patients.

Methods: Systematic searches yielded 78 potential studies of which seven met the eligibility criteria including 39 dementia patients and 36 caregivers (33 spouses and three daughters).

Results: We identified 35 barriers, 26 motivators, and 21 facilitators related to PA. We reduced these factors to six themes within the social-ecological model. Prominent barriers to PA were physical and mental limitations and difficulties with guidance and organization of PA by caregivers. Motivators included the motivation to maintain physical and mental health and participate in preferred PA options. Facilitators included strategies to avoid health problems, providing support and guidance for PA, and access to convenient and personalized PA options.

Conclusions: The emerging picture suggests that dementia patients' PA participation will increase if service providers become familiar with the health benefits of PA, the characteristics of PA programs, methods of delivery, and the concepts of how such programs can be personalized to and synchronized with patients' individual needs.

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1. Introduction

With the worldwide aging of the population, the number of dementia patients is expected to increase steeply from the current 35.6 million to 115.4 million in 2050 (Ferri et al., 2005; Prince et al., 2013). Dementia is a disabling, expensive, and burdensome health condition characterized by reductions in executive function, memory, and attention (Barberger-Gateau, Fabrigoule, Amieva, Helmer, & Dartigues, 2002; Burns & Iliffe, 2009). In addition, dementia is associated with limitations in physical performance, including a compromised endurance capacity and decline in muscle strength, balance, and mobility (Burton, Strauss, Bunce, Hunter, & Hultsch, 2009; Makizako et al., 2011). Predictably, there is a massive public health effort to identify treatments that can delay disease onset and slow its progression (Takeda, Tanaka, Okochi, & Kazui, 2012).

Like healthy old adults, dementia patients also benefit from being physically active. Although dementia is a progressive neurodegenerative disease, there is some evidence that regular PA can improve dementia patients' physical and cognitive function (Bossers et al., 2015; Heyn, Abreu, & Ottenbacher, 2004), depression (Knöchel et al., 2012), rest-activity rhythm (Hooghiemstra, Eggermont, Scheltens, van der Flier, & Scherder, 2015), quality of life (Knöchel et al., 2012), and activities of daily living (ADL's) (Blankevoort et al., 2010; Forbes et al., 2015; Lucia & Ruiz, 2011). Complementing the health benefits of PA, there is growing evidence that physical inactivity substantially increases the risk for cardiovascular diseases, metabolic aberrations, and other adverse health conditions associated with an early onset of disease (Hortobágyi, 2014; Woodcock, Franco, Orsini, & Roberts, 2011), accelerating the path to dementia. Despite the health benefits of PA and the detrimental effects of physical inactivity, dementia patients' PA levels are low and decrease even more precipitously compared to age-similar, dementia-free old adults (Burns, Mayo, Anderson, Smith, & Donnelly, 2008; Paavilainen et al., 2005; Van Alphen et al., 2016).

In order to increase dementia patients' PA levels, there is a need to better understand the factors that affect PA behavior in this population. Specifically, identifying the barriers, motivators, and facilitators of PA may increase the success rate of PA implementation geared for dementia patients' care. Many factors affect PA participation, making it a dynamic and complex process (McLeroy, Bibeau, Steckler, & Glanz, 1988; Sallis et al., 2006). Active and inactive community-dwelling older adults for instance shared some barriers to regular PA participation, but only physically active older adults developed strategies to overcome these barriers (Costello, Kafchinski, Vrazel, & Sullivan, 2011). In addition, a recent review in the dementia-free oldest-old (80+ year) showed that promoting PA in these old adults requires caregivers to explicitly explain the health benefits of PA, dissolve PA-associated fear, prioritize individual preferences towards PA, provide social support, and minimize or eliminate environmental constraints that may hinder the oldest-old from becoming physically active (Baert, Gorus, Mets, Geerts, & Bautmans, 2011).

Due to dementia patients' low functional and cognitive capacity, it is conceivable that the barriers, motivators, and

facilitators of PA are different for old adults with dementia compared with dementia-free old adults. In addition, it is possible that the support caregivers provide for dementia patients modifies the structure of variables that predict whether or not a patient with dementia remains or becomes physically active (Stubbs et al., 2014). In particular, we conjecture that caregivers and PA policies have a substantially greater influence on the PA participation of dementia patients because dementia patients more so than age-matched dementia-free old adults depend on care and support.

However, dementia patients' caregivers can draw on limited knowledge concerning the factors that influence dementia patients' PA participation, which is reported as challenging and distressing (Lord, Livingston, & Cooper, 2015). There is only one recent review that provided an elegant analysis of the quantitative correlates of PA participation in community-dwelling adults with dementia (Stubbs et al., 2014). Unexpectedly, this review found that increasing age and lower global cognition were not consistently associated with PA participation (Stubbs et al., 2014) while several PA-related factors (e.g., health-related quality of life, medication use, ADL level, number of waking hours) revealed an unfavorable trend with advancing age and dementia progression (Feldman, Van Baelen, Kavanagh, & Torfs, 2005; Hooghiemstra et al., 2015). However, effects of PA-related factors could be masked by other factors influencing PA participation. Therefore, factors that are, for instance, negatively associated with PA are not necessarily acting as PA barriers. Stubbs et al. (2014) identified several important factors linked to dementia patients' PA participation but left nonetheless undefined if these and perhaps other factors could act at the same time as barriers, motivators, or facilitators of PA. In addition, the list of factors may be incomplete because Stubbs et al. (2014) did not identify any correlates on the community level (physical environment and policy factors). In addition, even though caregivers' and dementia patients' experiences, perceptions, and knowledge regarding the barriers, motivators, and facilitators of PA provide perhaps the most powerful insights into dementia patients' PA behavior, previous reviews in dementia patients did not incorporate qualitative studies in the analysis (Stubbs et al., 2014).

A better understanding of the factors that facilitate or hamper dementia patients' PA participation may increase the success rate of PA implementation geared for the care of dementia patients. Thus, the aim of this review was to identify the barriers, facilitators and motivators related to the PA participation of institutionalized as well as community-dwelling dementia patients. We classified these factors within the theoretical framework of the social-ecological model (McLeroy et al., 1988). This model can successfully classify potential factors associated with PA participation in old adults with and without dementia (Baert et al., 2011; McLeroy et al., 1988; Sallis et al., 2006; Stubbs et al., 2014). The social-ecological model posits that many factors at multiple levels could affect PA participation, including intrapersonal factors (e.g., socio-demographic or psychological), interpersonal factors (e.g., social support), and community factors (e.g., rules and access to facilities) (McLeroy et al., 1988; Sallis et al., 2006). We prefer this framework to other models (e.g., stages of change model, self-efficacy model) that

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