

Determinants of physical activity in Chilean children and youths aged 5-17 years

RODRIGO PALMA-QUEZADA¹, NICOLÁS BURGOS BRUNO², NICOLÁS RETAMALES DÍAZ³, PABLO DE VAL-MARTÍN⁴, FRANO GIAKONI-RAMÍREZ⁵, RODRIGO YÁÑEZ-SEPÚLVEDA⁶, DANIEL DUCLOS-BASTÍAS^{7*}

^{1,2,3} Escuela de Industria, Universidad Tecnológica Metropolitana, CHILE.

^{4,5} Facultad de Educación y Ciencias Sociales, Instituto del Deporte y Bienestar, Universidad Andres Bello, CHILE.

⁶ Facultad de Educación y Ciencias Sociales, Universidad Andres Bello, CHILE.

⁷ School of Physical Education, Pontificia Universidad Católica de Valparaíso, CHILE.

⁷ IGOID Research Group, Physical Activity and Sport Science Department, University of Castilla-La Mancha, SPAIN

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Abstract

During the last decades, the abundant study of Physical Activity has reached very uniform conclusions about the benefits of its regular practice. However, the prevalence of sedentary lifestyles continues to increase. For this reason, the present work aims to analyze the different determinants on Physical Activity in children and adolescents. For this we use a database the 2019 National Survey of Physical Activity and Sports habits in population between 5 and 17 years published in Chile. The survey considered data on socioeconomic, geographic and demographic variables, having a scope of the all Chilean national territory, separated by the different regions of our country, and having a sample of 5059 subjects, with a nationwide sampling error of $\pm 1.38\%$. The results were obtained from a binary logistic regression model was used to calculate the weighting of each variable independently and as a whole on the dependent variable. The results of the parsimony model show that the incidence of the independent variables on the PA of young people is better adjusted to the data. Among the results it is highlighted that the geographical variable, reported that living in the Northern and Metropolitan Zone of the country is a risk factor for children who present mostly physical inactivity, so it is possible to conclude that a high level of urbanization that the different geographical zones present, together with the access to different types of mobilization and green areas available, have a high influence on the level of Physical Activity in children and adolescents.

Key Words: physical habits, children, teenagers, decisive factors

Introduction

During the last three decades, the abundant study of physical activity (PA) has reached very uniform conclusions about the benefits of its regular practice. Despite this, the prevalence of sedentary lifestyles continues to increase (Cenarruzabeitia, Hernández & Martínez-González (2003). The data are even more worrying when reviewing the situation in Chile, due to the fact that the latest National Health Survey showed that sedentary lifestyles at the country level have reached a figure of 86.7% (Ministry of Health, 2017). If we also consider that physical inactivity (PI) increases the risk of non-communicable diseases (Tarqui et al., 2017; Rico, 2017) and significantly decreases the health status of people (Bernardes et al., 2013), for what we a serious problem at the national level. Based on these premises, being able to derive a variety of studies on how to reverse the situation, establishing public policies aimed at increasing PA and reinforcing the educational component in this regard seem like basic actions in the short-medium term. All this would lead to benefits in the well-being of the population and their quality of life, achieving a decrease in public spending derived from the health problems associated with PI (Codogno et al., 2022).

One of the consequences derived from PI is obesity, which is a priority public health problem, due on the one hand to the large number of people affected (and which continues to increase) (Cornicelli, 2015). Overweight and obesity are defined as the abnormal or excessive accumulation of fat that can be harmful to health (World Health Organization [WHO], 2018). In addition, it is important to note that this same body reports that globally, cases of obesity have tripled in the last 40 years (WHO, 2018). It is worth noting that within the countries grouped in the Organization for Economic Cooperation and Development, Chile ranks first in overweight and obesity people over 15 years of age (OECD, 2019).

Taking the above as a basis, the present work seeks to determine, through a binary logistic regression econometric model, the existence of a relationship between PA in children between 5 and 17 years of age and socioeconomic, demographic and geographic factors.

Background

PA is defined by the WHO as any body movement produced by skeletal muscles, with consequent energy consumption. This refers to any movement, including during leisure time, to move to certain places and from them adding minutes of PA and eliminating moments of sedentary activities (Forman et al., 2008), or as part of a person's work. PA, both moderate and intense, improves health (Jiménez-Parra et al., 2022; WHO, 2018; Luarte et al., 2016; Martínez de Haro, 2011).

Several studies reflect the beneficial effects provided by the practice of physical-sports exercise in the physical, physiological and, especially in the psychological sphere (Jakovcevic et al., 2016; Alfermann & Stoll, 2000); PA has a directly proportional relationship with physical and appearance aspects, which are reflected as influential factors in self-esteem, which improves mental health and can lead to a decrease in some degree of depression (Duclos et al., 2022; Cervelló, Moreno & Moreno, 2008).

For children and adolescents between 5 and 17 years of age, at least 60 minutes of moderate to intense physical activities (mainly aerobic) are recommended throughout the week, along with incorporating intense aerobic activities, as well as those that strengthen muscles and bones, at least three days a week. In addition, time spent in sedentary activities, mainly leisure time spent in front of a screen, should be limited (Esparza-Varas et al., 2022; WHO, 2018).

Overweight and obesity is currently considered a pandemic and is the fifth leading risk factor for death in the world, with an estimated 2,8 million adults worldwide dying each year as a result of these disorders (Cascales & Calvo, 2014). These figures are worrying considering the explosive growth of this health problem worldwide, since being overweight or obese increases the probability of having cardiovascular diseases, type II diabetes, musculoskeletal disorders, some types of cancer, among other serious diseases (Rodríguez-Rodríguez et al., 2011).

Overweight and obesity are due among other factors to the intake of food with a positive energy balance, in which the individual overfeeds and subsequently does not compensate this energy intake, thus accumulating unused energy in the form of fat in the body mainly as adipose tissue (Taille et al., 2020; Chiquete & Tolosa, 2013).

This overeating is due to a disorder in people's metabolism that generates the sensation of appetite when really the body does not need additional energy to function properly. Formerly it was considered that the sensation of appetite was due to low blood glucose and/or lipid levels, but it has been observed that this process is more complex than it seems, including factors such as stress and psychological and social preconditions that can lead to this disorder (González-Jiménez & Schmidt Río-Valle, 2012).

In the world according to data from the Global Atlas on Childhood Obesity (World Obesity Federation, 2019), it is predicted that the total number of children and adolescents who will live with problems related to overweight and obesity by 2030 will be 254 million in the world, increasing this amount by 96 million approximately in a decade (2020-2030) with a total worldwide cost estimated at INT\$520 billion if global levels of PA do not increase (Santos et al., 2023).

In the case of Chile, it is expected that the total number of overweight or obese children will be 774,647 in 2030, estimating that 24.8% of children between 5 and 9 years of age will have this condition and in young people between 10 and 19 years of age it will be 19.8%. This information is alarming considering that if the prognosis of the World Obesity Federation comes true, at least one out of every five children in Chile will have problems related to overweight and obesity, which would increase by up to 40% their risk of suffering cerebrovascular accidents or cardiovascular diseases in adulthood with respect to children with a normal weight (Friedemann et al., 2012).

Research such as that of Diez-Roux, Link and Northridge (2000) has suggested that economic inequality is associated with mortality due to cardiovascular disease risk factors, taking this as a basis, other research has used the multilevel model to demonstrate that risk factors suggest a contextual effect of income inequality, ergo income inequality, especially in the lower income brackets, tend to show greater inequality in risk factors such as body mass index, hypertension and sedentary lifestyle, which are directly associated with cardiovascular disease (Diez-Roux, Link & Northridge, 2000).

More recent research, using a multilevel model, has identified a relationship between income inequality and participation in PA and strengthening exercises in the previous month, also indicating that there is a relationship between income inequality and the risk of obesity and heart attack (Widyastari et al., 2022; Horino et al., 2020; Pabayo et al., 2018; Kim Wang & Arcan, 2018).

Psychosocial factors can influence people's sports practices, notable are article such as the one by Macías and Moya (2002) who have studied psychosocial factors that can influence sports practices and that contribute to explain the fact that young women perform less sports activity than young men, this article conducts an investigation based on the Achievement Choice Model applied to the sports context (Eccles & Harold, 1991), and also identifies gender identity, athletic identity and self-concept of physical ability as the main variables of study; The results of this study corroborate the differences between genders both in sports practices and in the rest of the variables already mentioned, although it should be noted that these differences are not very large in absolute terms (Macías & Moya, 2002); although this study shows that the gender variable does

not make a great difference in physical activity, it is considered that this variable can show a greater incidence due to the model to be used and the age range of the participants in the study applied.

In 1997, a study was carried out in which, through the Chi-Square Test, it was observed that there are tendencies towards greater development of moderate and intense PA by children belonging to higher income socioeconomic levels in Spain (De Frenne et al., 1997). For the Chilean reality, considering that for the year 2020, according to National Socioeconomic Characterization Survey data, the decile of people with the highest income concentrates 35.2% versus 1.3% of the decile of people with the lowest income, it is pertinent to include variables related to socioeconomic level within the possible incidences on the level of PA in children.

Returning to the work of De Frenne et al. (1997), television was considered as the main factor causing an increase in children's sedentary lifestyle, with an average of 2-3 hours of viewing per day (Esparza-Varas et al., 2022). Considering the technological advances of the last two decades, including the creation and incorporation of smartphones, tablets and social networks, these variables should be added to the analysis of leisure and sedentary lifestyles in young people. It has been observed that, of the various sedentary behaviors in children, there is a strong relationship with family support, socioeconomic level, gender and even time spent with screen and technological devices (Esparza-Varas et al., 2022; Vasques et al., 2012).

Thanks to the study conducted by Aibar (2013), it can be highlighted that the practice of PA is insufficient in adolescence, which is considered a key period in the construction of habits, this leads to one of the main problems worldwide, largely due to the technological progress of western society, in addition to the excessive practice of certain sedentary behaviors, which can have a negative impact on the health of adolescents. Through the socio-ecological model (Bronfenbrenner, 1979), the factors influencing human behaviors are theoretically grouped together. The socio-ecological model affirms that the physical environment can affect the practice of PA through factors such as weather conditions, while the self-determination theory (Ryan & Deci, 2000) sustains the existence of an effect on PA of certain socio-psychological factors such as the type of motivation, the degree of satisfaction of basic psychological needs or the support received by agents of the close environment such as parents (Shulruf et al., 2022). In this thesis we can identify a cross-cultural research of a sample of adolescents from Spain and France, where PA was measured objectively by accelerometry and subjectively through different questionnaires, as well as sedentary behaviors and different factors; It is shown that the practice of certain sedentary behaviors seems excessive in the population, analyzing both study groups (more than two hours of sedentary behavior in front of the screen). Moreover, some sedentary behaviors seem to be significantly more frequent in Spain (study), while others are more frequent in France (video games and cell phone for communication). Similarly, sedentary behaviors tend to differ according to gender, with the use of video games and the use of cell phones to play being more common in young men, while study time, computer use and the use of cell phones to communicate are more common in young women. Considering the analysis carried out using the socio-ecological model, it can be affirmed that warmer temperatures and lower precipitation promote higher levels of PA in both countries.

The self-determination theory from its conceptual approach also shows more self-determined forms of motivation, higher levels of satisfaction of basic psychological needs and greater parental support that favor the practice of physical activity. As for cultural differences, the influences of the relationship of autonomy on PA are subjective, such as the influence of the father on the perception of competence and the relationship with others (Aibar, 2013).

It is due to this work that the usefulness of variables such as geographic area, which is directly related to the varied climate of Chile, access to different technologies, culture and parental influence is considered for the study of the incidence of these in PA in childrens and adolescents.

Material & methods

The data and variables were obtained from the National Survey of Physical Activity and Sports Habits in the population between 5 and 17 years, commissioned by the Ministry of Sports of Chile published in November 2019; where the population is composed of all the participants of the survey, of both sexes and belonging to all socioeconomic levels throughout the country, divided into quintiles (E, D, C3, C2, ABC1), official methodology used for the classification of chilean household income counting urban and rural sectors. The universe of this survey is considered according to the 2017 population census, having a total universe of people between 5 and 17 years old of 3,093,009, of which 51.1% are male and 48.9% female, while, 88.1% corresponds to population residing in urban areas, while 11.9% to population does so in rural areas. The sample size took into consideration the minimum requirements of the technical bases, with the purpose of regional representation, a size per region was defined, where the maximum variance ($p = 0.5$), a confidence level of 95% and a sampling error of $\pm 5.5\%$ were used, the size per region ranges between 313 and 317 persons representative of the same number of households where the national sample was 5,059 subjects, representing a sampling error at national level of $\pm 1.38\%$.

For the statistical analysis of the information, the data were coded and tabulated in a matrix of the SPSS software version 25, with the purpose of establishing the levels of significance and the relevance they have on the PA of young people between 5 and 17 years of age.

For the purposes of this study, binary logistic regression will be used as the econometric model (Cox, 1970), considering that the dependent variable is discrete, it undergoes a modification to adapt it to the model in question, transforming the measurement values from categorical to dichotomous, since the objective of this study is to establish whether or not they engage in PA. The independent variables considered and used in the model can be divided into the following categories:

Socioeconomic variables

For the purposes of this study, we selected as socio-demographic variables the level of studies and occupation of the head of household, type of educational establishment attended by the child, in addition to a series of variables based on the belongings of the young people, such as computer, car in private home, internet and domestic service.

Demographic variables

The subjects in the sample were categorized according to their gender: male or female, whether they belong to or are descendants of a native people, whether they like physical education classes and age (the survey considered the population between 5 and 17 years of age), however, in order to meet the objectives of the study, the sample was classified into three age ranges: 5-9 years (1), 10-12 years (2) and 13-17 years (3).

Geographic Variables

In relation to the territorial distribution of the sample, the variable that includes the region of residence of the subjects was selected. In this case, the 16 regions that territorially organize the country were considered, which were grouped into 4 categories: North, Central, South and Metropolitan Zone, based on the criteria of the National Institute of Statistics. Additionally, it was considered whether the commune of residence corresponded to urban or rural.

Table 1. Distribution of the regions of residence of the sample by zone category.

Northern	Center	South	Metropolitan
Arica and Parinacota	Valparaíso	La Araucanía	Metropolitan of Santiago
Tarapacá	O'Higgins	Los Ríos	
Antofagasta	Maule	Los Lagos	
Atacama	Ñuble	Aysén	
Coquimbo	Biobío	Magallanes	

Source: Own elaboration.

Based on the transformation of the dependent variable to dichotomous, a model is constructed, which uses the Binary Logistic Regression (BLR) method; when establishing the model, the different variables that are determined to be of greater relevance were selected intentionally. Initially, the selected variables are analyzed and the most statistically significant ones are chosen to obtain the model summarized by parsimony of the data.

Table 2. Binary Logistic Regression Model, using variables highlighted in the survey

Item	ID	Measure
Performs physical activity	Y_1	0: No 1: Yes
Education of the head of household	X_1	0: No education 1: Completed elementary school 2: High School Complete 3: Complete Higher Technical Education 4: Complete University Education 5: Postgraduate (master's degree, doctorate or equivalent)
Work Head of Household	X_2	0: Does not work / Prefers not to say 1: Occasional and informal minor work 2: Minor trade, unskilled laborer, day laborer, domestic service with contract 3: Skilled laborer, foreman, micro-entrepreneur 4: Middle and lower administrative employee, salesperson, secretary, section manager, specialized technician, independent professional. 5: Middle executive (assistant manager), general manager of a medium or small company, independent career professional 6: Senior executive of a large company, director of a large company, owner-entrepreneur of a medium or large company

Has a computer	X ₃	0: No 1: Yes
Has a car	X ₄	0: No 1: Yes
Has internet connection	X ₅	0: No 1: Yes
Has full-time domestic service	X ₆	0: No 1: Yes
Belongs to Northern Zone	X ₇	0: No 1: Yes
Belongs to Metropolitan Zone	X ₈	0: No 1: Yes
Belongs to Central Zone	X ₉	0: No 1: Yes
Belongs to South Zone	X ₁₀	0: No 1: Yes
Native people	X ₁₁	0: No 1: Yes
Belongs to JUNJI, INTEGRA or municipal educational establishment	X ₁₂	0: No 1: Yes
Belongs to a private subsidized educational establishment or administration corporation	X ₁₃	0: No 1: Yes
Belongs to a Private Paid Educational Establishment	X ₁₄	0: No 1: Yes
Belongs to Urban Sector	X ₁₅	0: No 1: Yes
Female Gender	X ₁₆	0: No 1: Yes
Age Range	X ₁₇	1: Between 5-9 years old 2: Between 10-12 years 3: Between 13-17 years
Taste for PAclasses	X ₁₈	0: No 1: More or less 2: Yes

Source: Own elaboration.

Model:

(1)

$$P = \frac{1}{1 + e^{-(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \dots + \beta_{17} X_{17} + \beta_{18} X_{18})}}$$

Hypothesis:

$$H_0: \beta_1 = \beta_2 = \beta_3 = \dots = \beta_{18} = 0$$

$$H_1: \beta_i \neq 0 \text{ ; for } i = 1, 2, 3, \dots, 18$$

H₀: The independent variables (X₁, X₂, ..., X₁₈) do not significantly influence the performance of PA in children between 5 and 17 years of age (Y₁).

H₁: The independent variables (X₁, X₂, ..., X₁₈) significantly influence the performance of PA in children aged 5 to 17 years (Y₁).

For the global verification of the model in question, different tests are performed, such as:

- Omnibus test, test if the explained variance in a data set is significantly greater than the unexplained variance.
- Nagelkerke's R², used to quantify the correlation effects of the variables.
- Hosmer-Lemeshow goodness of fit, in order to assess the overall model fit.

Results

The analysis of the model was performed with a total of 5,059 cases, where 4,972 had complete information, representing 98.2% of the total observations.

Table 3 below shows the results obtained from the general model of PA by significant variables.

Table 3. General model

General Model	B	SD	Wald	df	p	Exp(B)	95% L.R. for EXP(B)	
							Min	Max
Education of the head of household	.026	.040	.441	1	.507	1.027	.950	1.110
Work Head of Household	-.045	.023	3.809	1	.051	.956	.915	1.000
Has a computer	.114	.078	2.136	1	.144	1.121	.962	1.306
Has a car	.310	.071	18.948	1	.000***	1.363	1.186	1.567
Has internet connection	-.027	.091	.089	1	.766	.973	.814	1.163
Has full-time domestic service	-.015	.111	.018	1	.894	.985	.792	1.225
Belongs to Northern Zone	-.250	.114	4.845	1	.028*	.778	.623	.973
Belongs to Metropolitan Zone	-.443	.095	2.809	1	.000***	.642	.533	.773
Belongs to Central Zone	.193	.097	3.969	1	.046*	1.213	1.003	1.467
Native people	.283	.088	10.491	1	.001**	1.328	1.118	1.576
Belongs to JUNJI, INTEGRA or municipal educational establishment	.083	.100	.682	1	.409	1.086	.892	1.323
Belongs to a private subsidized educational establishment or administration corporation	-.019	.098	.039	1	.844	.981	.809	1.189
Belongs to Urban Sector	-.152	.097	2.426	1	.119	.859	.710	1.040
Female Gender	-.320	.059	28.916	1	.000***	.726	.647	.816
Taste for PA classes	.782	.070	124.538	1	.000***	2.186	1.906	2.508
Age Range	-.266	.037	52.083	1	.000***	.766	.713	.824
Constante	-.920	.230	15.994	1	.000***	.399		

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

Source: Own elaboration.

Table 3 describes the analysis of the model performed on PA and its determinants, in which it is observed that the socioeconomic factors indicate that the possession of assets is not statistically significant, with the exception of the car ($p = .000$), which has a positive impact on physical activity. It is also noteworthy that only the educational level and occupation of the head of household are statistically significant ($p = .05$), indicating that the higher the hierarchy of the position in the occupation held by the head of household, the lower the probability of PA by the child.

For the geographic variables, it is observed that the Northern and Metropolitan Zones have a negative impact on the probability of children being active ($B = -.250$; $B = -.443$), while the Central Zone has a positive impact ($B = .193$). In addition, it is observed that living in an urban sector has a negative relationship ($B = -.152$) with PA versus living in a rural sector ($B =$ no data).

On the other hand, in relation to the demographic variables, according to the data provided in Table 3, it is noted that belonging to or descending from a native people positively affects the performance of PA ($B = .283$), and it is also observed that as the child grows older, the amount of PA performed decreases, presenting a relationship inversely proportional to the variable dependence.

It is also observed that female gender is a risk factor for the dependent variable, which indicates that belonging to the female gender decreases the probability of engaging in PA compared to males.

In relation to the demographic variables that positively affect the PA of young people, we can find their liking for PA classes in their schools ($B = .782$).

In order to obtain more polished results, a simplified model is performed through parsimony of the data, considering only the variables that have a stronger significance ($p < .05$); adding as an exception the occupation of the Head of Household and the Zone (urban or rural) where the respondent lives, due to the closeness of their significance values to the stipulated criterion ($p = .051$; $p = .119$).

Table 4: Parsimony Model

Parsimony Model	B	SD	Wald	df	p	Exp(B)	95% L.R. for EXP(B)	
							Min	Max
Education of the head of household	-.038	.021	3.447	1	.063	.962	.924	1.002
Has a car	.343	.064	28.738	1	.000***	1.409	1.243	1.597
Belongs to Northern Zone	-.234	.113	4.288	1	.038**	.791	.634	.988
Belongs to Metropolitan Zone	-.441	.094	21.959	1	.000***	.643	.535	.774
Belongs to Central Zone	.200	.096	4.312	1	.038**	1.221	1.011	1.474
Native people	.281	.087	10.352	1	.001**	1.324	1.116	1.571
Belongs to Urban Sector	-.159	.096	2.738	1	.098*	.853	.707	1.030
Female Gender	-.320	.059	29.070	1	.000***	.726	.646	.816
Taste for PA classes	.781	.070	124.536	1	.000***	2.184	1.904	2.505
Age Range	-.260	.036	51.304	1	.000***	.771	.718	.828
Constant	-.815	.202	16.265	1	.000***	.443		

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

Source: Own elaboration.

The model summarized through parsimony of the data adjusts in a better way the incidence of the independent variables in the PA of young people, it can be observed that the occupation of the head of household, although it does not meet the significance criterion, maintains its tendency to be a risk factor for the dependent variable.

For the zone of residence of the respondent, according to the results presented in Table 4, living in the Northern and Metropolitan Zone of the country is a risk factor for children who present mostly physical inactivity, unlike the Central Zone which presents a positive tendency to perform physical activity; also add that, for people living in the Urban Zone, the probability of performing PA has a negative tendency.

It is noteworthy that for people who are or have relatives of native peoples, the trend is positive, indicating that they have a greater probability of engaging in physical activity, unlike people who do not belong to this category. This could be explained by cultural factors.

Table 5: General Model

General Model	Omnibus Test			Nagelkerke's R^2	Hosmer-Lemeshow's Test
	χ^2	df	p		
Geográfico	93.076	4	.000***	.024	.665
Demográfico	262.038	5	.000***	.068	.001
Socioeconómico	26.999	8	.001**	.007	.000
General	393.311	16	.000***	.101	.07

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

Source: Own elaboration.

To validate the global data obtained through the econometric model, we proceeded to perform tests, unifying the variables into groups (socioeconomic, demographic and geographic) to test the general model and the model with parsimony; the following statistical tests were used: Omnibus Test, Nagelkerke's R^2 and Hosmer-Lemeshow's Test, which are described in Tables 5 and 6.

Table 6: Parsimony Model

Parsimony Model	Omnibus Test			Nagelkerke's R^2	Hosmer-Lemeshow's Test
	χ^2	df	p		
Geográfico	93,076	4	0,000***	0,024	0,665
Demográfico	262,038	5	0,000***	0,068	0,001
Socioeconómico	20,160	2	0,000***	0,005	0,080
General	388,292	10	0,000***	0,100	0,002

Note: *** $p < .001$

Source: Own elaboration.

Dicussion

From the general econometric model and adjusted through parsimony of the data, it can be observed for the variables related to the geographical area in which the respondents live, that there is a tendency to PI in the Northern and Metropolitan Zone of Chile, this can be explained by the high urbanization of the cities that contemplate a low level of green areas in their design, in line with what was concluded by Sallis et al. (2016) and explained by the information available from the System of Urban Indicators and Standards (SIDEU) of the National Institute of Statistics (NIS, 2021), which sets the standard of compliance of communal green areas per inhabitant is 10m². In the case of the country's municipalities associated to the SIDEU (NIS, 2021), only 15% comply with the standard, and 51% do not even reach 5 m²/inhabitant. In general terms, the northern, metropolitan and southern zones do not meet the minimum m² standard, averaging 4.82%, 6.14% and 9.77% respectively.

In the case of the Metropolitan Region, the communes that meet the requirement are those with higher incomes, and those with parks in their territory (Cerrillos and Recoleta towns), therefore, it is assumed that the rest of the communes of the Metropolitan Region do not meet the standard causing the negative trend of the variable in the model.

Therefore, income inequality has an effect on PA and consequently on the health of the population population (Vargas, Matus & Duclos, 2022; Althoff et al., 2017; Wagstaff & Van Doorslaer, 2000; Lynch, 2000).

Another noteworthy perspective of the results of the model with applied parsimony is the gender disparity, which indicates that the mere fact of belonging to the female gender reduces the probability of performing physical activity, a result similar to that presented by Eccles and Harold (1991), who in their research concluded that there is only 1% variance between both genders for the performance of physical activity. Given these responses, it should be clarified that they may vary due to the study samples and their age, since this research uses only young people between 5 and 17 years old, who are still in the stage of adolescence and, in addition, this research uses data collected in 2019, however, the prevalence of PI in female adolescents over males has been widely documented, as reported in the review work carried out by De Moraes, Guerra and Menezes (2013) and Godoy-Cumillaf et al. (2023).

Conclusion

The objective of this study was to identify the different determinants and their magnitude in the PA of young people between 5 and 17 years old, based on the National Survey of Physical Activity and Sports Habits in the population between 5 and 17 years, a hypothesis is developed from the data analyzed and performing an econometric analysis throughout the study, entering the different independent variables corresponding to socioeconomic, demographic and geographic factors. Thus, it was possible to identify the variables with the greatest impact on the PA of children; where geographical variables, mainly regarding the regions of residence, have a greater weight on the analysis of the study, clearly indicating that the place where a child lives, has a high influence on their physical activity, this goes hand in hand with the urbanization of the different geographical areas, along with access to different types of mobilization and green areas that are available.

In conclusion, it can be projected that future approaches to PA in children should be mainly oriented to the sector where they live, i.e., the amount of green areas per capita and the possibility of using them. As a complement to this idea, this model also shows that the older the age, the less PA young people tend to perform, so that PA promotion programs should be strengthened from an early age, in order to have adults who are more active in PA.

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