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## Review

# PERFIL DE LOS USUARIOS MAYORES DE GIMNASIOS AL AIRE LIBRE. REVISIÓN SISTEMÁTICA

## SENIOR USERS PROFILE OF THE OUTDOOR GYMS. A SYSTEMATIC REVIEW

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## RESUMEN

Según la World Health Organization (WHO, 2013, 2017), la inactividad física se identifica como el cuarto factor principal de riesgo para la mortalidad global. Los informes de la WHO (2017) y del USA Department of Health and Human Services (2018) señalan que el riesgo se reduce cuando se realizan 150-300 minutos semanales de actividad física (AF) aeróbica de intensidad moderada o, al menos; 75-150 minutos semanales de trabajo aeróbico de intensidad vigorosa; trabajo de equilibrio y prevención de caídas y actividades de fortalecimiento muscular. Cuando las personas mayores no pueden hacer las cantidades recomendadas de AF debido a su estado de salud, deben intentarlo tanto como lo permitan sus capacidades y condiciones. Una de las formas de fomentar la práctica de AF es el uso de espacios públicos al aire libre seguros y de fácil acceso. Una estrategia cada vez más popular es la instalación de gimnasios al aire libre (GAL). Se realizó una revisión sistemática para conocer el perfil de los usuarios mayores de estas instalaciones en la literatura científica (Web of Science -todas las bases de datos-, Scopus, SportDiscus, CINAHL, Cochrane Library Plus, PubMed, Proquest Dissertations and Theses, y Google Scholar). Se obtuvieron 17.035 resultados y sólo 22 estudios cumplieron los criterios de selección. La mayoría de los usuarios mayores de GAL son mujeres; casados; con ingresos medios, estudios secundarios, viven cerca y son físicamente activos en el tiempo libre. Van a los GAL entre tres y cinco días por semana y el porcentaje de mayores asistentes observado es muy bajo. Curiosamente, su salud percibida es buena, pero tienen sobrepeso u obesidad, se medicaban y muchos de los usuarios padecían enfermedades crónicas.

**Palabras clave:** gimnasios al aire libre, zonas fitness, actividad física, mayores, parques, salud.

## ABSTRACT

According to the World Health Organization (WHO, 2013, 2017), physical inactivity is identified as the fourth leading risk factor for global mortality. WHO (2017) and the USA Department of Health and Human Services (2018) reports say risk reductions routinely occur with moderate-intensity aerobic physical activity (PA) levels of at least 150-300 minutes per week or, at least 75-150 minutes of vigorous-intensity aerobic throughout the week; balance training and fall prevention and muscle-strengthening activities. When seniors cannot do the recommended amounts of PA due to health conditions, they should try as much as their abilities and conditions allow. One of the ways to stimulate the practice of PA is the use of safe and easily accessible outdoor public spaces. An increasingly popular strategy is the installation of outdoor gyms. A systematic review was conducted to know the senior users profile of these facilities. An exhaustive scientific literature review was made on research databases (Web of Science -all databases-, Scopus, SportDiscus, CINAHL, Cochrane Library Plus, PubMed, Proquest Dissertations and Theses, and Google Scholar). 17,035 results were gathered, and only 22 studies met the selection criteria. The highest frequency of OGs older users are female; married; with medium income, high school, live close to OGs and physically active on leisure time. They use the OGs between three to five times per week and, the percentage of elderly people observed is very low. Curiously, their perceived health is good, but they are overweight or obese, they are medicated and many users suffer from chronic diseases.

**Keywords:** outdoor gym, fitness zone, physical activity, elder, parks, health.



## INTRODUCTION

According to the World Health Organization (WHO, 2017), physical inactivity is identified as the fourth leading risk factor for global mortality. Although the benefits are clear, people are becoming less active as they grow older. One of the ways to stimulate the practice of physical activity (PA) is the use of easily accessible safe outdoor public spaces (McCormack, Rock, Toohey & Hignell, 2010). An increasingly popular strategy is the outdoor gym (OG) installation in squares or urban parks (Copeland et al., 2017; Del Campo, Bermúdez, Peluffo & Del Campo, 2016). An OG is defined as fixed exercise equipment placed in an outdoor area that is freely accessible to the public, to promote structured PA through strength, aerobic and stretching devices.

Generally, for adults or older, this exercise equipment uses the practitioner's body mass (Silva et al., 2017). Their purpose is to enhance the practice of PA by insufficiently active people. Studies stated that OGs have positive effects, as they do not only contribute to users to increase their PA, but also attract people with sedentary lifestyles to exercise (Mora, Weisstaub, Greene & Herrmann, 2017). The fact that there are favorable elements such as fountains, shadows, good maintenance, an instructor and others, is fundamental in the success of the OGs, and it is favoring that users commute to it walking or biking (Costa, De la Rocha Freitas & Silva, 2016; Del Campo et al., 2016). The user profile of this study was the elderly since these parks were and are mostly designed for them. The aim of this study was to conduct a systematic review to analyze what the published literature shows regarding the user's profile of the outdoor gyms (OGs).

## METHODS

To provide a more comprehensive understanding of the research questions that this review sought to address, both qualitative and quantitative evidence, including qualitative, quantitative, and mixed-methods studies, was chosen to be included in the review. This type of review is useful when there is limited research on the topic being investigated (Lee, Lo y Ho, 2018).

## Search strategy

The following eight electronic bibliographic databases were searched through until October 2018: Web of Science (all databases), Scopus, SportDiscus, CINAHL, Cochrane Library Plus, PubMed, Proquest Dissertations and Theses, and Google Scholar. The searches were carried out in the search field type "Title, abstract, and keywords" or equivalent (e.g. "Topic" for the Web of Science database). Any publication format including journal papers and grey literature (i.e. master/doctoral dissertations and conference proceedings) was examined. Additionally, no language or publication date restrictions were imposed.

The search terms used were based on one concept. This concept included terms related to outdoor gym (geriatric park, open gym, outdoor fitness equipment, fitness zone, senior exercise park, elderly fitness, fitness corner...). Additionally, the keywords that consisted of more than one word were enclosed in quotes. Finally, the terms were combined with the Boolean operator "OR" (Cooper, Hedges & Valentine, 2009). Based on the results of the Boolean-based search (as well as all the related studies by Léger), other modes of searching were carried out. The reference lists of all studies were manually searched. Furthermore, the reference citations (in the Web of Science and Scopus databases) and the researcher publications of the first authors (in the Web of Science and Scopus databases) were also examined.

## Inclusion and Exclusion Criteria

Studies were included if they (1) Investigated profile of OGs users as the main focus; (2) Explored the views and perceptions of OGs either quantitatively or qualitatively; (3) Were peer-reviewed journal articles. Studies were excluded if they (1) Mainly explored physical activity experiences in green spaces or parks; or (2) contained insufficient data for analysis/synthesis (Lee, Lo y Ho, 2018).

## Results study description

Of the 17,035 bibliographic databases search results, 93 potentially relevant publications were retrieved for a more detailed evaluation (Studies excluded based on selection criteria were 75). Afterward, based on the studies of the Boolean-based database search, 31 additional records were identified through other



sources (24 excluded based on selection criteria). From the 124 potentially eligible studies, 99 excluded based on selection criteria and 3 duplicated removed, finally 22 studies met the selection criteria (figure 1).

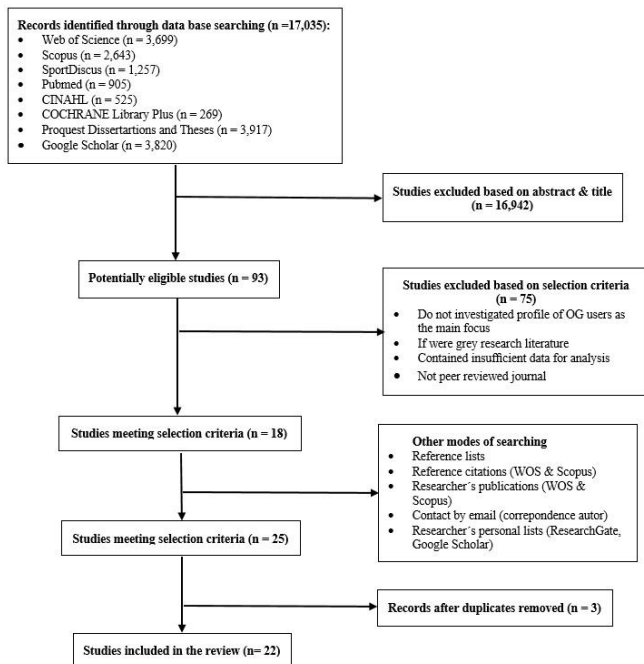


Figure 1. Flow chart of selection process.

## RESULTS

Various sections on the characteristics of the users profile are described below. The incorporation of people with poor or no exercise habits into the realm of regular exercisers is the main reason for building OGs parks. The finding that two out of five subjects did not do any type of PA immediately prior to the installation of OG suggests that they are successful in overcoming people's sedentary behaviour (Mora, 2012, 2017). Onwards, in order to abbreviate the tables, each paper included in this systematic review will be associated with a number (table 1).

Table 1. Number that corresponds to each paper of the systematic review

1. Bettencourt & Neves (2016)	12. Pinheiro & Coelho (2017)
2. Chow (2013)	13. Ramirez & Camargo (2017)
3. Chow, Mowen & Wu (2017)	14. Salin et. (2014)
4. Costa et al. (2016)	15. Santos et al. (2017)
5. Del Campo et al. (2016)	16. Scott et al. (2014)
6. Ibiapina et al. (2017)	17. Silva et al (2016)
7. Iepsen & Silva (2015)	18. Silva et al (2018)
8. Mathias et al. (2017)	19. Silva et al. (2017)
9. Mora (2012)	20. Souza et al. (2014)
10. Mora et al. (2017)	21. Stride et al. (2017)
11. Nałęcz et al. (2018)	22. Szopa & Sas-Nowosielski (2016)

**Age.** There are users of all ages even if the age of the visitors suggests that this kind of fitness setting is attractive mainly for adults (18-50 years). Specifically, young adults, irrespective of sex or country (Iepsen & Silva, 2015; Mathias, Filho, Szkudlarek, Gallo, Fermino & Silveira Gomes, 2018; Szopa & Sas-Nowosielski, 2016). They are followed by teenagers and depending on many factors, differences in ethnicity, culture, or environmental issues of older people or children (Chow et al., 2017). Table 2 shows the partial percentage (%) of adults and older samples in the papers of the systematic review.

Table 2. Partial percentage (%) of adults and older samples in the investigations

Paper	% Senior	% Adults
1	39	6
2*	69	31
3	39	48
4	24	35
6	**	2 <sup>a</sup> =54
7	34	45
8	**	14
9	14	46
11	2 <sup>a</sup>	**
12	100	**
13	**	61,5
14	100	**
15	100	**
16	42	43
17	35	**
18	35	65
19	34,4	**
20	34,4	**
21	39	**
22	16	78

\* : The inclusion criteria limited age to 50 years and above; 2<sup>a</sup> =users' mean age. \*\*: not data



**Alone or accompanied by.** Those between 30 to 59 years were more likely to be accompanied than elders (over 65). According to Pinheiro & Coelho (2017), Silva, Fermino, Alberico & Reis (2016) and Silva, Fermino, Santos Lopes, Alberico & Reis (2018) only a little more than a third of the older people who participated exercised in the company of someone else. Usually, older users come to the gym alone while young people come in pairs or even in groups (Mora, 2012, Nałęcz et al., 2018; Pinheiro & Coelho, 2017; Silva et al., 2018, 2017; Souza et al., 2014) but these become familiar with the other people (Chow, 2013; Souza et al., 2014). Between 40-50% of users received no family/social support for the use of OG (Souza et al., 2014).

**Barriers and disadvantages for usage.** There were several reasons that can prevent going to an OG. Table 3 shows the reasons indicated in the different articles of this review.

Table 3. Main barriers adduced by people to go to an OGs

Barriers	Papers	Barriers	Papers
Cleaning	12, 13, 22	Lack of PA teacher	22
Children	21, 22	Lack of a roof	22
Comfort	1	Maintenance	13, 22
Crowding	21, 22	Modest devices	22
Damage devices	22	Painting	13, 22
Deck quality	2	Safety	20, 22
Handles and seats comfort	2	Bad time	1, 11, 21, 22
Too much distance	19, 21		

**Closeness or distance.** People who live near parks or squares, walking or running circuits and physical-recreational facilities, are associated with greater use of the facilities and higher levels of PA. Normally OGs users had a significantly higher proportion of local residents (neighborhood) and were more frequent park users compared with general park users (Del Campo et al., 2016; Stride, Cranney, Scott & Hua, 2017). Attending to Mora (2012) and Mora et al. (2017) people will more likely use OGs close to their homes. In fact, in some cases until 64% of the households found an OG within 500m. Silva, Fermino, Santos Lopes, Alberico & Reis (2018) found that mean distance from home to fitness zone was 2,007 meters and the distance from home of

1,742 meters or more ( $\geq 31$  min/day), lowered in 29% the probability of participants being active while commuting to these locations.

The arrival time to OGs is somewhat variable. Nałęcz et al. (2018) show that commuting to an OG from their home is usually a 15-20-minute walk, 5-10 minutes by bike or public transport and, 5-3 minutes by car. The users normally combined a visit at the OG with a walk or run (74%), or a bike ride (15%) and by public transport (9%). These authors are also the only ones that provide the distance of the bus stops to the OGs and distance between a public transport stop and the OGs distance ranges; from 30 m to 500 m. In Ibiapina et al. (2017), most users (63%) take up to 10 minutes to reach the OG but, in Iepsen & Silva (2015) most take more than 30 minutes although 71% of users find it easy to walk from home to the OG and 74% walk in their free time. OGs with fewer devices are closer to neighbors than those with more machines. Shortening distances and increasing the number of units could facilitate active commute and length of stay. The proximity from home to sport and leisure centers increases in 126% the probability of walking, while a greater number of fitness centers improves in 52% the probability of moderate to vigorous PA in leisure time (Silva et al., 2018). Mora (2012) has shown that walking behavior in older people depends, to a large extent, on street connectivity. Finally, Mora et al. (2017) contradict the comments so far by pointing out, that OGs users do not necessarily go to the closest facility to their residence, but rather to the one that provides them with a more complete exercise routine, or that have a more convenient location in the city, either for esthetical or for security reasons.

**Educational and socioeconomic level.** In general, the OGs have reached the target population evenly regardless of the economic status of the neighborhood (Pinheiro & Coelho, 2017). Neither the comparison by age nor socioeconomic status showed significant differences in Ramirez & Camargo (2017). Nonetheless, Mora (2017) found some interesting differences; OGs are more likely to be found in poor areas than in rich areas. While 45% of all households belonging to the highest socioeconomic group have an OG at a distance greater than 500 m, 60% of the poorest households have an OG within 500 m radius. Also, people with higher education tend to have greater access



information about general health care, ensuring the autonomy during physical activity, especially when it is performed without the supervision of a professional of PA (Silva, Fermino, Alberico & Reis, (2016). Table 4 shows the predominant educational and economic levels of the OG users of the studies that have collected it.

Table 4. Researches and % educational and socioeconomic level. The number of the research that appears in two different levels is because the % is similar on both levels

Educational level	Papers	Income	Papers
Elementary school	14	Low	14
Middle school		Low-medium	
High school	4, 6, 7, 19	Medium	7, 11, 17, 19,20
College/university	6, 17, 18	Medium-high	11,17, 19
Vocational training		High	

The variables marital status (married), finding acquaintances, social support from friends, weekly attendance and length of stay in OGs were inversely associated with neighborhood income. Also, studies tend to show a positive association between neighborhood income and PA during leisure time. It was identified a higher frequency of use of these places in parks located in higher-income neighborhoods and with favorable characteristics of the environment built for PA practice (Souza et al., 2014).

**Gender. Marital status.** According to sex, there are no significant differences for the total time of use, time of day or, in the use of OGs in the morning, afternoon or evening (Chow et al., 2017; Del Campo et al., 2016; Mora, 2012; Mora et al., 2017). Therefore, it happens that, in Mora (2012), men tend to occupy the OGs in the early periods, while females prefer evenings. However, in Ramirez & Camargo (2017), more women visited the OGs in the morning. The majority of users are married (Iepsen & Silva, 2015; Pinheiro & Coelho, 2017; Salin et al., 2014, Silva et al., 2016, 2018, 2019; Souza et al., 2014). Chow et al. (2017) shows that women were associated with more moderate to vigorous PA in OGs. No difference was found between males and females in terms of their engagement with exercise immediately prior to the installation of gyms (Mora, 2012). But in some cases, females increased their participation after the OGs were installed; they also increased their level of PA intensity and reduced their

sedentary levels compared to before the installation (Del Campo et al, 2016).

Concerning sample sizes and gender, the samples range from 24 people (Santos et al., 2017) to 6,722 in Ramirez & Camargo (2017). In 16 of the 22 studies that make up this review, the female sample is larger than the male. Only in three studies, the male sample is higher than the female one. Table 5 shows the gender that predominates in the sample of each investigation. Women are the majority in almost all of them.

Table 5. Gender that predominates in the sample of each investigation

Code-author PAPER	Sample	Predominant gender
1	129 (male 60, female 69)	Female
2	55 (male 27, female 28)	Female
3	495 (male 140, female 355)	Female
4	217 (male 91, female 126)	Female
5	188 (male 94, female 83)	Male
6	308 (male 67, female 241)	Female
7	323 (male 112, female 211)	Female
8	64 (male 36, female 28)	Male
9	166 (male 80, female 86)	Female
10	1023 (male 727, female 296)	Male
11	(male 35%, female 65%)	Female
12	374 male 162, female 212	Female
13	6.722 (male 3247, female 3475)	Female
14	163 (male 46, female 117)	Female
15	24 (male 14, female 10)	Male
16	66 (male, 20 female 44)	Female
17	411 (male 190, female 221)	Female
18	328 (male 150, female 178)	Female
19	323 (male 112, female 211)	Female
20	411 (male 190, female 221)	Female
21	185 (male 92, female 93)	Female
22	215 (male 97, female 112)	Female

The majority are samples of small or medium size (between 24 and 495 users). The largest sample is from the research of Ramirez & Camargo (2017) with 6,722 users. These large samples can only be analyzed through the SOPARC software. Thus, the average sample size is 286 users, although most of them are below 400. Special mention deserves the work of Mora et al. (2017) with a questionnaire passed out to 1022 people. When the reasons for regular PA practice were stratified by sex, women indicated that the stress control motivated them more significantly than men (Mathias, Filho, Szkudlarek,



Gallo, Fermino & Silveira Gomes, 2018). Also, while men primarily sought to improve their health, women used them to lose weight. Women were less inclined to use OGs when they were farther than five blocks from their home vs. of men (Mora et al., 2017).

**Health habits.** Performing activities in open spaces improves the level of health in morbidity and mortality, regardless of the level of economic income. There are differences according to authors. People who live in neighborhoods with more mixed land use to have higher levels of PA, than people who live in only residential neighborhoods (Del Campo et al, 2016). Typically, users combine OGs with other PA. Iepsen & Silva (2015), Mathias et al. (2018) or Silva et al. (2016, 2018, 2019) found that most users are sufficiently active on leisure time. Mora et al. (2017) show that 91.2% normally ride a bicycle or walk for at least ten minutes when moving through the city, and 79.7% said they do this five days a week. Some research shows  $\geq 150$  min/week of total leisure-time PA (Silva et al., 2016, 2018; Souza et al., 2014). In Costa et al. (2016) and Souza et al. (2014), half of the users performed at least 150 min/week of walking and approximately 73% performed moderate to vigorous PA at recommended health levels. Not to reach the PA recommendation and the minimum health recommendations are important because individuals who did not perform 150 min/week of leisure-time PA, were 2.78 times more likely to need medication in the long term.

One of the main aspects discussed is about whether the OGs are themselves sufficient to satisfy health recommendations or need a supplement. In most of the studies, older adults use OGs to

supplement main activities (Chow, 2013, 2017; Iepsen & Silva, 2015; Mora et al., 2017; Pinheiro & Coelho, 2017), but those who manage to reach the weekly recommendation time only using OGs are few, generally less than 35% of users (Costa et al. 2016; Silva et al., 2016, 2017). It seems that OGs have a positive effect on health. A total of 93.6% of the participants reported health improvements due to OGs use in Pinheiro & Coelho (2017). Vigorous PA was more likely occurred in OGs and was less likely in picnic areas. The parks with OGs attracted more first-time visitors and were associated with higher

energy expenditures than parks without OG (Chow, 2017). The health effect depends on the intensity, the used equipment and a higher proportion of respondents reported perceived exertion of OGs equipment as medium (Chow, 2013). Ramirez & Camargo (2017) describe that OGs contribute to greater weight loss on their users when compared to other areas of the same park, as well as increasing the time devoted for moderate to vigorous PA. The better the health perception reported by individuals, the greater the prevalence of sufficient practice of PA.

Many older people consider themselves active and perceive themselves in good health despite a certain high percentage reports having chronic diseases (Iepsen & Silva, 2015; Pinheiro & Coelho, 2017; Silva et al., 2017; Souza et al., 2014). Most users were overweight or obese,  $BMI \geq 25$  kg / m<sup>2</sup> (Ibiapina et al., 2017; Iepsen & Silva, 2015; Mathias et al., 2017; Pinheiro & Coelho, 2017; Silva et al., 2016, 2018, 2017). Most users had high blood pressure, hypertension, cholesterol, osteoarthritis, use some medication, diabetes, falls in the last year, osteoporosis, cardiomyopathy and others (Ibiapina et al., 2017; Iepsen & Silva, 2015; Pinheiro & Coelho, 2017). In Iepsen & Silva, (2015) 65% of users said they took medications, especially for hypertension and diabetes. Despite these health problems, users perceive their health is improving with exercise (Ibiapina et al., 2017; Iepsen y Silva, 2015; Mathias et al., 2018; Pinheiro & Coelho, 2017; Santos et al., 2017; Souza et al. 2014...). In contrast, users who perceive their health as poor are two to three times more likely to die than those who perceive their health as excellent.

**Number of days.** Table 6 shows the predominant number of days that users use OGs in the different investigations.

Table 6. User profile regarding number of days per week of assistance according to research

Days / week	Papers
1	21
2-3	11
3	7, 9, 10, 17, 19
3 to 5	6, 8, 18, 20, 22
$\geq 5$	2, 4, 12, 22

**Number of people.** In most articles, there are few users per hour and very few older users. This is only improved when the study sample is made only with



older people. In the observations carried out throughout the days and at different times, the elderly are very few. The people who went and practiced the most are adults. Chow, Mowen & Wu (2017) monitor only 12 users/hour. Further, the % of elderly people observed was very low (Bettencourt & Neves, 2016).

**Reasons to enter in an exercise program.** Only the study of Salin, Virtuoso, Noronha Nepomuceno, Weiers & Mazo (2014) brings the difference between intrinsic and extrinsic factors for entering in a program using the OGs. Intrinsic motivation was a predominant factor for older adults to enter and remain in the program, particularly the pursuit of health (entry) and perceived benefits of exercise (permanence). The most valued extrinsic factors were the encouragement of others (entry) and socialization (permanence). Other authors found others reasons like medical indication, socialization, the presence of instructors during exercise, good infrastructure, environment, gratuity, proximity and security, opportunity to leave home or residential proximity to exercise facilities (Chow et al, 2017; Del Campo et al., 2016; Mathias et al., 2018; Silva et al., 2018). In general, the majority of older adults was satisfied with the services provided. According to nutritional status, normal or overweight, it was observed that overweight adults reported that the health and aesthetic motivated them more significantly to practice PA than those with normal nutritional status (Mathias et al., 2018). For Salin et al. (2014), the older adults have high self-esteem and feel motivated as a result of the participation in the exercise program, especially in the dimensions of health and sociability. Social networks serve as protective factors for the maintenance of health.

Table 7. Main reasons to enter in a program

Factors	Reasons	Papers
Intrinsic	Health	2, 6, 8, 14, 22
Intrinsic	Exercise benefits	14
Intrinsic	Pleasure relax	2, 8
Extrinsic	Socialization	3, 5, 8, 19
Extrinsic	PA teacher	3, 5, 8, 19
Extrinsic	Family/social support	
Extrinsic	Aesthetics	8
Extrinsic	Stress	8
Extrinsic	Medical	6
Extrinsic	Weight	6, 10, 21
Extrinsic	Home proximity	22
Extrinsic	Free entry	22

Extrinsic	Fitness	6, 21
Extrinsic	Outdoor location	22
Extrinsic	Prevention	14
Extrinsic	Gain strength	21
Extrinsic	Disease	14
Extrinsic	Others	6, 10

**Authors and countries included in this systematic review.** Table 8 shows the origin of the authors included in this systematic review. Most come from South America.

Table 8. Year of publication, terms used to name OGs and authors' countries

Papers/year	Names	Country
1.2016	Senior Playgrounds	Portugal
2.2013	Outdoor Fitness Equipment	Taiwan
3.2017	Outdoor Fitness Equipment	Taiwan
4.2016	-Academias ao Ar Livre -Open Fitness Zones	Brazil
5.2016	-Gimnasios Aire Libre -Outdoor Gyms	Uruguay
6.2017	Outdoor Fitness Equipment	Brazil
7.2015	Academias ao Ar Livre	Brazil
8.2018	Academias ao Ar Livre	Brazil
9.2012	Open Gyms	Chile
10.2017	Outdoor Gyms	Chile
11.2018	Outdoor Gyms	Poland
12.2017	Outdoor Gyms	Brazil
13.2017	Outdoor Gyms	Colombia
14.2014	Academia Mejor Idade	Brazil
15. 2017	Academias ao Ar Livre	Brazil
16.2014	Outdoor Gyms	Australia
17.2016	Academias ao Ar Livre	Brazil
18.2018	Fitness Zones	Brazil
19.2017	Fitness Zones	Brazil
20.2014	Academias ao Ar Livre	Brazil
21.2017	Outdoor Gyms	Australia
22.2016	Family Recreation Zones	Poland

## DISCUSSION-CONCLUSIONS

We will discuss each section separately.

Age. We must distinguish two elements in relation to age. One is what the observations say. That is, how old are the people who go to the OG parks? The age of the visitors suggests that this kind of fitness setting is attractive mainly for adults (table 2), irrespective of sex or country (Iepsen & Silva, 2015; Mathias, Filho, Szkudlarek, Gallo, Fermino & Silveira, 2018; Szopa & Sas-Nowosielski, 2016). On the other hand, some authors focused their study only on the elderly, (intentional sampling with 60 years or older) to





analyze the changes during a work period (Pinheiro & Coelho, 2017; Salin et al., 2014; Santos et al., 2017). Most of the subjects observed in the OGs are adults, as the age group that spent the major amount of time exercising in the OGs. The most relevant issue is the low number of elderly people observed using OGs, despite the fact that these are designed purposely for this age group. Authors not included in this review as Cohen, Marsh, Williamson & Golinelli (2012) found that few older adults use these spaces. According to them, the solution seems simple; the places most frequently used by this population were those providing specific activities for older adults. Interventions are needed to increase the level of PA among individuals who are still working and to encourage the adoption of an active lifestyle by retirees or pensioners. Retirement is a determinant of involvement in PA. It is important to take advantage of this opportunity to encourage the maintenance or adoption of an active lifestyle within the context of outdoor gyms (Barnett, Van Sluijs, Ogilvie, 2012).

Alone or accompanied by... The percentage of elderly people observed is very low. According to the data, it seems that married people or partners are more active than those who are not or live alone (Pinheiro & Coelho, 2017). This age group tried to establish some kind of contact or relationship with other people (Romero-Reche, Martos-Fernández & Hita-Alonso, 2015). In general, 1/3 of users who go to OGs alone, do not reach the PA recommendation (Cozzensa da Silva et al., 2017). Because Olders, in general, do not use OGs vigorously (Chow 2013). Most participants reported not having company to attend OG and having met new people in the neighborhood after the installation of OG. Exercising with others, as well as the presence of other older people in the places where the gyms are located, can contribute to the reduction of depressive symptoms. Depression is a disorder related to several factors, such as sadness, loneliness and social isolation. Most of the users received some family social support from their families (Pinheiro & Coelho, 2017). Even though social support is an important factor associated with PA, this variable was not enough to encourage active commute to OGs (Silva et al., 2018).

Closeness or distance. People will more likely use OGs close to their homes. The greater or lesser distance to the OGs influences a greater or lesser use

of OGs. People who live near parks or squares, walking or running circuits and physical-recreational facilities, are associated with greater use of the facilities and higher levels of PA. Normally OGs users had a significantly higher proportion of local residents (neighborhood) and were more frequent park users compared with general park users (Del Campo et al., 2016; Stride, Cranney, Scott & Hua, 2017). Attending to Mora (2012), Mora et al. (2017) and Cohen et al. (2012) people will more likely use OGs close to their homes. In fact, in some cases until 64% of the households have an OG within 500m. Silva, Fermino, Santos Lopes, Alberico & Reis (2018) found that mean distance from home to fitness zone was 2,007 meters and the distance from home of 1,742 meters or more ( $\geq 31$  min/day), lowered in 29% the probability of participants being active while commuting to these locations. Shortening distances could facilitate active commute and length of stay. OGs with fewer devices are closer to neighbors than those with more machines. The transport to an OG from their home is usually a 10-20-minute walk, 5-10 minutes by bike or public transport and, 5-3 minutes by car. Mora (2012) has shown that walking behaviour in older people depends, to a large extent, on street connectivity. The proximity from home to sport and leisure centers increases by 126% the probability of walking, while a greater number of fitness centers improves in 52% the probability of moderate to vigorous PA in leisure-time (Silva et al 2018). Mora et al. (2017) state that OGs users do not necessarily go to the closest facility to their residence, but rather to the one that provides them with a more complete exercise routine, or that have a more convenient location in the city, either for esthetical or for security reasons.

Educational and socioeconomic level. Family income and time spent in places (months) were positively associated with neighborhood income (Souza et al., 2014). Some researchers compare the use of OGs from rich and poor neighborhoods. In relation to the educational, social or economic level, it seems that the interventions should be directed to lower-income individuals. Although higher weekly frequency and length of stay in OGs was associated, in general, with the low income of the neighborhood, in low-income settings, should be organized for groups and directed to single individuals and with less social support to facilitate social interaction and increase the use and length of stay (Souza et al., 2014) because higher



levels of education double the likelihood of older people's participation in exercise which highlights the association between economic status and level of education (Haley & Andel, 2010). Some individual, social and pattern of use characteristics of OGs differed according to the income of the neighborhoods. The identification of these variables is important to guide community interventions and public policies to promote PA. There must be active policies.

**Gender.** Almost all studies show that there are more older women than men in the OGs. The findings are consistently suggesting this may be an acceptable form of exercise for older women. OGs are a good investment option for increasing PA levels of people, especially for women that usually show a low level of PA compared to men and contribute to increasing compliance with the weekly PA recommendations that generate health benefits (Ramirez & Camargo, 2017). Instructional exercise classes were also requested, particularly by women. Exercise classes can engage women and increase their confidence in correct OG use and can result in greater park use and activity levels for older adults and women (Cohen, Sehgal, Williamson, Marsh, Golinelli, McKenzie, 2009; Scott et al., 2014).

**Health habits.** Seniors believe that using OGs contributes to their perceptions of promoting health by providing not only physical but also social and psychological benefits. Most seniors perceive the benefit of using OGs but, this, sometimes, may not be the main purpose for which seniors visit OGs. A large number of epidemiological studies have consistently shown that adequate levels of PA are related to the prevention and treatment of numerous non-communicable diseases. It seems that not to reach the minimum health recommendations are important because individuals who did not perform 150 min/week of leisure-time PA, were 2.78 times more likely to need medication in the long term. The ideal duration and the practice time will depend on each user's goals and are also associated with the intensity of the exercise. Sometimes it can be improved their psychological well-being, health, enjoyment, to socialize with others.

In any case, comparing the level of activity in large parks versus OG, the estimated energy expenditure

was significantly higher among adults who used the OG equipment ( $M = 3.89$  METs) than in parks (Copeland et al., 2017). Most users are overweight or obese. Individuals with overweight and obesity seek to engage in PA practices aiming to reduce health risks arising from this condition. It is important to emphasize that the prevalence of sufficient PA among overweight and obese subjects analyzed together was similar to those with normal BMI. Mora et al. (2017) said that these installations have positive collateral effects, as they not only contribute to increasing PA made by their users, but also because they attract people with sedentary lifestyles to make PA.

Finally, the present study, as the review of Lee, Lo, & Ho (2018), in general, show that most older adults use OG to supplement main activities: walking, cycling... in the park. They also use the OGs for enjoyment, to improve health, and as a means to socialize with others. Besides the physical benefits of using OGs, such as increased motion range, improved cardiovascular function, and decreased muscle soreness, respondents also cited the psychological and social benefits of using OG. For example, they expressed that their moods improved, and they enjoyed interacting with other people while using OGs. These OGs parks are allowing people who engage in outdoor PA to diversify their sports activities. What is more important is that the OGs have achieved that people who previously did not do any physical exercise, now once the OG park is built, are physically active. The above suggests that OGs might be acting as catalysts for the adoption of active lifestyles. This behavioral change might have affected how people perceived their own health, as demonstrated by the fact that most surveyed said their general health is better than one year ago. This is important because, according to several of the studies approximately 80% of users do not perform PA elsewhere. Moreover, 25% of participants surveyed do not carry out any PA on a regular basis prior to the installation of OG. Practicing in these places can facilitate the gain of physical and psychological health benefits; additionally, these places are also associated with a good level of PA.



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## REFERENCES

1. Barnett I, Van Sluijs E.M., Ogilvie, D. (2012) Physical activity and transitioning to retirement: a systematic review. *Am J Prev Med.* 43(3):329-36.)
2. Bettencourt, L., & Neves, R. (2016). Senior playgrounds in the promotion of physical activity among the elderly - characteristics of use. *Journal Kairós Gerontología*, 19(1): 59-72. doi: 10.13140/2.1.3203.1684
3. Chow, H, W. (2013). Outdoor fitness equipment in parks. A qualitative study from older adults' perceptions. *BMC Public Health*, 13:1216. doi:10.1186/1471-2458-13-1216
4. Chow, H, W, Mowen A.J. & Wu, Guan-lin. (2017). Who Is Using Outdoor Fitness Equipment and How? The Case of Xihu Park. *Int. J. Environ. Res. Public Health*, 14,448. doi:10.3390/ijerph14040448
5. Cohen, D.A., Marsh, T., Williamson, S., Golinelli, D. & McKenzie, T.L. (2012) Impact and cost-effectiveness of family Fitness Zones: A natural experiment in urban public parks. *Health & Place*; 18(1),39-45. doi: 10.1016/j.healthplace.2011.09.008
6. Cohen D.A., Sehgal, A., Williamson, S., Marsh, T., Golinelli, D., McKenzie, T.L. (2009). New recreational facilities for the young and the old in Los Angeles: policy and programming implications. *J Public Health Policy*; 30(Suppl 1): S248–63. doi:10.1057/jphp.2008.45
7. Cooper, H., Hedges, L.V. and Valentine, J.C. (2009). *The handbook of research synthesis and meta-analysis*. 2nd edition. Sage, New York.
8. Copeland, J.L., Currie, C., Walker, A., Mason, E., Willoughby, T. & Amson, A (2017) Fitness Equipment in Public Parks: Frequency of Use and Community Perceptions in a Small Urban Centre. *Journal of Physical Activity & Health*, 14(5), 344-352. doi.org/10.1123/jpah.2016-0277
9. Costa, B.G.G, De la Rocha Freitas & Silva, K.S. (2016). Atividade física e uso de equipamentos entre usuários de duas Academias ao Ar Livre. *Rev Bras Ativ Fís Saúde* 21(1):29-38. doi: 10.12820/rbafs.v.21n1
10. Cozzensa da Silva, M., Meyer Iepsen, M., Lucia Caputo, L., Becker Engers, P., Francieli Spohr, C., Fonseca Vilela, G., Carlos Gomes Dorneles, R. (2017). Leisure-time physical activity and associated factors in fitness zones. *Rev Bras Cineantropom Hum*19(2):185-195. doi.org/10.5007/1980-0037.2017v19n2p185
11. Del Campo C., Bermúdez, G., Peluffo, S. & Del Campo, J. (2016) Gimnasios al Aire Libre como estrategia de promoción de salud. Usuarios y características de uso en Uruguay. *Tendencias en medicina*, 48: 66-73
12. Haley C, Andel, R. (2010). Correlates of physical activity participation in community-dwelling older adults. *J Aging Phys Act.* 18(4):375-89).
13. Ibiapina, A.R. L, Moura, M.N., Santiago, M.L.E. & Moura, T.N.B. (2017). Characterization of users and usage pattern of outdoor fitness equipment. *Rev Bras Promoç Saúde*, 30(4):1-10. doi: 10.5020/18061230.2017.6688
14. Iepsen, A.M. & Silva, M.C. (2015). Perfil dos frequentadores das academias ao ar livre da cidade de Pelotas – RS. *Rev Bras Ativ Fís Saúde*, 413-424. doi.org/10.12820/rbafs.v.20n4p413
15. Lee, J.L.C., Lo, T.L.T. & Ho, R.T.H. (2018) Understanding Outdoor Gyms in Public Open Spaces: A Systematic Review and Integrative Synthesis of Qualitative and Quantitative Evidence. *Int J Environ Res Public Health*, 15(4): 1-15. https://doi.org/10.3390/ijerph15040590



16. McCormack, G.R., Rock, M., Toohey, A.M. & Hignell, D. (2010). Characteristics of Urban Parks Associated with Park Use and Physical Activity: A Review of Qualitative Research. *Health & Place* 16(4):712-26. doi: 10.1016 / j.healthplace.2010.03.003
17. Mathias, N, G., Filho, J.M., Szkudlarek, A.C., Gallo, L.H., Fermino, R.C. & Silveira Gomes, A.R. (2018). Motivos para a prática de atividades físicas em uma academia ao ar livre de Paranaguá-PR. *Rev Bras Ciênc Esporte*. doi: org/10.1016/j.rbce.2018.03.030
18. Mora, Rodrigo (2012). Moving Bodies: Open Gyms and Physical Activity in Santiago. *Journal of Urban Design*, 17(4), 485–497. doi:org/10.1080/13574809.2012.706367
19. Mora, R., Weisstaub, G., Greene, M. & Herrmann, G. (2017). Outdoor gyms in Santiago: urban distribution and effects on physical activity. *Motriz. J. Phys. Educ.* 23(3), doi: org/10.1590/S1980-6574201700030005
20. Nałęcz, H., Ostrowska-Tryzno, A. & Pawlikowska-Piechotka, A. (2018). Outdoor gyms as an example of outdoor recreation activity in urbanized areas. *Tourism/Turyzm*, 28(1), 65-71. doi: 10.2478/tour-2018-0008
21. Pinheiro, W.L. & Coelho Filho, J.M. (2017). Profile of elderly users of outdoor gyms for aged people. *Rev Bras Promoç Saúde*, 30(1): 93-101. doi: 10.5020/18061230.2017.p93
22. Ramírez, P.C., Camargo, D.M. & Quiroga, V. (2017) Physical activity in outdoor gym users in Bucaramanga, Colombia. *Eur. J. Physiother.* 19(1), 54-55. doi:org/10.1080/21679169.2017.1381322
23. Romero-Reche, A., Martos-Fernández P. & Hita-Alonso, C. (2015) La socialización de las personas mayores en el parque biosaludable. *Rev.Ib.CC. Act. Fís. Dep.* 2015; 4(3): 21-33. doi.org/10.24310/riccafd.2015.v4i3.6153
24. Salin, M.S., Virtuoso, J.F., Noronha Nepomuceno, A.S., Weiers, G.G., Mazo, G.Z. (2014). Golden Age Gym: reasons for entry, permanence and satisfaction among participating older adults. *Rev Bras Cineantropom Desempenho Hum*, 16(2):152-160. doi:org/10.5007/1980-0037.2014v16n2p152
25. Santos Moreno, L., Ribeiro de Oliveira Ferreira, L., Oliveira da Cruz Siqueira, L. (2017) Analysis of committed in the academies activities in outdoor fountain city. *Revista Educação Física*, V, 19-30
26. Scott, A., Stride, V., Neville, L. & Hua, M. (2014). Design and promotion of an outdoor gym for older adults: a collaborative project. *Health Promotion Journal of Australia*, 25, 212–214. doi:org/10.1071/HE14037
27. Silva, A.T., Fermino, R.C., Alberico, C.O. & Reis, R.S. (2016). Fatores associados à ocorrência de lesões durante a prática de atividade física em academias ao ar livre. *Rev Bras Med Esporte* 22(4), 267-271. doi:org/10.1590/1517-869220162204151226
28. Silva, A.T., Fermino, R.C., Santos Lopes, A.A. Alberico, C.O., & Reis, R.S. (2018). Distance to fitness zone, use of facilities and physical activity in adults. *Rev Bras Med Esporte*, 24(2), 157-161. doi:org/10.1590/1517-869220182402180439
29. Silva, M.C., Iepsen, A.M., Caputo, E.L., Engers, P.B., Spohr, C.F., Vilela, G.F. & Gomes Dorneles, R.C. (2017). Leisure-time physical activity and associated factors in fitness zone. *Rev Bras Cineantropom Desempenho Hum* 19(2),185-195. doi:org/10.5007/1980-0037.2017v19n2p185
30. Souza, C.A., Fermino, R.C., Rodriguez Añez, C.R. & Reis, R.S. (2014). Perfil dos frequentadores e padrão de uso das academias ao ar livre em bairros de baixa e alta renda de Curitiba-PR. *Rev Bras Ativ Fís Saúde*. 19(1):86-97. doi:org/10.12820/rbafs.v.19n1p86
31. Stride, V., Cranney, L., Scott, A. & Hua, M. (2017). Outdoor gyms and older adults–acceptability, enablers and barriers: a survey of park users. *Health Promot J Austr.* 28, 243–246. doi:org/10.1071/HE16075



32. Szopa, S.& Sas-Nowosielski, K. (2016). Family recreation Zones as a supportive environment for Physical Activity in the opinion of its users. The new educational. 43, 117-124. doi: 10.15804/tner.2016.43.1.09
33. USA Department of Health and Human Services (2018). Physical Activity Guidelines for Americans, 2nd edition. Washington, DC: U.S. Department of Health and Human Services.
34. WHO. (2017). World health organization. Global strategy on diet, physical activity and health. 10 facts on physical activity. Reviewed february 2017
35. WHO. (2013). World health organization. Global action plan for the prevention and control of NCDs 2013-2020

