



## CHARACTERIZATION OF USERS AND USAGE PATTERN OF OUTDOOR FITNESS EQUIPMENT

*Caracterização dos usuários e do padrão de uso das academias ao ar livre*

*Caracterización de los usuarios y el estilo de uso de los gimnasios al aire libre*

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### ABSTRACT

**Objective:** To verify the characteristics of the users and the usage pattern of outdoor fitness equipment (OFE). **Methods:** Descriptive, exploratory and quantitative research, conducted in 2015, with 308 users of 22 OFE of Teresina, Piauí, Brazil. Data collection was carried out by filling out a form, which contained questions related to sociodemographic, behavioral and health aspects, nutritional profile, equipment and space usage, distance from the residence, and company for practices. Each site was visited four times, with an average visit duration of one hour. The variables were analyzed with use of measures of central tendency and dispersion. **Results:** The findings show an average period of OFE use of  $22.2 \pm 17.7$  months, users' mean age of  $53.8 \pm 12.4$  years, prevalence of women (78.2%, n=241), complete secondary education (42.2%, n=130), brown race/color (55.5%, n=171), and mean BMI of  $25.85 \pm 3.981$  kg/m<sup>2</sup>. It was found that 63% (n=194) of the users take up to 10 minutes to reach the outdoor gym, 87% (n=268) attend it from three to five times a week, 54.2% (n=167) remain there for 20 to 40 minutes, and 49.4% (n=152) of the subjects do not use at least one piece of equipment because of some pain (39.2%, n=60). Despite the availability of a physical education professional in a majority (70.8%, n=218) of OFE, having a follow-up conducted by this professional was considered the most urgent need (36.7%, n=113). **Conclusion:** In the investigated outdoor gyms there was the prevalence of brown female users, with a complete secondary education, who live near the gym and make use of it three to five times a week, remaining in the location for 20 to 40 minutes.

**Descriptors:** Fitness Centers; Exercise; Public Policies.

### RESUMO

**Objetivo:** Verificar as características dos usuários e o padrão de uso das academias ao ar livre (AAL). **Métodos:** Pesquisa descritiva, exploratória e quantitativa, realizada em 2015, com 308 usuários de 22 AAL de Teresina, Piauí. A coleta ocorreu por meio de preenchimento de formulário que continha questões sociodemográficas, comportamentais, de saúde, perfil nutricional, utilização dos aparelhos e do espaço, distância da residência e companhia para as práticas. Em cada local, realizaram-se quatro visitas, com duração média de uma hora. Variáveis analisadas com medidas de tendência central e dispersão. **Resultados:** Encontrou-se tempo médio de utilização das AAL de  $22,2 \pm 17,7$  meses, média de idade de  $53,8 \pm 12,4$  anos, prevalência do sexo feminino (78,2%, n= 241), ensino médio completo (42,2%, n= 130), raça/cor parda (55,5%, n= 171) e média de IMC  $25,85 \pm 3,981$  kg/m<sup>2</sup>. Averiguou-se que 63% (n= 194) dos usuários levam até 10 minutos para chegar à academia, 87% (n= 268) frequentam entre três a cinco vezes por semana, 54,2% (n= 167) permanecem entre 20 a 40 minutos e 49,4% (n= 152) não utilizam pelo menos um dos aparelhos devido à alguma dor (39,2%, n=60). Embora na maioria (70,8%, n= 218) das AAL exista profissional de educação física, considerou-se um acompanhamento desse profissional a necessidade mais urgente (36,7%, n= 113). **Conclusão:** Prevaleceu, nas academias ao ar livre investigadas, a presença de usuárias pardas, com ensino médio completo, que moram próximo à academia e a utilizam de três a cinco vezes por semana, permanecendo 20 a 40 minutos no local.

**Descritores:** Academias de Ginástica; Exercício; Políticas Públicas.



## RESUMEN

**Objetivo:** Verificar las características de los usuarios y el estilo de uso de los gimnasios al aire libre (GAL). **Métodos:** Investigación descriptiva, exploratoria y cuantitativa realizada en 2015 con 308 usuarios de 22 GAL de Teresina, Piauí. La recogida de datos se dio a través de un formulario con preguntas sociodemográficas, de conducta, salud, perfil nutricional, la utilización de aparatos y del espacio, la distancia de la vivienda y la compañía para las prácticas. En cada local se realizaron cuatro visitas con duración media de una hora. Las variables fueron analizadas con medidas de tendencia central y dispersión. **Resultados:** Se encontró un tiempo medio de utilización de los GAL de  $22,2 \pm 17,7$  meses, la media de edad de  $53,8 \pm 12,4$  años, prevalencia del sexo femenino (78,2%, n= 241), educación secundaria completo (42,2%, n= 130), raza/color pardo (55,5%, n= 171) y la media del IMC de  $25,85 \pm 3,981$  kg/m<sup>2</sup>. Se verificó que el 63% (n= 194) de los usuarios tardan hasta 10 minutos en llegar en el gimnasio, el 87% (n= 268) frecuentan entre tres y cinco veces a la semana, el 54,2% (n= 167) se quedan entre 20 y 40 minutos y el 49,4% (n= 152) no utilizan por lo menos uno de los aparatos debido algún dolor (39,2%, n=60). Aunque en la mayoría (70,8%, n= 218) de los GAL hay un profesional de educación física, se consideró el seguimiento de ese profesional la necesidad más urgente (36,7%, n= 113). **Conclusión:** En los gimnasios al aire libre investigados prevaleció la presencia de usuarias pardas, con educación secundaria completa, que viven cerca del gimnasio y que los frecuentan entre tres y cinco veces a la semana quedándose entre 20 y 40 minutos allí.

**Descriptor:** Centros de Acondicionamiento; Ejercicio; Políticas Públicas.

## INTRODUCTION

Approximately 9% of premature deaths (about 5.3 million of the 57 million deaths in 2008) and 6% to 10% of major non-communicable chronic disease, such as diabetes, coronary heart disease, and colon and breast cancers, can be attributed to physical inactivity. In case sedentary individuals become physically active, it is estimated that life expectancy would increase by 0.68 year<sup>(1)</sup>.

A review study aimed at analyzing worldwide costs related to physical inactivity in the last decades has observed that, regardless of the classification method, it is costly to the health economy in all parts of the world and directly responsible for the high expenditure on medicines, hospitalization and clinical consultations. Expenditures on the physically inactive portion of the population, afflicted by chronic diseases, are among the main components of total public health costs<sup>(2)</sup>.

In the agenda of public health priorities, corporal practices/physical activity stand out, recognized as a protective health factor, helping in the reduction of health risks and improving the quality of life of the subjects<sup>(3)</sup>.

Adopting an active lifestyle becomes fundamental for getting older with health and quality, particularly if associated with healthy eating habits. Nevertheless, even bearing all its benefits in mind, people become less active as they grow older<sup>(4)</sup>.

The availability and access to public spaces in the neighborhood, such as parks, squares and woods, can facilitate the practice of physical activity (PA) and are considered an important aspect for the health of individuals and the community<sup>(5)</sup>.

One of the strategies that has been used to increase the practice of PA in such places is the installation of easy-to-use equipment, which comprise the outdoor fitness equipment (OFE)<sup>(6)</sup> or open-air gymnasiums, also known as gymnasiums for the elderly<sup>(7)</sup>.

The combined availability of sites, structures and equipment in squares and/or parks can contribute to attract the population to visit these environments, which would potentially enable a greater use and practice of PA in locations presenting OFE<sup>(8)</sup>. Thus, the municipalities of Brazil that offer OFE reaffirm their commitment to comply with the National Health Promotion Policy, prioritizing collective care actions in basic care<sup>(9)</sup>.

Therefore, quantifying the variables on characteristics and usage pattern is of fundamental importance in order to understand the contribution of these structures to the reduction of inequalities in the levels of physical activity of the population<sup>(10)</sup> and thus contribute to public policies aimed at these environments of physical activity practice. To date, however, there are no studies that have identified the users' profile and the usage pattern of these structures in the municipality of Teresina, in the state of Piauí, Brazil. In this context, this research was aimed at verifying the characteristics of the users and the usage pattern of the outdoor fitness equipment (OFE).

## METHODS

The present research is characterized as descriptive and exploratory, with a cross-sectional design and a quantitative approach.

The study population consisted of OFE users of the city of Teresina, Piauí, and the sample comprised 308 users, older than 18 years and of both sexes. The city bore, up to data collection, 28 OFE. For verification of the number of outdoor gyms in the city, the Municipal Secretariat of Sports and Leisure (*Secretaria Municipal de Esporte e Lazer - SEMEL*), in charge of the

management, was first contacted. Following that, the identification of OFE in the four zones of the city was conducted. Initially, 28 outdoor gyms were identified; however, after applying the inclusion and exclusion criteria, 22 were selected.

The inclusion criteria were: location in a public square, those bearing the same type of equipment and users who were at least 18 years old and with four months of practice in the gym. As exclusion criteria, were the OFE installed in sports/leisure complexes and/or belonging to the program named *Academia da Saúde*. In addition, participants who had cognitive deficits that render it difficult to understand the data collection instrument.

Data were collected by filling out the form directly with the users, in the period from April to October 2015, during four visits in each location, from Monday to Friday, with one-hour duration on average, totaling 4 hours per week, and obeying the dynamics of each territory. Completion of the forms and observations of the sites were carried out by the authors themselves, after calibration by means of a pilot project conducted on OFE, not included in the study.

The research schedule was limited to the beginning of the morning and the end of the afternoon, the period of greater use of the spaces by the population and also for the safety of the interviewers, since most OFE had insufficient artificial lighting and some were installed in areas of greater social vulnerability.

For data collection, the study sought to address the largest number of users during the visitation period, of both sexes and those who had at least four months of continuous practice (time considered sufficient for some results of the practice to be evidenced).

The instrument used in data collection, created by the authors based on other references<sup>(11)</sup>, contained questions on sociodemographic, behavioral and health characteristics, nutritional profile, use of pieces of apparatus and space, distance from residence and company for the physical practices. On the characterization and analysis of the sociodemographic profile, the data collected involved the variables: sex, age, race/color, schooling and the nutritional profile, identified by means of self-reported data regarding weight (kg) and height (m), followed by calculation of the body mass index (BMI).

The data were analyzed in SPSS, version 20.0, with statistical calculation of the variables, in which central tendency and dispersion measures were used, with results displayed in histograms and tables.

The present research was conducted within the ethical standards required by Resolution 466/12 of the National Health Council, and was approved by the Ethics Committee of the State University of Piauí under Approval No. 1 016 774.

## RESULTS

It was verified that the average time of use of the interviewed users was  $22.2 \pm 17.7$  months and the average age of the participants was  $53.8 \pm 12.4$  years.

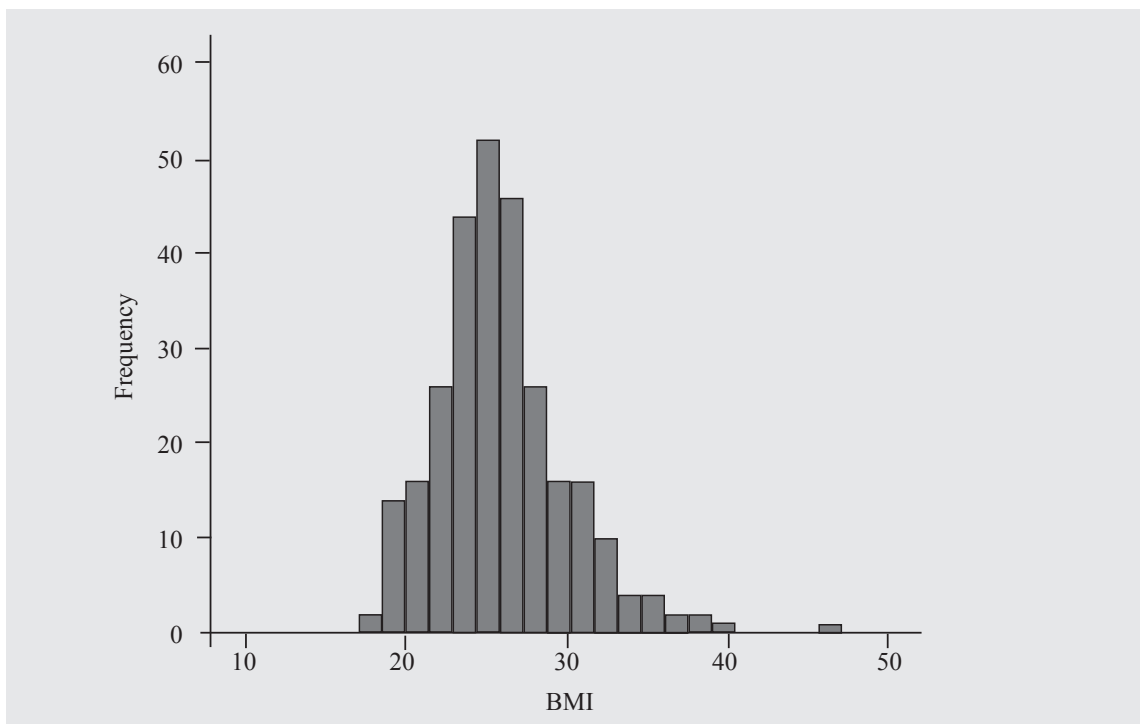
The sociodemographic data are shown in Table I, where the prevalence of women is observed at 78.2% (n=241), brown race/color at 55.5% (n=171) and the schooling level of complete high school at 42.2% (n=130).

Table I - Sociodemographic profile of the users of outdoor fitness equipment (OFE) of Teresina, Piauí, Brazil, 2015.

Variables	n	%
<b>Gender</b>		
Female	241	78.2
Male	67	21.8
<b>Race/Color</b>		
Brown	171	55.5
Black	76	24.7
White	53	17.2
Others	8	2.6
<b>Education</b>		
High school	130	42.2
Primary school	71	23.1
Higher education	52	16.9
Middle school	33	10.7
Non-literate	22	7.1

n=sample number; %=percentage.

Despite total of 308 users, the BMI was calculated only for 282, because some were not able to report weight and/or height. Under such conditions, the results indicate that the mean BMI was  $25.85 \pm 3.981$  kg/m<sup>2</sup>, as shown in Figure 1.



Mean BMI: 25.85 kg/m<sup>2</sup>; Standard Deviation:  $\pm 3.981$  kg/m<sup>2</sup>

Figure 1 - Histogram of BMI distribution for the evaluated users. Teresina, Piauí, Brazil, 2015.

Of the subjects evaluated, 65.6% (n=202) reported having at least one chronic illness diagnosed by the physician, as shown in Table II, which displays behavioral and health variables.

Table II also evidences that the main reason for the users to attend the open-air gyms is related to the issues of obtaining or maintaining health (50.6%, n=156). As to the benefits of the practice, 98.7% (n=304) of the users reported having obtained some benefit, and the release of pain was reported by 68.1% (n=207) as the main one. It is worth mentioning that participants could report up to two benefits.

Regarding the exclusive use of OFE, it was observed that 76.0% (n=234) of the subjects make use of other spaces for PA practice, exercising in a complementary way, such as the walking activity (90.6%, n=212).

Table II - Behavioral and health variables of users of outdoor fitness equipment (OFE) of Teresina, Piauí, 2015.

Variables	n	%
<b>Diseases (n = 202)</b>		
Arterial hypertension	56	27.7
Cholesterolemia	30	14.9
Diabetes Mellitus	25	12.4
Circulatory	16	7.9
Osteo-articular	16	7.9
Spinal	9	4.5
Hormonal/glandular	9	4.5
Depression	8	4.0
Respiratory	8	4.0
Sensory organ	5	2.5
Allergy	4	2.0
Renal	3	1.5
Others	27	13.4
<b>Reason for attending OFE</b>		
Health	156	50.6
Medical recommendation	51	16.6
Weight reduction	40	13.0
Fitness	34	11.0
Others	27	8.7
<b>Obtained benefit</b>		
Yes	304	98.7
No	4	1.2
<b>Main benefits</b>		
Pain release	207	68.1
Mood	106	34.9
Health	82	27.0
Weight control/reduction	82	27.0
Affective/social improvement	64	21.1
Stress reduction	52	17.1
Sleep improvement	45	14.8
Fitness	42	13.8
Quality of physical appearance	34	11.2
Others	58	19.0
<b>The only space for PA practice</b>		
Yes	74	24.0
No	234	76.0
<b>Other PA practice areas (n=234)</b>		
Walking	212	90.6%
Others	22	9.4%

n=sample number, %=percentage. OFE: outdoor fitness equipment; PA: physical activity.

In understanding the results, it is important to analyze the usage pattern of the OFE, especially frequency, duration and proximity to the activity site. Data on the usage pattern can be seen in Table III.

It was found that 63% (n=194) of the users take up to 10 minutes on the way from home to the gym, that 87% (n=268) attend three to five times a week, (80.8%, n=249), and the days of higher attendance are Wednesday (85,1%, n=262) and

Tuesday (73.7%, n=227), respectively. The range of highest frequency of stay in the exercise practice in the OFE is between 20 and 40 minutes (54.2%, n=167).

Table III - Data related to the usage pattern of outdoor fitness equipment (OFE) of Teresina, Piauí, Brazil, 2015.

Variables	n	%
<b>Time it takes to get from house to gym (min)</b>		
0 to 10	194	63.0
10 to 20	74	24.0
20 to 30	21	6.8
> 30	19	6.2
<b>Number of days</b>		
Less than 3	33	10.7
3 a 5	268	87.0
More than 5	7	2.3
<b>Days of the week</b>		
Monday	249	80.8
Tuesday	227	73.7
Wednesday	262	85.1
Thursday	224	72.7
Friday	226	73.4
Saturday	19	6.2
Sunday	0	0.0
<b>Duration of your activity in the OFE (min)</b>		
Less than 20	23	7.5
20 to 40	167	54.2
More than 40	118	38.3

n=sample number; %=percentage; min: minute; OFE: outdoor fitness equipment

Data on usage and professional follow-up at the OFE are shown in Table IV. Of the users, 49.4% (n=152) did not use at least one piece of equipment. Of these participants, the stretcher device is the most cited one (27.3%, n=42).

When asked about the reason for not using some device, the main justification is pain or discomfort (39.2%, n=60) originating from preexisting health conditions, lack of maintenance, or improper use of the equipment.

Among the outdoor gyms included in this research, 70.8% (n=218) had the physical education professional (PEP). Nevertheless, when asked about the most urgent needs, 36.7% (n=113) of the users reported a longer follow-up by these professionals.

Table IV - Use of and professional follow-up at outdoor fitness equipment (OFE) of Teresina, Piauí, 2015.

Variables	n	%
<b>Is there any piece of equipment that you do not use?</b>		
Yes	152	49.4
No	156	50.6
<b>Which pieces of equipment?</b>		
Stretcher	42	27.6
Seated Row	38	25.0
Surf device	23	15.1
Multi-exercise unit	22	14.4
Double diagonal rotation	17	11.1
Vertical rotation	19	12.5
Leg pressure	16	10.5
Horse riding simulator	15	9.8
Ski walker	11	7.2
Walking simulator	10	6.5
Double ladder	10	6.5
<b>Reason for not using some piece of equipment in the OFE (n=153)</b>		
Pain	60	39.2
Do not like it	39	25.5
Non-anatomical	17	11.1
Do not know	16	10.5
Light	14	9.2
Fear	13	8.5
Heavy	10	6.5
Others	10	6.6
<b>Existence of physical education professional in the OFE</b>		
Yes	218	70.8
No	90	29.2
<b>More urgent needs</b>		
Follow-up by physical education professionals	113	36.7
Safety	87	28.2
Maintenance of equipment	50	16.2
Health promotion actions	24	7.8
Others	19	6.2
None of the alternatives	9	2.9
Lighting	6	1.9

n=sample number; %=percentage; OFE: outdoor fitness equipment

## DISCUSSION

Considering the recent creation of spaces for incentive of physical activity, such as the OFE, the present study aimed to characterize the users and the usage pattern of the outdoor gyms in the city of Teresina, Piauí, Brazil. This is a unique research, in which the discussion was developed by observing, comparing and relating to studies of other Brazilian realities.

It should be emphasized that identifying the profile of users of the equipment in the said gyms is seen as extremely important in order to better understand the public reached by the initiative and, thus, contribute to the development of alternative strategies within the project and also to other examples of public policies aimed at health promotion<sup>(12)</sup>.

The mean age observed in the present study characterizes a sample that is diversified in its age range, as observed in another study<sup>(11)</sup>, despite the fact that such gyms are recognized as intended for the elderly.

With regard to sex, similar results can be observed in other studies<sup>(10-13)</sup>. Considering that health care is generally not seen as a male practice and that women seek the health-related services more often, it is necessary to reflect on the effects on man's health and the incentive to the practice of exercise in OFE (outdoor fitness equipment).

Regarding schooling, 42.2% (n=130) of the participants in the current research were graduated from high school. As for the self-reported race/color, the study had a higher number of participants of brown race/color (55.5%), similarly to a study held in the city of Recife, in which 44.8% of the participants reported their ethnicity/color as brown<sup>(14)</sup>.

In the present study, 27.7% (n=56) of the users were hypertensive, 14.9% (n=30) had cholesterolemias and 12.4% (n=25) had diabetes mellitus. Similar results can be observed in a study carried out in the city of Pelotas, in which 45.8% of the individuals reported having arterial hypertension and 10.5% had diabetes mellitus<sup>(11)</sup>. The same results were found in OFE users in the city of Belo Horizonte, Minas Gerais State, Brazil, (41.6% hypertensive, 9.3% diabetics)<sup>(15)</sup> and among users of senior gyms in Joinville, Santa Catarina State, Brazil, (46.3% hypertensive, 22.0%, diabetics)<sup>(16)</sup>.

The Strategic Action Plan for coping with chronic non-communicable diseases in Brazil is in line with the guidelines of the World Health Organization (WHO)<sup>(17)</sup> and addresses physical inactivity as a modifiable factor and with impacts on those pathologies. Some spaces, such as the OFE, can contribute to raise the level of physical activity of its users and minimize health issues.

In the present research, it was observed that the main reason that leads the users to attend the outdoor gyms is related to the issues of obtaining or maintaining health (50.6%, n=156). Other studies<sup>(8,18)</sup>, however, have found reasons such as: losing weight, increasing the muscle tone, improving the mood, and well-being. All these responses configure some benefit achieved and close relationship with health, thus demonstrating the importance of the practice of PA in the places.

Contributing to this goal, it was observed that 63% (n=194) of users take up to 10 minutes to get from their home to the gym. Studies suggest that a shorter walking time to get from the residence to places for the practice of physical activity and social facilities is directly associated with the adoption of healthy life habits and, consequently, with adequate body weight<sup>(19)</sup>.

Moreover, 76% (n=234) of the users investigated in the current research perform complementary activities in other spaces, and walking (90.6%, n=212) is the most practiced one. Other researches<sup>(18,20)</sup> bring similar results, therefore, the data demonstrate great importance of complementing the activity performed at OFE and are necessary to consider the achievement of the benefits.

Given the predominant usage pattern found in the present study, from three to five times a week, a similarity with other studies is observed<sup>(10-11)</sup>, evidencing the importance of this public policy to the community. However, a small number (10.7%, n=33) attended the OFE less than three times a week in the current study, which is an insufficient frequency to reach 150 minutes of light/moderate aerobic physical activity, on most days of the week, as recommended by WHO<sup>(17)</sup>.

As to the duration of the activities, more than half (54.2%, n=167) of the users in the current study remain between 20 and 40 minutes at the OFE. A similar result was observed in a research held in Ceará, Brazil<sup>(12)</sup>, when almost half of the participants used the equipment for up to 30 minutes. The ideal duration and the practice time will depend on each user's goals and are also associated with the intensity of the exercise. Furthermore, the practice of physical exercises is related to the satisfaction of psychological needs (perception of autonomy and relationships in the social sphere). It is therefore perceived that raising awareness of the directed and targeted use of each subject is of fundamental importance<sup>(21)</sup>.

By verifying the existence of unused devices and the justifications for their non-use, the importance of the presence of physical education professionals and the maintenance of the equipment is reinforced, since, when professional guidance is not provided and there is a lack of maintenance, the space is no longer directed at health improvement, even though in 70.8% (n=218) of the gyms these professionals were present, 36.7% (n=113) considered the permanent follow-up by this professional as one of the most urgente needs in this research. This data corroborates other findings<sup>(7)</sup>, in which it was observed that people who practice physical exercises in sports centers had a better perception of the quality of life when compared to those who practice physical exercises in OFE of Maringá (Paraná, Brazil), supposedly demonstrating the importance of structured activity and the guidance of a physical education professional to improve people's quality of life in these places.

The time restraints (from 06:30 a.m. to 07:30 a.m.) and the months (April to October 2015) used to collect data for the present study may not reflect the actual profile and behavior of users who attend OFE at other times and months of the year. Another limitation is the evaluation of the subjective benefits of practice, as in other studies<sup>(11)</sup>, as well as the self-reported technique of weight and height measures.



## CONCLUSION

In the investigated outdoor gyms there was the prevalence of brown female users, with a complete secondary education, who live near the gym and make use of it three to five times a week, remaining in the location for 20 to 40 minutes.

Prevalence of users of the outdoor fitness equipment investigated of the race/color brown, with complete secondary education, who live near the gym, who use it from three to five times a week and that remain of 20 to 40 minutes in the place. Due to the pain sensation and the lack of a physical education professional, some fitness apparatuses are underused. Despite the presence of the said professional in some of the gyms studied, a greater permanence and a follow-up by this professional are placed as the most urgent necessity.

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