Physical Activity in families daily-life of suburban areas – the case of Rio de Mouro, Lisbon Metropolitan Area

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Abstract: Having as case study the parish of Rio de Mouro, a suburb of Lisbon, in this work, we try to verify in what extent the practice of physical activity fits into the daily life of the families. For this, surveys were carried out on resident families whose results show not only the existence of asymmetries in the practice of physical activity due to the socioeconomic characteristics of the population, but also due to the means of transport used in the commuting movements. A more in-depth reading shows that physical activity practice requires a framework that follows the activities of individuals and their families throughout the day (understanding the life cycle and types of families: young people, active with or without dependent children, retirees, among other modalities), so it is often the case that greater practice of physical activity arises associated to the use of the car as a mode of travel.

Keywords: Health determinants; Physical activity practices; Daily life; Means of transportation

Introduction

Lifestyles are one of the major determinants that affect the health of populations. One of the areas linked to it is physical activity practices (Dahlgren e Whitehead, 1993; Warburton et al, 2006; World Health Organization [WHO], 2008), that emphasizes that the lack of practice of physical activity is not only a problem of individuals, but also has social, economic and environmental repercussions (Kohl *et al.*, 2012). Nevertheless, the practice is generally limited to a small part of the population (Miles, 2007). As reasons for this phenomenon are: socioeconomic characteristics of the population, distance and time-consuming in daily commuting movements and the use or not of the own car or public transport (Bauman *et al.*, 2012; Franco, 2017; Franco and Marques da Costa, 2017). The availability of time and the squeeze time are factors that affect the practice of physical activity, depend largely on the mobility and the relation between working and non-working time (Marques da Costa, 2007, Marques da Costa and Louro, 2010).

In this work, we try to verify in what extent the practice of physical activity fits into the daily life of families, while also understanding if the use of private vehicle is a permissive factor in that. For this purpose, it was used one case study, the parish of Rio de Mouro, a suburb of Lisbon Metropolitan Area [LMA]. In order to assess socioeconomic characteristics, lifestyles and habits, physical activity practice, time use patterns and means of transportation preferred surveys were carried out on resident families. Those were later worked, and the results are based on statistical analysis and crossed information retrieved from them.

Theoretical framework

The correlation between physical activity, health and quality of life is strong (Warburton et al, 2006, WHO, 2008). Physical activity is seen as a decisive behavior for the individual's health and functional capacity (WHO, 2007). However, it awakens and promotes behavioral changes in society, therefore is a public health issue, increasing the well-being felt in communities, not just the individual health (WHO, 2011).

Only a small part of the population practices physical activity (Miles, 2007). This is not only related to their socioeconomic characteristics, but also the way the individual moves in his daily life - using his own vehicle or public transport - or the duration or distance of commuting itself (Bauman *et al.*, 2012). The availability of time time squeeze conflicts are a factor in the practice of physical activity. The structures of mobility and the relation between work and nonwork time are rather complex (Marques da Costa, 2007, Marques da Costa and Louro, 2010). The struggle of families against the 24 hours a day is a constant, it is necessary to make time available for paid work and for domestic work and also for family and leisure. It is usually necessary to abdicate of some activity to fit the practice of physical activity in the individuals' daily schedule, which consequently brings repercussions in family everyday life. This has implications for the practice of physical activity, due to the lack of time and framing of everyday activities, these type of activities are relegated to the background, resulting in time squeeze problems (Naegele *et al.*, 2003). These confrontations are even enhanced by the socio-geographic context, that is, the space problems and the mobility and means of transportation problems.

The lack of physical activity practice in today's society is becoming a problem, as it is implicated in a more or less direct way in many causes of death (Pate *et al.*, 2008; Barnes *et al.*, 2012). However, the inexistence of physical activity is not only a problem of individuals, it also has social, economic and environmental repercussions (Kohl et al, 2012). Hence, assessing the population practices and habits in this aspect, has large significance in health planning and in the composition and implementation of policies and programs.

Methodology and study area

The work was developed using statistical analysis of general indicators taken from the INE (national statistics) database and from information obtained through surveys. These surveys were applied to the population living in the parish of Rio de Mouro (in Sintra municipality, LMA), the data obtain referes to a total of 154 respondents. The survey intended to retrieve information about the socioeconomic characteristics, daily time use and physical activity practices. For this it was considered various types of physical activity: open air activities (like running, biking, group sports); gymnasiums; swimming

(pool). Also, with the survey data we created different family typologies that address the sample reality.

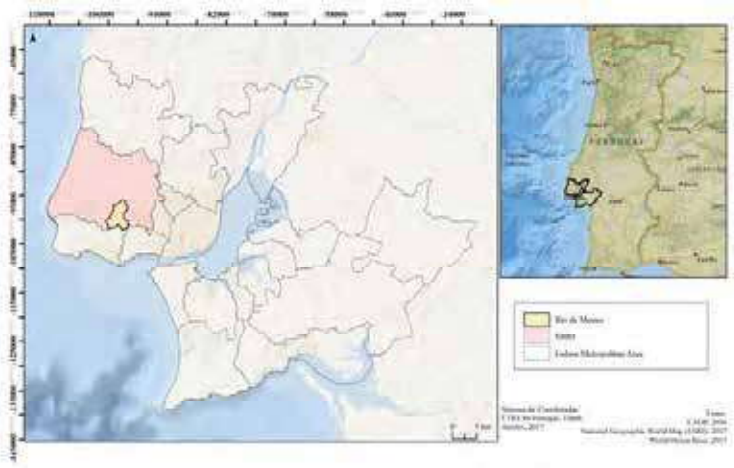

Figure 1. Territorial contextualization of the study area. Source: own execution.

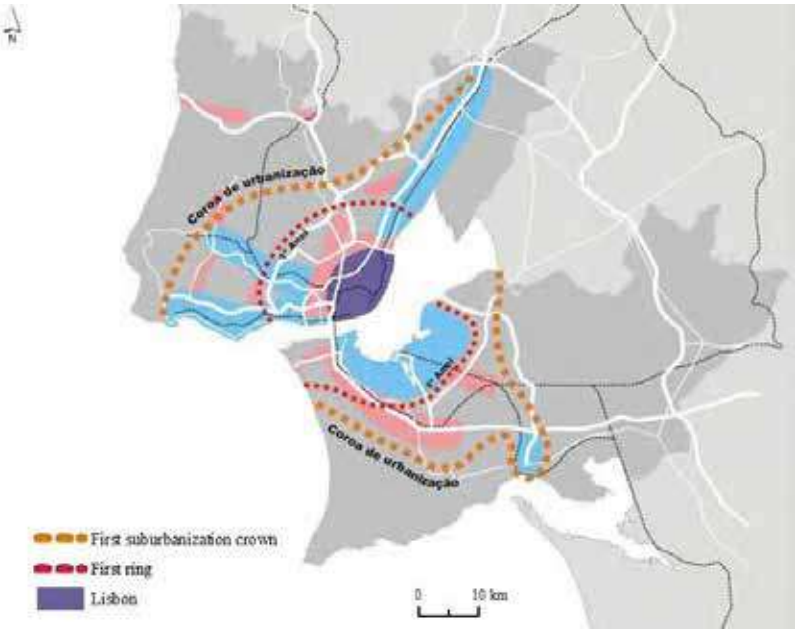

Figure 2. Structuring axes of urban occupation. Source: Marques da Costa et al. (2009).

Rio de Mouro is a parish of Sintra municipality and is situated in the first suburbanization crown of LMA. As it can be observed in Table 1, LMA is a heterogeneous region with some very different realities, even its municipalities possess traits of heterogeneity inside. Sintra ranks in the bottom half of LMA – except in the demographic aspect, as its inhabitants are younger than the average –. The majority of Sintra parishes are dependent of Lisbon municipality (in wich Rio de Moure is included), because a large part of its population works outside the municipality (normally in Lisbon). So, the daily movements are an important part of the individual's daily life. Therefore, Rio de Mouro is a good case study for an evaluation like the one we are doing in a suburban area.

Region	Youth Dependency index	Elderly Dependency index	Population Density (hab/km2)	Medics per 1000 inhabitants	Monthly mean earnings	Transition / completion rate secondary education
LMA	**25.1**	**32.4**	**2020.8**	**4.3**	**1 220.07 €**	**80.97%**
Alcochete	26	24.8	150.2	2.6	2 255.00 €	79.60%
Almada	24.1	36.8	2416.1	4.4	1 085.70 €	79.10%
Amadora	25.1	37.6	7565.4	3	1 324.00 €	78.70%
Barreiro	23.6	43.2	2080.6	3.3	1 088.80 €	81.60%
Cascais	25.2	31.6	2173.6	7.3	1 160.30 €	83.90%
Lisboa	28.8	51.1	5058.1	18.7	1 551.90 €	82.20%
Loures	25.1	34.1	1252.3	3.2	1 148.80 €	82.00%
Mafra	26.1	24.1	285.6	2.1	905.30 €	82.60%
Moita	24.2	31.7	1169.3	1.2	909.40 €	83.30%
Montijo	25.7	25.9	161.5	2.4	974.20 €	80.70%
Odivelas	25.8	32.2	5946	3	913.50 €	76.60%
Oeiras	25.9	39.8	3818.9	9.6	1 698.90 €	82.90%
Palmela	23.9	29.4	138.1	2.7	1 401.30 €	84.40%
Seixal	23.9	29.2	1738.8	2.1	1 134.30 €	78.90%
Sesimbra	24.9	25.5	262	1.8	909.20 €	79.10%
Setúbal	24.9	34.4	505.1	4.9	1 173.70 €	84.10%
Sintra	24.3	25.2	1209.3	2.5	1 166.60 €	78.10%
Vila F. Xira	24.1	25.8	443.8	1.7	1 160.30 €	79.60%

Table 1. Contextualization of LMA and its municipalities, 2017. Source: Instituto Nacional de Estatística [INE].

Results and discussion

The practice of physical activity is, in general, quite reduced, with 38% of the sample saying that practice it and 62% that does not practice it. It is a rather strong prevalence of unhealthy habits that goes along with the rest of the country reality, in fact, according to data from WHO, these values seem to be slightly better than those concerning the whole country.

In the analysis we have found many asymmetries among the resident population regarding physical activity practices. Some of those are related to socioeconomic characteristics and others linked with the means of transportation.

Physical activity is mainly practiced by men. Actually, there is little difference between those who practice and those who do not do it (pending to the last one), this in men. When we observe the women, it is not the same, the values for those that do not practice any physical activity more than double those who do it. So, sex is clearly a differentiating factor in physical activity practice in the territory analysed.

Age is also a preponderant factor for physical activity practice. Looking to these activity habits by age groups, it is possible to notice that the population that falls in the age groups of 6 to 12 years old and the two groups that comprise the ages between 18 and 49 years of age, are those that practice physical

activity the most, however the class from 6 to 12 years and from 18 to 29 years old are the only ones in which it is verified that the practicing individuals exist in greater number than the non-practicing.

This demonstrates the importance of physical activity in school context, helping to create and maintain healthy habits and lifestyles. But not only, the reduced physical activity practiced by the elder groups, mainly the 66 or more years old, emphasize the lack of effective strategies for active aging.

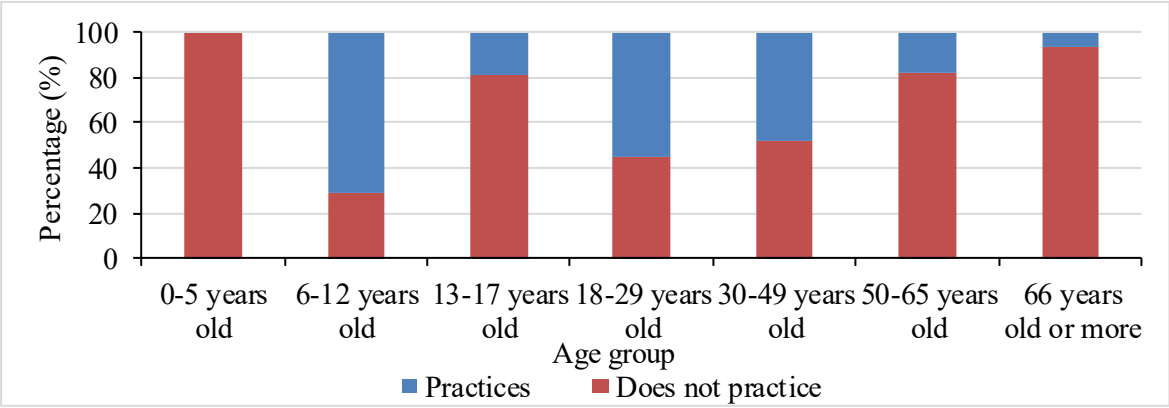

Figure 3. Practitioners of physical activity by age group in the suburban studied area, in percentage. Source: inquiry.

In none of the education levels – ranging from illiteracy to tertiary level – the number of individuals practicing physical activity is higher than the non-practicing ones. Is in the group with a higher educational level that the highest proportion of population practicing is observed, followed by individuals with lower secondary and lower primary. In fact, there is a differentiation between persons with higher level of schooling and the remaining ones, nevertheless, the smaller proportion between practitioners and non-practitioners is found in individuals with the 2nd Cycle completed and not with the illiterate level.

The educational level does not seem to evolve around some major rule, nevertheless, the highest values are detected in the highest educational level.

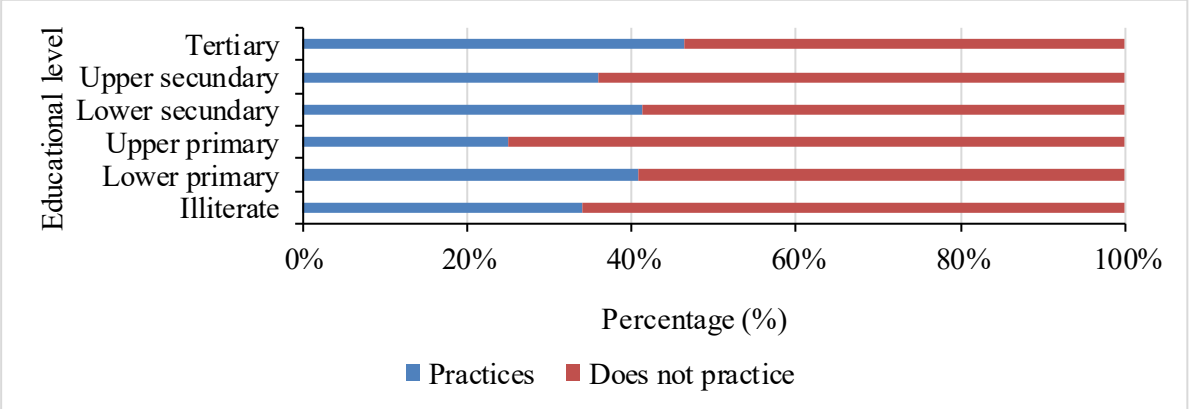

Figure 4. Practitioners of physical activity by educational level, in percentage. Source: inquiry.

The lowest levels of income correspond to those with the least physical activity. The highest incomes – with the exception of the highest echelon – demonstrate about 63% (€ 1000-1500) and 73% (€ 1500-2500) of practicants. This translates into the fact that, to some extent, there is a level of income in which below it there are considerable less (or none) population practicing physical activity.

The means of transportation used by most of the reporting population to travel to the place where they practice their physical activity are the car (especially this one) and the trip on foot, without any competitors. Among the other modes used are the bicycle (mainly used by regular cycling practitioners, both for physical activity and for others) and the train. In terms of transport used by household income levels, a greater propensity to use the car is perceived as incomes increase. In fact, from the income bracket 1000 to 1500 euros, car use becomes predominant in these journeys. Also, in the general context of mobility, from this income level and upwards that the car is most used.

Means of transportation and household income are correlated; bigger incomes translate to higher use of private transport, in contrast, smaller incomes result in higher use of public transportation.

Whilst regarding the relation between the constituency of households and the means of transportation, the families with children under the age of 15 years are the ones who use the car. This can be partly explained due to the almost unavoidable use of this type of transport in order to the individual be able to carry out all the daily tasks of caring for him and his family with a normal working day.

Practically two-fifths of those practicing physical activity use the car in commuting, followed by the combined use of their own vehicle and public transportation and the use of public transport. However, there is a more important information to retain, whereas amongst private vehicle users physical activity practice is doubled when compared to non-practitioners, in public transport users, non-practitioners are superior to practitioners, but when both types are used, practitioners are superior to non-practitioners. It should also be noted that all those who move on foot to and from work are too practitioners of physical activity.

What is verified is the existence of a greater number of practitioners when the individuals use the car, because this mode of transport is (a real) factor in providing greater independence to individuals.

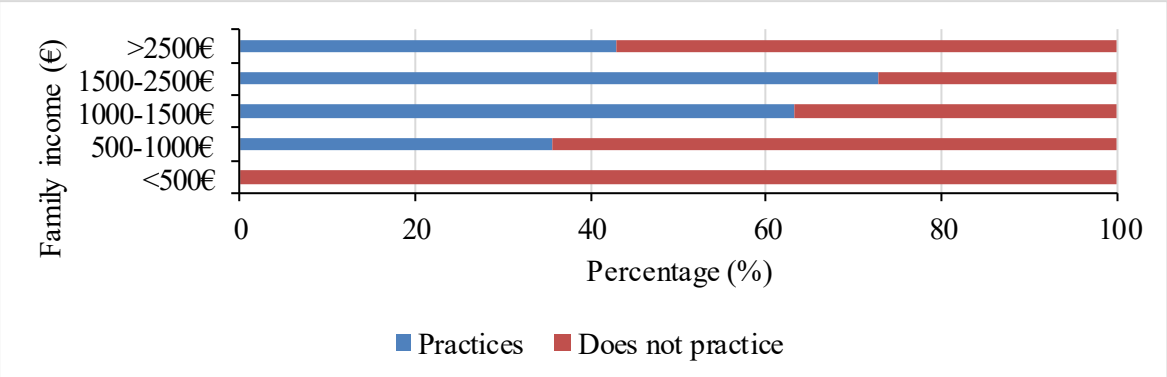

Figure 5. Practitioners of physical activity by family income, in percentage. Source: inquiry.

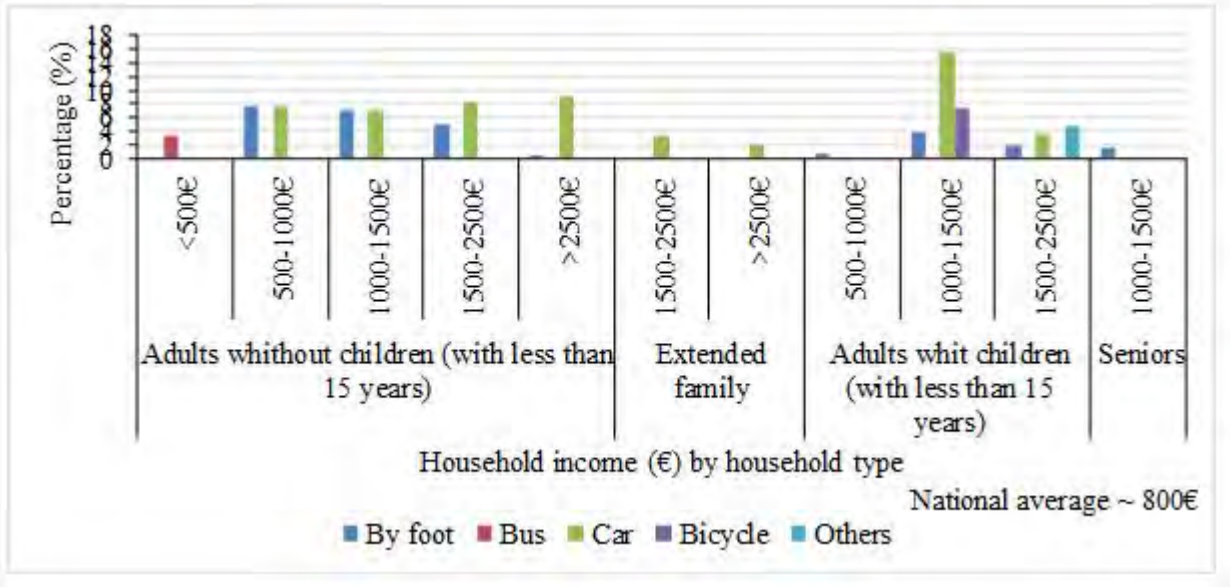

Figure 6. Means of transportation used to the place where the physical activity is practiced by type of aggregate and household income, in percentage of practitioners. Source: inquiry.

Although it is observed that the greater use of automobile in the dayli movements increases the number of practitioners of physical activity, the reality is that individuals who show more regularity in physical activity practice are users of a mixed typology, followed by those who use public transports and lastly the ones who utilize the car. In this situation, it can be seen that the lower frequency is not related to the greater or lesser ease of integration of the physical activity in the day-to-day schedule, since this is already inserted in the daily life of the individual.

However, when analyzing the mode of transportation used in the commuting movements by the most active physical activity groups, a distinction is made between the existence of dependents – that in this study are viewed as the households that have one or more individuals with 15 years or less – and those without such dependents, it is noticeable that the majorities of families with dependents and practitioners of physical activity at least 3 times a week use the car at some point in their dayly life, while the others use more public transport. Between car and mixed transport, those with dependents account for more than 75%, on the other hand, those who do not have dependents register just under 45%.

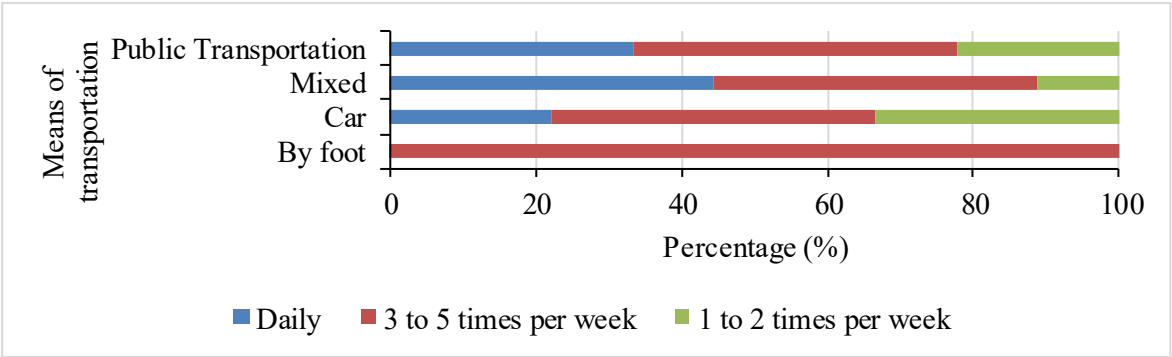

Figure 7. Weekly frequency of practice of at least one physical activity, as a percentage of the means of transportation used in commuting movements. Source: inquiry.

It is imperative to understand if the same happens to individuals who do not engage in any type of physical activity, understanding if they do not do it due to lack of time, or because they use different means of transportation or a simple matter of disinterest in the activity.

It was assessed that most individuals not practicing any type of physical activity work or study outside the parish of Rio de Mouro. Besides, these individuals, in their vast majority, spend large amounts of time outside their households doing their quotidian activities. It is interesting to note that, although there is a wide use of the car itself in commuting, especially in the typology of families with children under 15 years of age, these persons do not engage in any physical activity. It should also be noted that elderly individuals, although not practicing any kind of physical activity, make their daily commutes on foot. In this way it is perceptible that, in most cases, a time squeeze phenomenon is observed, individuals spend much of their day away from home in their daily activities and cannot find the time necessary to practice physical activity . Even with the use of the automobile itself, individuals are unable to integrate extra activities into their family quotidian life.

The possibility of conflicts between the time available for family and leisure activities with that of practicing physical activity is quite evident. There seems to be a relationship between the family routine and the practice of physical activity. However, there is no connection between the greater or lesser practice, that is, the difficulty lies in creating space in the daily life for practicing activity. In fact, the aggregates that practice it most are also those who denote certain family obligations, let alone the existence of minor dependents.

Therefore, the existence of such time-activity conflicts is reduced by the use of private transportation, but not extinct, since many families continue to be unable to put an end to these conflicts. This is a corroboration that the automobile is a weapon in the fight against time. When using the car in daily commute, the individual has access to a panoply of opportunities that can take advantage, something that could not happen and generate conflicts of time squeeze when used only the public transport, however, the vehicle itself is only a weapon in the fight against such conflicts, is not a sure and "miraculous" response.

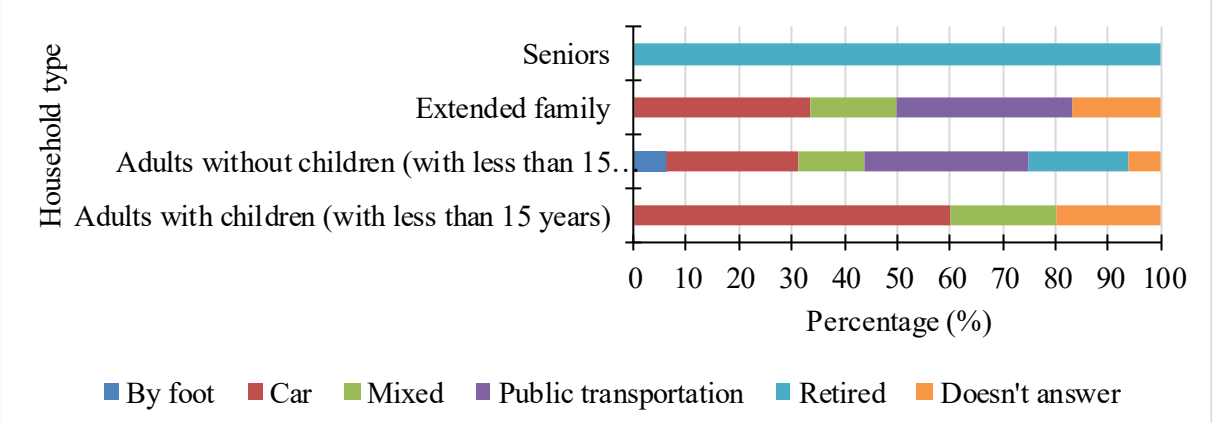

Figure 8. Means of transportation used in the daily life by non-practitioners of physical activity, in percentage. Source: inquiry.

Conclusion

This study allowed to understand the relationship of families with physical activity, considering their socioeconomic characteristics, mobility and the use of time in their daily lives. It was verified that these characteristics play a major role in the physical activity habits, which reiterates the bibliography on the subject. We found that certain aspects, like sex, age and the family budget impact significantly the practices observed.

About the transportation aspect, when only public transport is used the propensity to practice physical activity is lower, however, once the private vehicle element is added to the equation, or when it is the only used, the trend is much higher. This is much more evident in cases which the families have a dependent, here the use of a private vehicle has the ability to enhance the execution of certain activities, in this case physical activity, due to its capacity to coadunate (in a greater extent) the family duties, work requirements and leisure and personal time.

Although not being the one true reason for activity the car arises as an enabler for individuals' practices, even more when the household has one or more dependents.

All in all, there is a close relation between physical activity practice and the family's daily life, because for there to be practice is needed a quotidian activities framework prone to that. Nevertheless, there is no relation between that and frequency of practice.

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