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Usage Patterns, Exercise Motives, and Perceived Benefits and Limitations of Outdoor Gyms: A Case from a Provincial City in South Poland

Abstract

Installing outdoor gyms (OGs) has become popular in many countries worldwide. To date, data about the perceptions and behaviours of its users are still being determined. Therefore, this study aimed to determine who and how uses the facilities and how their users perceive them. The sample comprised 1,036 exercisers aged 44.1 ± 16.1 years. For over 85% of users, OGs are the facilities where they follow their planned exercise programme, with 56.2% declaring exercising solely there. The main perceived advantages of OGs are free-to-access (42.6%) and outdoor location (40.4%), while disadvantages are dependence on the season (57.2%) and the technical condition of devices (24.9%). The predominant motive for using OGs is to maintain and improve their health (38.6%) and stay fit (27.9%). OGs are an essential alternative to indoor gyms in situations of limited availability under pandemic conditions. For many people, they are even the only place to exercise.

Keywords: *outdoor gyms, exercise, public health, motives*

Introduction

It is now well established that physical activity (PA) is one of the most important lifestyle factors for maintaining health and well-being, including that it improves learning in young people and prevents cognitive decline in elders (Berg et al., 2015; Nelson et al., 2007; Izquierdo et al., 2021; Lathi et al., 2014). To experience

the spectrum of the above benefits, PA should be an integral part of a person's life. Given the decreasing number of opportunities to undertake it spontaneously, as if forced by life's necessities, voluntary activity, undertaken consciously in leisure, plays a unique role because it can be designed according to one's preferences and outcome expectations.

Although PA should be essential to a healthy lifestyle, many people choose passive leisure (Epstein et al., 2006). Promoting and merging active leisure habits has been a persistently important aspect of the health policy efforts of countries worldwide, strongly supported by the World Health Organization, which sees the promotion of PA as an essential instrument in achieving development goals (WHO, 2018). The WHO's Global Action Plan on Physical Activity recommends four strategic areas of PA promotion: create active societies, create active systems, create active people and create active environments.

The latter strategy aligns with the trend observed in recent years of a paradigm shift from one focused on the individual to one focused more on changing the environment (McElroy, 2002; Anshel, 2014; Magalhães et al., 2017). It is embodied, among others, in developing such projects, like "Family Recreation Zones", i.e., areas where playgrounds and exercise facilities such as "outdoor gym" are placed next to each other. The intention behind their creation is to make active leisure easier for people by providing facilities that are easily accessible, cost-free, safe to use, and that provide opportunities for physical activity while spending time outdoors, including with the family. The SARS-CoV-2 epidemic revealed the added advantage of quicker and less restricted access compared to indoor gyms, which remained closed for a long time and struggled with many restrictions on the number of exercisers and distances between them, even after they became available to the public. Outdoor locations are devoid of these limitations. The term "outdoor gyms" (OGs), also called "fitness zones" or "open gyms" (Cohen et al., 2012; Mora, 2012; Sales et al., 2017), usually refers to exercise equipment that is located outdoors because of its simplicity and resistance to weather (Cohen et al., 2012; Lee et al., 2018; Jansson et al., 2019). OG's may be combined with other family leisure facilities (walking paths, playgrounds), being unique in their ability to promote PA in parks and squares to a wide range of users: parents can keep an eye on children playing while engaging in physical activity themselves; older people can combine exercise with being outdoors; people without the funds to use paid fitness centres, etc. (Lee et al., 2018). In all cases, they are seen as an essential means for enhancing PA, even among people who are insufficiently active because of family obligations related to child care, distance to other facilities like fitness centres, or lack of finance (Hulteen et al.,

2017; Jansson et al., 2019; Sami et al., 2018; Cranney et al., 2016; Oliveros et al., 2021).

In their reviews, Duncan et al. (2003) and Kaczynski and Henderson (2008) confirmed that proximity to recreation facilities, like public park areas, can positively influence leisure PA. Several other reviews were devoted explicitly to OGs, addressing issues such as the role of OGs in promoting physical activity among the local community, characteristics of outdoor gyms and their users, ways of using OGs (Fernández-Rodríguez et al., 2020; Jansson et al., 2019; Lee et al., 2018). Most of the research was conducted in the pre-pandemic period, which triggered changes in the fitness industry itself and the behaviour of temporary fitness club customers (Rada & Szabo 2022). In addition, there is a need to monitor who uses GIs and how they are evaluated systematically. This knowledge can further improve the OGs offer of recreational infrastructure as a factor that can promote active leisure behaviour of the population.

Therefore, the study aimed to determine users' demographic characteristics and patterns of OGs use, users' perceptions about the usefulness of devices, advantages, disadvantages, and motives for using OGs.

Research Methodology

Study Procedure

The included users of OGs at six different points in Katowice – the provincial city in southern Poland. The procedure involved surveying all users of OGs for twelve consecutive months from January to December 2021 at three times of the day: morning 10 am–12 am, early afternoon 1 pm–3 pm and late afternoon 5 pm–7 pm. The total number of exercisers who agreed to participate in the study was 1,036, aged 12–82 years, with a mean 44.1 ± 16.1 years, including 592 men (57.1%) and 444 women (42.9%). The number of respondents in particular months is presented in Table 1.

Table 1. The number of respondents in particular months

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
N	36	30	51	72	95	121	143	138	111	86	106	47

The survey was conducted in the temperature range of -8 to 32 degrees; however, only 3.9% of respondents exercised at temperatures of 0 degrees and less. The

highest proportion (57.8%) of respondents exercised at temperatures of 14 to 28 degrees. The questionnaire included 12 questions on the respondents' perceptions about outdoor gyms, particularly assessing the usefulness of particular equipment, intentions and patterns of using outdoor gyms now and before the pandemic, and assessing the advantages and disadvantages of OGs. The devices with which the OGs included in the study were equipped were: orbitrek, boulder wall, chin-up bar, leg press, sit-up bench, cross country skier, twister, balance beam, stepper, Tai-chi spinner, Chest press, air walker, rowing machine, lat pull-down. The OG that was the least equipped included six machines, while the OG that was the most equipped included 11.

Data Analysis

Descriptive statistics means, and standard deviation for continuous variables or proportion analysis for categorical variables were used to describe the obtained data. The χ^2 test with Cramer's V statistic (V-value) was used to compare categorical variables to measure the effect size. It was assumed that a V-value under 0.30 signifies a small effect size (weak association between variables), a V-value between 0.30 and 0.50 indicates a medium effect size (moderate association), and a value above 0.50 signifies a large effect size (strong association).

For interval level data (time of day), one-way analysis of variance (ANOVA) and for continuous variables (age and exercise time in OGs), regression analysis was used. Significance levels were set at .05. All calculations were made using the Statistica 13.0 (TIBCO Software PL).

Results

Outdoor Gym Users and Their Patterns of Use

OGs users were predominantly male (57.1% vs. 42.9% women; difference of two proportions: $p < .001$). The most numerous age groups among OGs users were middle-agers (37.8%) and elders (24.1%). The lowest proportion of users were teenagers. The numbers and percentages of each age group are shown in Table 2.

The time of day in which the highest number of users was observed was the late afternoon (5 am -7 am) ($n = 454, 43.8\%$), while the most minor usage occurred in the morning ($n = 198, 19.1\%$). Both the average age of the participants and their

Table 2. Numbers and percentages of participants by age group

Age group	N	%
Adolescence (<19 yrs)	80	7,7
Early adulthood (20–29)	127	12,3
Adulthood (30–39)	187	18,1
Middle age (40–59)	392	37,8
Elder (60+)	250	24,1

gender did not differ statistically between the three times of the day, respectively, $F_{(2, 1033)} = 1.46$, $p = .232$ and $F_{(2, 1030)} = 0.05$, $p = .950$).

Although among OGs users were people who declared that they were here by sheer coincidence (while being on the walk), with no prior intention ($n = 150$, 14.5%), for the others, these facilities are the places where they implement the planned exercise program and with the sole purpose of using the OGs equipment. Two-thirds ($n=671$, 64.8%) of the respondents declared that they did so regardless of the constraints of the pandemic restrictions. Among them were predominantly males (67.7% vs. 60.8% female); however, the difference, although statistically significant, $\chi^2=5.33$, $p=.021$, was small ($V=0.07$). For more than half of the users ($n=377$, 56.2%) in this group, OGs are not only deliberately chosen but the only fitness facilities they use – again with a significant male predominance (43.4%, $n=257$ versus 27.0%, $n=120$ women; $\chi^2=29.43$, $p<.001$, $V=0.17$). However, 215 (20.8%) users reported that OGs are merely a substitute for the indoor gyms/fitness centres they used until recently, which, due to the pandemic restrictions, have been closed or at least severely restricted their availability to customers. There was only a trend towards gender differences in this group (women 23.6%, men 18.9%; $\chi^2=3.43$, $p=.064$). The former facilities/forms of activity used by the respondents before the pandemic restrictions were mainly indoor gyms (males 22%, females 8.3%, $\chi^2=34.84$, $p<.001$, $V=0.19$), swimming pools (males 3.2%, females 20.9%, $\chi^2=82.78$, $p<.001$, $V=0.29$), fitness centres (males 3.2%, females 17.1%, $\chi^2=58.92$, $p<.001$, $V=0.25$), and to a lesser extent, CrossFit clubs ($n=16$), yoga classes ($n=7$), sports/martial arts classes. Regardless of experience, all respondents agreed that venues such as OGs were the most obvious alternative in a pandemic. More than half ($n=582$, 56.2%) of the respondents declared that they had never used OGs before the pandemic period, and 33.8% ($n=350$) used them once or twice a week. A higher frequency was experienced by one in ten of those surveyed (10%). The self-reported frequency of attending OGs before the pandemic significantly differed for male and female users ($\chi^2=28.72$, $p<.001$,

V=0,17). Correspondingly, 65.1% of females versus 49.5% of males never exercised in such facilities. Regular exercise on all or most days of the week was declared by 12.6% of males versus 6.5% of females. The current frequency of attendance at OGs was, in descending order of number and proportion of respondents: 1–2 times per week (n=513, 54.1%), 3–4 times (n=369, 35.6%), 5–6 times (n=56, 5.4%), daily or almost daily (n=51, 4.9%). Finally, 47 users (4.5%) declared they exercised on the OG for the first time on the survey day. Self-reported frequency of OGs use significantly differentiated male and female users: $\chi^2=33.16$, $p<.001$, $V=0.18$. The highest differences were observed in exercising once a week (58.6% of women vs. 42.7% of men) and 2–3 times a week (26.6% vs. 42.4%, respectively). Time spent exercising ranged from 10 to 120 minutes, averaging 42 ± 19.3 minutes per day, and differed statistically significantly between females and males: 38.9 ± 17.5 minutes and 44.3 ± 20.2 minutes; $t_{(1034)}=4.51$, $p<.001$, respectively. A variable that significantly differentiated exercise time was also age, which explained 11% of the variance: $R^2=.11$, $F_{(1,1034)}=128.31$, $p<.001$, $\beta=-0.33$, $b=-0.40$.

Perceived Advantages and Disadvantages of OGs Use and Assessment of the Usefulness of Specific Machines

According to respondents, the main advantages of OGs are: free access (n=441, 42.6%), location outdoors (n=419, 40.4%), public accessibility (n=139, 13.4%), and proximity to residence (n=33, 3.2%). Surprisingly, only two respondents found the OGs location near a children's playground advantageous, providing the opportunity to combine exercise with childcare. The relative frequency of choices did not differ significantly between male and female users: $\chi^2=3.91$, $p<.563$, $V=0.06$.

The main disadvantages of OGs were: dependence on the season/weather (n=593, 57.2%), the technical condition of some machines (n=258, 24.9%), and location/lack of roofing (n=254, 24.5%). The frequency of the distribution of disadvantages also revealed no significant differences between both sexes: $\chi^2=2.21$, $p=.820$, $V=0.05$. The proportions of women and men indicating each option were similar, and the only differences – although not exceeding 2% – were noticeable regarding the presence of children and the lack of load adjustment, which were disadvantages more often mentioned by male users (Table 3).

The balance bar was considered the least necessary machine, with 35% of respondents identifying it as such, followed by the shoulder rotator (aka tai-chi spinner) 18.7%, and the rowing machine 14.9%. Machines not indicated as unnecessary or indicated as such by one to several people were leg press, sit-up bench, twister, air skier/air walker and bicycle. More than half of the respondents

Table 3. Perceived advantages and disadvantages of OGs use

Advantages	n	%	Disadvantages	n	%
free access	441	42,6	dependence on season/weather	593	57,2
outdoor space	419	40,4	poor condition of equipment	258	24,9
public accessibility proximity of residence	139	13,4	outdoor location/lack of roofing	254	24,5
children's playground nearby	2	0,2	too many small children	64	6,2
			not enough equipment	59	5,7
			no possibility of adjusting the load	41	4,0
			lack of equipment maintenance	37	3,5
			no instructor	15	1,4
			sense of insecurity	1	0,2
			lack of lighting	1	0,2

(n=534, 51.5%) declared that the OGs where they carry out their exercises are too modestly equipped and postulate their enrichment with additional machines or replace some of them. Respondents tended not to indicate specific devices, giving rather general categories of them, for example, more machines for exercising the upper body or more devices that allow load adjustment, as well as more frequent renovation of existing devices. Proportionally more claims for changes to the existing range of equipment were made by male users (n=322, 54.4% versus n=212, 47.7%), but the difference between the two genders was not statistically significant: $\chi^2=10.44$, $p=.230$.

Motives of Using OGs

The dominant motive for using OGs for respondents is maintaining health (n=400, 38.6%), followed by keeping fit (n=289, 27.9%), well-being (n=148, 14.3%), killing boredom experienced at home (n=134, 12.9%). The least frequently mentioned were contact with nature (n=40, 3.9%) and meetings with other exercisers (n=24, 2.3%). A comparison of the motives of both sexes revealed a statistically significant difference: $\chi^2=44.77$, $p<.001$, $V=0,21$, with the greatest relative differences observed for the motives of caring about fitness, indicated to a greater extent by males (33.1% against 21% for females) and caring about well-being, more frequently selected by the latter (21.6% against 8.8% for male). Detailed data in Table 4.

Table 4. Motives for using OG

Motive	Total sample		Male		Female	
	n	%	n	%	n	%
Health	400	38,6	224	37,8	176	39,6
Physical condition	289	27,9	196	33,1	93	21,0
Mental well-being	148	14,3	52	8,8	96	21,6
Boredom	134	12,9	80	13,5	54	12,2
Contact with nature	40	3,9	24	4,1	16	3,6
Affiliation	24	2,3	15	2,5	9	2,0

Discussion

The increasing interest in investing in OGs has heightened the need for obtaining feedback from their current or potential users, so facilities of this type can be even more effective in encouraging people to active leisure. The study aimed to diagnose who the OGs users are and how they practise, what motivates them, and what they perceive as advantages and disadvantages of this type of facility. In answering the question about the user profile in light of our research, it can be concluded that these are mainly people aged 40+, with a slight predominance of men. In the latter case, the percentage difference between the two sexes was only a few percent. As Jansson et al. (2019) point out in their review, although the age and gender of OGs users are the most commonly assessed demographic variables, a high variability of results is observed. While the entire range of facilities of this type appears to be aimed at adults in general, the specific selection of machines may make them more attractive to either gender or specific age groups (Jansson et al., 2019). It is all the more important because, as some of the people interviewed declared, OGs are the only places where they exercise. The pandemic revealed an additional role – an alternative to indoor facilities (gyms, fitness centres, swimming pools), which had been closed for a long time and, once reopened, were often severely restricted in terms of accessibility. As an outdoor venue, OGs offer a safer environment for PA, although they are also poorer in terms of exercise options.

The declared exercise duration in our study averaged 42 minutes, while the frequency varied over a wide range of 1–2 days per week to daily or almost daily visits. However, the latter option concerned less than 5% of people, with the most frequent frequency being between one and two days per week. It is noteworthy that there was an increase in the frequency of visits to the OGs compared to before

the pandemic restrictions. Not only did almost 6 in 10 respondents declare they had never exercised in OGs before the pandemic period, but among those who did, the proportion exercising with greater frequency increased.

From the point of view of promoting active leisure, the „provision of active environments that are easily accessible and inexpensive” is essential (Chow & Wu, 2019). OGs fulfil this criterion and is also the property that was the most frequently mentioned advantage in our study, finding confirmation in studies of other populations (Chow & Wu, 2019; Lee et al., 2018). While many respondents also see the outdoor location as a benefit – which, after all, may to some extent be derived from unrestricted access – for almost a quarter, it is a significant disadvantage of OGs. An even higher proportion of respondents recognise the problem of season/weather dependency, a visible consequence of the varying numbers exercising at OGs in different ambient temperatures. Such factors are beyond the control of those investing in creating such infrastructure and are, therefore, a constraint inherent in it. However, the quality – and frequency – of use may be influenced by factors like care of the condition of existing machines, their selection (considering users’ preferences), and perhaps investment in proper instruction. Respondents mentioned this factor less frequently but also indicated it as one of the disadvantages of OGs. Regarding the latter factor, it was also indicated in other studies (Chow & Wu, 2019). While OGs devices usually come with brief verbal instructions on how to operate them, as respondents noted, they are not always legible due to the small size of the small font (which can be difficult for the elderly to read) or because the description is incomprehensible. The comfort of using the OGs will be greater if the individual devices are accompanied by instructional drawings – which was not the case in most of the facilities we surveyed. An even more important step to help people realise their physical activity programmes at the OGs would be to include sample exercise programmes with suggestions for adjusting the intensity of the exercises, which was requested mainly by males. For example, the intensity of a particular exercise can be adjusted to some extent by the starting position (e.g., how and where the gryphon is grasped in a bench press machine) or the body position adopted while performing the exercise. It also seems that despite the lack of a tradition (at least in the authors’ country) of providing OG with the personal instructional support typical of fitness clubs (instructors and personal trainers), the establishment of such a function could further enhance the effectiveness of the use of such facilities. Inspiration could come from a so-called “housing estate coaches” programme implemented in some cities, which organised sports activities for young people who would otherwise spend their time on socially undesirable behaviour. A similar arrangement could

be used in the OGs by offering expert support on specific days and times to people needing it to keep them engaged in the exercise. It would require the creation of a new educational pathway, the substantive determinants of which would be, on the one hand, a broad knowledge of physical activity programming for different demographic groups and, on the other hand, social competence.

Adherence to exercise is also, to some extent, derived from the extent to which a particular exercise programme or form of activity satisfies the motives that underpinned the initiation of these behaviours. For this reason, understanding people's motives for undertaking and continuing physical activity in a particular context is considered an essential strand of research in planning, promoting and maintaining people's engagement in physical activity (Trembath et al., 2002). The aftermath of the appreciation of the knowledge of the motives for physical activity has resulted in numerous publications dedicated to exploring them in different groups of people, undertaken from different theoretical perspectives and taking into account differences between genders, age groups or contexts of physical activity (exercise, sport, recreation) (Box et al., 2021; Molanorouzi et al., 2015; Aaltonen et al., 2014; Ball et al., 2014; Sita et al., 2008). Less represented in the literature are diagnoses of the motives of OGs users. Mora et al. (2017), who addressed this question in a population of OGs users in Chile, found that the highest proportion of respondents were motivated by improving health, followed by weight loss (26.2% of women) or social relationships (16.3% of men), depending on gender. Our study also indicated health as a primary motive for visiting the OGs among men and women. The latter indicated fitness enhancement to a slightly lesser extent (33.1% vs 37.8%), a motive that was as important for women as mental well-being (respectively, 21.0 and 21.6%). In contrast to Mora et al. (2017) study, few respondents were driven by affiliation motives (2.3%), which to some extent may be related to the nature of the surveyed facilities, which lacked zones that facilitated interaction, for example, benches for sitting.

In conclusion, OGs are gaining popularity as an easily accessible infrastructure to undertake PA and are a clear example of the practical implementation of the WHO's strategic objective of "creating active environments". The ease of OGs access is essential for at least two reasons. Firstly, it removes one of the barriers to PA – the lack of exercise facilities close to dwelling places, which on an emotional level is often a convenient excuse (‘I would like to lead a more active lifestyle, but there is nowhere to do it’). Secondly, the literature on environmental determinants of physical activity describes a mechanism, the essence of which is that exercise facilities are a source of visual stimuli that „remind” people about PA, directing their attention to it and increasing the availability of attitudes towards it, and

thus increasing the likelihood of taking it (McElroy 2002). Given the open nature of OGs (exercise equipment is not hidden behind walls), the potential for such reminders is particularly high. The results of studies like the one described in this paper can help its use. While confirming the rationale for investing in such facilities, they also suggest that the entities under whose jurisdiction they are located should take care to renovate them and listen to the opinions of exercisers on the usefulness of various devices. Another strategy that could increase the promotional potential of OGs is to invest in instructional activities – including education “OG coaches”.

When discussing the study’s outcome, we should remember that its limitations burden its conclusions. First, although the data was collected three times a day, it cannot be ruled out that there may have been people practising in between who would have brought a different perspective on the issues assessed. For example, there may have been more young men in the evenings who were less concerned about safety. The data were self-reported, fraught with the risk of not fully reliable responses, especially regarding self-reported frequency and duration of exercise.

Conclusion

OGs are an essential alternative to indoor gyms in situations of limited availability under pandemic conditions. For many people, they are even the only place to exercise. In order to realise their full potential, it is vital to consider the demands of users regarding the equipment that is/will be installed.

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