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# BARRIERS TO PHYSICAL ACTIVITY IN THE ELDERLY

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## ABSTRACT

Based on previous research, the aim of this systematic review research was to determine which barriers to physical activity occur in the elderly. For collecting literature, the following data bases were searched: Google Scholar, PubMed, Web of Science and Research Gate, using all available papers in the period from 2002 to 2017. A descriptive method was used to analyse the obtained data, and all the titles and abstracts were reviewed for potential papers that were included in this systematic review research. A total of 20 studies met the pre-defined criteria and were included in the quantitative analysis. The results were obtained after analysing the questionnaires that the responders filled in to evaluate the barriers. This systematic review research shows that there are still a large number of barriers that occur in the elderly. The health condition, lack of time and fear of injury are not the only barriers, but there are also a large number of barriers that prevent the practice of PA. Some of these barriers can be affected and the attitude towards them can be changed, improving the conditions in which elderly people can practice PA, such as transport, the environment, the lack of training facilities, and the lack of professional assistance.

**Keywords:** physical activity, barriers, seniors, elderly people

## INTRODUCTION

As an inevitable progressive process, the general decline in physiological functions and all motor abilities is one of the main characteristics of aging (Lopez, Mathers, Ezzati, Jamison, & Murray, 2006). Physical activity (PA) is important for healthy aging, and as a complex and dynamic process, it contributes to reducing all-cause mortality and preventing many chronic conditions, including coronary heart disease, colon and breast cancer, as well as type II diabetes (Cress et al., 2004; Friedenreich, 2001; Physical Activity Guidelines Advisory Committee, 2008). Physical activity is thought to improve body fat distribution, physical functioning, and mental health (Friedenreich, 2001). Physical activity has the potential to preserve and improve physical and mental health as well as the quality of life even in older adults who have previously led a sedentary lifestyle and have chronic diseases (Chodzko-Zajko et al., 2011; Nelson et al., 2007; Physical Activity Guidelines Advisory Committee, 2008). The focus of previous

research has been on healthy young and middle-aged people (King, 1997), but researchers have recently highlighted recommendations for PA in populations such as the elderly. Recently published recommendations for physical activity suggest that the elderly should engage in moderate PA for at least 30 minutes five times a week or 20 minutes with more intense PA for 3 days; 8-10 strength exercises for 2 days; and flexibility exercises for at least 10 min (Nelson et al., 2007). However, practicing PA in most elderly people is not in line with the current guidelines (Australian Institute of Health, 2012; Roth, Millett, and Mindell, 2012; Haley & Andel, 2010). A national survey of adults in Germany (Bratan, 2013) found that 72.8% of elderly women and 65.3% of elderly men (over 65 years of age) did not reach the recommendation for PA of at least 2.5 hours per week of moderate-intensity. One of the solutions for engaging in PA and maintaining it is to develop an awareness of the positive factors that are good for an individual's health. Engaging in PA results in an improvement of

the health status, leading to a reduction in the need for health services in the elderly (Brawley, Rejesk, & King, 2003). As an outdoor physical activity, walking is one of the activities that are most accessible to the elderly and most applicable (Lim & Taylor, 2005), and at the same time, it is very useful for health and functioning (Simonsick et al., 2005). However, as there are barriers in all people, they occur daily in the elderly, which is the reason for the reduction of PA in them. Obstacles can be related to a person's health condition, such as illness and mobility difficulties, or the environment, inaccessibility to facilities, lack of footpaths, and lack of transport to certain places (Hovbrandt et al., 2007). Poor health is presented as the most commonly reported barrier (Newson & Kemps, 2007; Rasinaho et al., 2007; Schutzer & Graves, 2004; Cohen-Mansfield et al., 2003). The lack of facilities, lack of interest, lack of time, and various external barriers are also presented as obstacles (Dawson et al., 2007; Kowal & Fortier, 2007) where the lack of time refers to the time required to perform activities and the time required for transport (Booth et al. 1997, 2002; Chogahara et al. 1998; King et al. 2000; O'Brien Cousins 2003; Wilcox et al. 2000). Age, gender and socioeconomic differences, as well as obesity, depression, mobility limitations, and chronic health conditions affect the nature of barriers to physical activity experienced by elderly people (Patel et al., 2012; Sallinen et al., 2009; Rosqvist et al., 2009; Rasinaho et al., 2007). In a study conducted by Chao et al. (2000), the results showed that elderly people need time to adopt the habit of practicing moderate PA. One of the few studies in this area that deals with barriers to PA - measured as global ones - predicts a decline in physical activity in women and men (Steptoe, Rink, & Kerry, 2000). These results show that barriers have an impact on the smooth functioning of PA. Based on previous research, the aim of this systematic review is to determine which barriers to physical activity occur in the elderly.

## SUBJECT AND PROBLEM

### RESEARCH SUBJECT

The research subject are the PA barriers that occur in the elderly.

### RESEARCH PROBLEM

Based on the set subject of the research, and within the research problem, it was necessary to answer the question - what are the barriers for PA in the elderly?

## RESEARCH METHOD

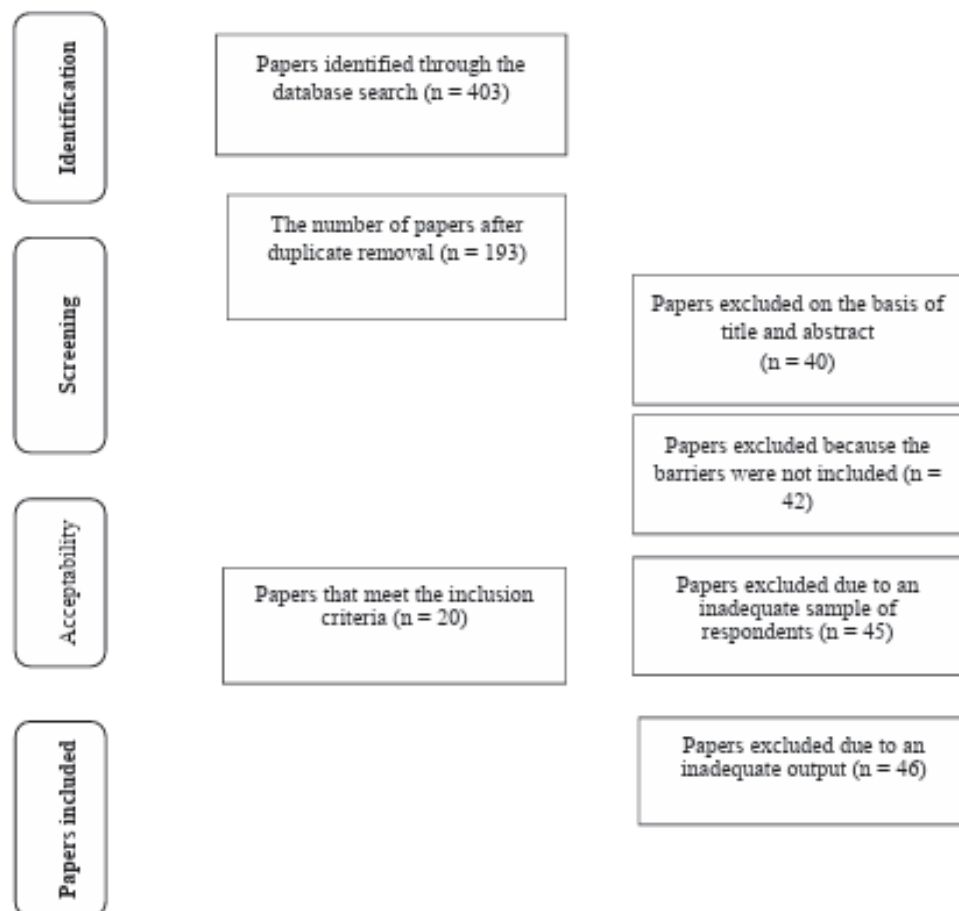
The following databases were searched for the collection of literature: Google Scholar, PubMed, Web of Science, and Research Gate, using all available papers from 2002 to 2017. The following keywords were used: physical activity, barriers, elderly people, and old people.

The search was exclusively concerned with transversal studies and original scientific papers from the available journals. In the first phase of the search, the relevance of the titles and abstracts of the identified papers was checked. In the second phase of the search, complete papers were downloaded and considered for inclusion.

References from all collected papers were reviewed to obtain more research that studied this area. Papers included in the systematic review survey had to have respondents over 60 years of age, and the study dealt with barrier testing for PA and excluded studies that were longitudinal in nature, written in languages other than Serbian and English, as well as studies in which respondents were younger than 60. A descriptive method was used to analyse the obtained data.

## RESULTS

A total of 403 relevant studies were identified by searching the database. After removing the duplicates, 193 studies remained. Based on the title and abstract review, 40 studies were rejected (17 after title analysis and 23 after abstract analysis), 42 studies were excluded because they did not include barriers to PA, 45 studies were excluded due to an inadequate sample of respondents, 46 studies were excluded due to a lack of output data, while 20 studies that met the inclusion criteria were included in the systematic review.

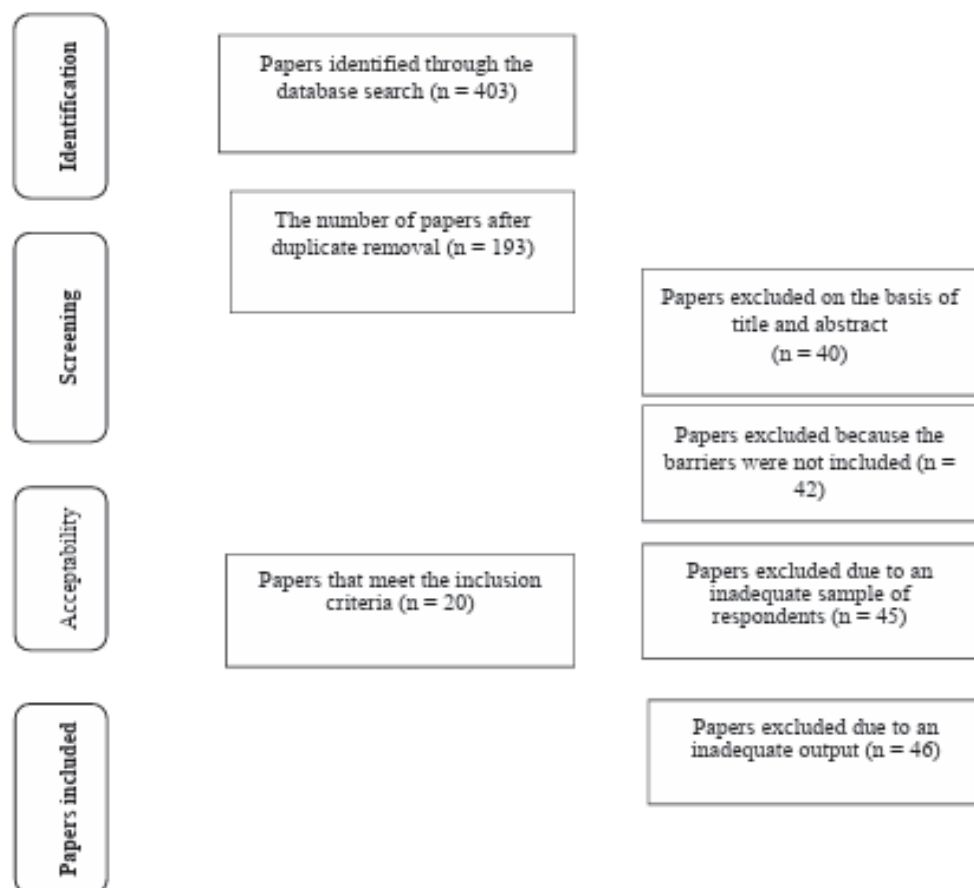


The collected surveys used for this paper are shown in Table 1. In Table 1, each survey is presented using the following parameters: the survey (first author

and year of publication), country, the sample of respondents (number of respondents N, groups, years, and PA involvement), methods, and results.

**Table 1:**

Authors and year	Country	The sample of respondents			Methods	Results
		Number and groups	Age	PA involvement		
Booth et al. (2002)	Australia	N = 402	≥ 60 years	Exercisers and non-exercisers	Questionnaire, 18 barriers	SA = 60% E, 42% NE LT = 19% E, 14% NE LC = 3% E, 6% NE NE = 7% E, 7% NE PA = 11% E, 18% NE FI = 23% E, 29% NE HC = 7% E, 17% NE LE = 2% E, 4% NE LM = 6% E, 5% NE



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Moschny et al. (2011)	Germany	N = 286	72-93 years	Insufficiently active	Questionnaire, 7 questions	LT = 16% T = 18% FI = 22% F = 23% LI = 36% LD = 43% HC = 58%
Abolfazi et al. (2011)	Iran	N = 16	65-86 years	Exercisers and non-exercisers	Interview	LT, LH, HC, LD
Manaf (2013)	Asia	E = 19 NE = 41	≥ 60 years	Exercisers and non-exercisers	BPEP, 45 questions	LE = 52% LM = 38% D = 33% LK = 37% LI = 23% LT = 48% LC = 28% HC = 20% C = 13% T = 17% LH = 25% F = 5% OO = 23% SuA = 38% FI = 13%
Patel et al. (2013)	USA	N = 80	65-76 years	Physically active	BMPAQ, 13 questions	LM = 16% PA = 16% OO = 13%
Bethancourt et al. (2014)	USA	N = 52	70 years	Sedentary lifestyle	IPAQ	HC, LH, LK
Eroner et al. (2014)	Finland	MB = 399 AC = 220 PH = 135 I = 39 ML = 55	75-90 years	Sedentary lifestyle	BOPA, 17 questions	WB = 46% WC = 69 MB, 76% PH, 77% I, HC = 95.6% PH, 69% I, 89% ML FI = 55%. PH, 87% I, 44% ML PA = 64% I, 78% ML
Macniven et al. (2014)	Australia	N = 2225	≥ 65 years	Exercisers and non-exercisers	Questionnaire, 18 barriers	HC = 52% FI = 33% LH = 29% LT = 15% LM = 14% LI = 14% WB = 12% IF = 9% ZB = 6% LC = 4% WC = 3% F = 3% E = 4% T = 3%

Sjörs et al. (2014)	Sweden	E = 104 NE = 46	50-86 years	Exercisers and non- exercisers	EBBS	SuA = 48% E, 37% NE LM = 50% E, 24% NE LC = 35% E, 18% NE
Gothé and Kendall (2016)	USA	AA = 20	63 years	Exercisers and non- exercisers	Questionnaire, 2 questions	LT, HC, IF
Aily et al. (2017)	Brazil	F = 61	61 years	Exercisers	QBPAFI, 22 questions	LM, LE, LT, LI = 43% FI, PE, = 12% SA, IF, En = 9% F = 8%

**Legend:** MA - Mexican Americans, EA - European Americans, SDHEQ - The San Diego Health and Exercise Questionnaire, HC - Health Condition, PE - Prohibited Exercise, SuA - Sufficient Activity, LM - Lack of Motivation, LE - Lack of Energy, LT - Lack of time, WB - without barriers, LI - lack of interest, F - finance, T-transport, LD - lack of discipline, SA - self-awareness, LC - lack of company, LK - lack of knowledge, AP - aging process, WC - weather conditions, FI - fear of injury, BE - bad experience, LS - lifestyle, E - exercisers, NE - non-exercisers, D - discomfort, NeE - negative effect, LH - lack of help, C - culture, IF - inaccessibility of facilities, En - environment, OO - other obligations, AA - African American, AI - American Indian, W - non-Hispanic White, L - Latino, VA - Vietnamese American, CA - Chinese American, BMTAQ - Barriers and Motivators to Physical Activity Questionnaire, BOPA - The Barriers to Outdoor Physical Activity Questionnaire, MB - Minor barriers, AC - Ambient conditions, PH - Poor health, I - Insecurity, ML - Mobility limitations, QBPAFI - the Barriers Questionnaire to Physical Activity Practice in the Elderly, BPEP - The Barriers in Physical Activity and Exercise Participation, EBBS - The Exercise Benefits / Barriers Scale, CHAMPS Activities Questionnaires for Older Adults.

## RESULTS WITH DISCUSSION

A systematic review of the papers determined which barriers to PA occur in the elderly. The results were obtained after analysing the questionnaires that the respondents filled in to assess the barriers. Some of the questionnaires used were: QBPAFI (Aily et al., 2017), EBBS (Sjörs et al., 2014), IPAQ (Bethancourt et al., 2014), BMTAQ (Patel et al., 2013), SDHEQ (Dergance et al., 2003), and BPEP (Manaf, 2013). Most studies have been done in the United States (Cohen-Mansfield et al., 2003; Dergance et al., 2003; Grossman and Stewart, 2003; Kalavar et al., 2005; Less et al., 2005; Mathews et al., 2010; Patel et al., 2013; Bethancourt et al., 2014; Gothé and Kendall, 2016), two studies in Australia (Macniven, 2014; Booth et al., 2002), two in Asia (Ayiesah, 2007; Manaf, 2013), one in Brazil (Aily et al., 2017), one in Sweden (Sjörs et al., 2014), one in Germany (Moschny et al., 2011), one in Iran (Abolfazi et al., 2011), one in Finland (Eroner et al., 2014), and one in New Zealand (Colt et al., 2006). The age of the respondents ranged from 50-90 years. The results obtained from the analysis of the data showed that there is a large number of barriers to PA that occur in the elderly. The most common barriers were lack of time, poor health, lack of motivation, lack of energy, and lack of company. The poor health barrier is characterised as the most common barrier (Gothé & Kendall, 2016) by as many as 66% in Grossman and Stewart (2003), 58% and 53% of respondents in Moschny et al. (2011) and Cohen-Mansfield et al. (2003), and 27% in the Ayiesah study (2007). Similar

results were obtained in Kowal and Fortier (2007), with 19% and 18% in Less et al. (2005). Lack of time is a barrier that has emerged in all studies except Colt et al. (2006) and Dergance et al. (2003). 48% of respondents (Manaf, 2013) said that lack of time is a barrier to PA.

The most common barrier concerning external factors was weather conditions. 77% of respondents in the study conducted by Eroner et al. (2014) consider weather conditions as a barrier. In the studies of Mathews et al. (2010), Less et al. (2005), Kalavar et al. (2005), Grossman and Stewart (2003) and Cohen-Mansfield et al. (2003), weather conditions prevented the respondents from engaging in PA. Most barriers occurred in the studies of Less et al. (2005) (10), in the study of Ayiesah (2007) (16), Manaf (2013) (15), and Macniven et al. (2014) (14). In addition to the most common barriers, these papers also included the following barriers: transport, environment, lack of interest, finances, discomfort during exercise, inaccessibility to facilities, lifestyle, culture, and lack of help. One of the barriers was the financial problem of the respondents, where their answer to the question: "I do not have enough money to practice PA" was positive in the study of Mathews et al. (2010), 23% of respondents answered that in the study conducted by Moschny et al. (2011), 8% in the study of Aily et al. (2017), and 5% in the study of Manaf (2013). In respondents who lead a sedentary lifestyle, the barriers that occurred were: fear of injury, health,

aging conditions, lack of knowledge and professional assistance, lack of energy, and lack of motivation (Eroner et al., 2014; Bethancourt et al., 2014; Colt et al., 2006; Kalavar et al., 2005; Grossman & Stewart, 2003; Dergance et al. et al., 2003; Cohen-Mansfield et al., 2003.) In the study of Cohen-Mansfield et al. (2003), 89% stated that they have no barriers preventing them to engage in PA, 46% in the study of Eroner et al. (2014), 12% in Macniven et al. (2014), and 8% in Less et al. (2005). The barriers that were reported by the respondents which can be affected are transport, lack of knowledge, lack of exercise facilities, the environment in which they are located, and lack of professional assistance. By providing better conditions, transport and a better environment for engaging in PA, elderly people are encouraged to show interest and motivation for PA. It is also very important to provide them with some kind of education and assistance in exercising by professionals. Most studies have shown that there are more external than internal barriers occurring in the elderly concerning their PA engagement. The barriers that make it impossible to practice PA are not significant to a large extent because respondents will always find a reason not to engage in PA from a subjective point of view. Subjectively perceived barriers, apart from poor health, are not adequate indicators of why someone is not able to engage in a certain form of PA. There is a great impact of physical activity on physical and mental health. In the elderly, physical activity can: improve health, slow down aging, improve cardiorespiratory and muscular form, reduce body fat levels, and reduce the symptoms of depression. Despite that, the number of elderly people who have daily physical activity is decreasing. Personal, social,

economic and environmental factors play a role in the degree of physical activity in which the youth, adults and the elderly participate. It is important to understand the barriers and factors that stimulate physical activity in order to ensure the effectiveness of various programmes aimed at improving the level of physical activity of the population. With adequate organisation of daily activities, 60 minutes can be set aside for engaging in some physical activity. A very important factor is the motivation and sense of security of the elderly. Support is also an important factor in avoiding barriers.

## CONCLUSION

The significance of this research is that it provides information on barriers in respondents who belong to the group of elderly people, who practice or do not practice PA, i.e., the reasons why their physical activity is reduced or why they do not engage in physical activity at all. The results of this systematic review show that there are still a large number of barriers that occur in the elderly. The health condition, lack of time and fear of injury are not the only barriers, but there are also a large number of barriers that prevent the practice of PA. Some of these barriers may be affected by changing attitudes about them, improving the conditions in which elderly people can practice PA, such as transport, the environment, the lack of a training facility, and the lack of professional assistance. It is very important to know the positive impact that engaging in some form of recreation has on aging. It is necessary to know that PA has a positive effect on the physical and psychophysical condition of people.

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**BARIJERE ZA FIZIČKU AKTIVNOST KOD STARIJIH OSOBA**

Cilj ovog sistematskog preglednog rada bio je da na osnovu predhodnih istraživanja utvrdi koje se barijere za fizičku aktivnost javljaju kod starih osoba. Za prikupljanje literature pretražene su sljedeće baze podataka: Google Scholar, PubMed, Web of Science i Research Gate, koristeći sve dostupne radove u periodu od 2002. do 2017. godine. Za analizu dobivenih podataka primjenjena je deskriptivna metoda, a svi naslovi i sažeci su pregledani za potencijalne radove koji su bili uključeni u ovo sistematsko pregledno istraživanje. Ukupno je 20 studija zadovoljilo unapred definisane kriterije i uključeno u kvantitativnu analizu. Rezultati su dobiveni nakon analize upitnika koji su ispitanici popunjavali za procjenu barijera. Ovo sistematsko pregledno istraživanje pokazuje da i dalje postoji veliki broj barijera koje se javljaju kod starih osoba. Da nisu samo zdravstveno stanje, nedostatak vremena i strah od povreda jedine barijere, već postoji i veliki broj barijera koje sprječavaju bavljenje FA. Na neke od tih barijera može da se utiče i promijeni stav o njima, poboljšavajući uslove u kojima stare osobe mogu da se bave FA, kao što su transport, okruženje, nedostatak objekata za vježbanje i nedostatak stručne pomoći.

**Ključne riječi:** fizička aktivnost, barijere, stariji, stari ljudi

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