

AGATA BASIŃSKA-ZYCH\*, BERNADETA HOŁDERNA-MIELCAREK\*\*

## Social and Economic Conditioning of Recreational Activity and Migration of Inhabitants of the Poznań Metropolis<sup>1</sup>

**Abstract.** In the global economy based on knowledge it is metropolises that determine the region's developmental potential. These are the regions of high population density and of diverse levels of life quality. Apart from intrapersonal and interpersonal features it is also environmental factors that impact on the likelihood of someone participating in physical recreation. Recognizing characteristic features determining different forms of motor activity, their frequency together with the structure of recreational migrations is crucial in the process of planning and organizing recreational system in cities and metropolises. Therefore, the purpose of the following study is to determine the level of participation in recreational activity of the inhabitants of Poznań metropolis, together with the analysis of selected factors of demographic, social and economic character that have a differentiating effect onto this activity. In the study 1584 inhabitants of Poznań metropolis were examined by 5 professional interviewers between March and June 2016 by means of a standardized questionnaire. The conducted studies proved high diversification of recreational activity of the inhabitants of the Poznań Metropolis and substantiated the directional hypotheses. The obtained results made it possible to identify the groups of inhabitants who participate in recreational activity regularly, seasonally and occasionally. Moreover, the demographic, social and economic variables made it possible to identify a group of inhabitants who are extremely passive or participate in motor recreation very rarely.

**Keywords:** physical recreation, recreational migrations, metropolis, social and economic factors, demographic factors, inhabitants, forms of recreation, place of residence

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\* WSB University in Poznań, Department of Finance and Banking, Socio-Economic Institute, Poland, e-mail: agata.basinska-zych@wsb.poznan.pl, phone: +48 61 655 33 30.

\*\* University School of Physical Education in Poznań, Department of Economics of Tourism and IT, e-mail: holderna-mielcarek@awf.poznan.pl, phone: +48 698 424 739.

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## 1. Introduction

Sustainable development, one of the major purposes of which is the increase in the life quality, is considered to be the contemporary concept of metropolises and city development. Typical characteristics of sustainable cities in terms of physical recreation is creating conditions suitable for undertaking different forms of physical and sports activity and ensuring access to all these forms. It is essential that the factors characterizing forms of physical activity, their frequency and the distance from the place of living together with the preferences and expectations of the inhabitants are recognized.

The purpose of the following paper is to exhibit the influence of social and economic factors onto the physical recreation of the inhabitants of Poznań Metropolis together with recreational migrations. Here, “recreational migration” is considered to be moving from the place of residence to the place in which one can perform a given form of physical activity.

The following hypothesis has been adopted in the study: age, gender, place of residence, education, marital status, children and professional status, together with income, determine the forms and place of recreation and the recreational migrations of the inhabitants of Poznań Metropolis. Current knowledge on the relation between personal factors and physical activity as well as sport and recreation behaviour justifies assuming the following directional hypotheses:

1. Persons of younger age, with higher education, with higher income per household member, having no children, and living in towns and cities are more active during their leisure time, both within their home location and outside of it.

2. Men, younger persons, and inhabitants of towns and cities more frequently prefer different forms of recreation connected to higher level of physical effort (endurance physical activity).

3. Distance of every-day, weekend, and long-term recreational migrations and time spent to get to facilities for physical activity decreases with increasing age, decreasing income per household member, and increasing number of children.

The following areas of study have been analyzed:

- forms and frequency of physical recreation within and away from the place of residence,
- distance from and time necessary to reach the destination of a given physical activity.

The empirical part of the study follows the theoretical part concerning the conditions of undertaking physical activity in cities.

## **2. Conditioning of recreational activity in metropolises**

In the global economy based on knowledge it is metropolises that determine the developmental potential of the given region. They accumulate economic activity in terms of production and services [Jankowska 2015: 176]. The notion of metropolis still waits for its legal and statistical definition. It is commonly acknowledged that the term refers to a city with a population of at least one million inhabitants. In the case of regional metropolises, the population threshold is usually lowered to 500 000. In addition to the quantitative criterion, morphological and functional features are also taken into account. Another term which is quite often used interchangeably, however, erroneously, with the term metropolis is agglomeration. The morphological structure of an agglomeration must comprise three mutually complementary areas: in the city core; the suburbs, and the suburban zone [Smętkowski, Jałowiecki & Gorzelak 2009: 37-38]. It needs to be stressed that spatial and demographic development of an agglomeration is not sufficient for its transformation into a metropolitan area. The basic feature of an agglomeration is joining urban areas, while that of a metropolis is functional integration and external metropolitan functions [Markowski & Marszał 2006: 14]. The concomitance of numerous metropolitan functions together with their synergy and impact is indispensable for the large city to be considered a metropolis of a given rank [Gaczek 2013: 26]. At the same time, they are places where not only technological innovations, but new cultural patterns, lifestyles and values are initiated [Hall & Pain 2006; Castells 1998; Taylor 2003: 1-14].

In the second half of the 20<sup>th</sup> century dynamic development together with globalization processes brought about significant changes in the urban landscape. Inhabitants began to move away from the city centers to the suburbs in search for more comfortable living conditions and lower prices. Other urban functions followed the movement – the same happened to trade, services, education, culture and sport. Polish cities entered the phase of urban sprawl, that is suburbanization, which is the creation of an actively functioning ring around the city, on its outskirts. Suburbs are the place of extensive money exchange and social activity, while the centers pauperize as their offer for inhabitants keeps shrinking. Hypermarkets, often being parts of shopping malls, where one can find also gyms and multiplexes take over the functions of city centers. However, it has been noticed that large distances between the place of work, residence and services together with the necessity of using a car do not have a favorable effect onto building social relations, sustainable city development and the health of its inhabitants. Restoring the basic function of city centers has been postulated for years (especially in the countries of the Western Europe) [Kostrzewska 2013: 1-6]. New multi-func-

tional spaces, full of life at different times, changing their character and their users depending on the time of the day or night, especially in the city centers degenerated by suburbanization processes, are being created. Multifunctional buildings containing offices, sports facilities (gyms, swimming pools), restaurants and art galleries are being designed and erected. City centers are becoming congested due to the erection of new housing blocks. Proximity of particular functions and services makes it possible for the inhabitants to give up cars and start using bicycles or simply walk [Kostrzewska 2013: 4-6].

Physically active residents are very visible in urban public spaces, because contemporary forms of physical activities are becoming more and more detached from typical sport facilities. In light of scientific research, participation in a physical activity alone is not sufficient from the point of view of human health needs. What is more important, a significantly increased mortality and incidence of lifestyle diseases caused by lack of physical activity can be observed [Edwards & Tsouros 2008: 15]. There are 5 million deaths worldwide attributable to physical inactivity (Lee et al. 2012: 219-220). Physical activity is a necessary component of a healthy lifestyle and it should be undertaken by a much larger share of the population. Moreover, economic studies show that inactive residents generate high costs for cities [ISCA/CEBR Raport 2015: 6; Davis 2010; *Designed to Move...* 2015]. Financial outlays on friendly, physically activating public space and infrastructure tend to be several times lower than the cost of treating diseases caused by lack of physical activity.

Empirical study results indicate that physical activity and active lifestyle of an individual, including recreational activity, are determined by intrapersonal, interpersonal and environmental factors [Biernat & Tomaszewski 2011: 173-181; Sherwood & Jeffery 2000: 21-44; Lindström et al. 2000: 200; Özdemir 2013: 229; Puciato et al. 2013: 650] (Fig. 1). Intrapersonal factors related to physical activity also in building urban environment include age, sex, socioeconomic status, educational level, marital status, lifestyle factors (e.g., physical inactivity, obesity) (Hinrichs et al. 2015: 258-269; Pang et al. 2005: 1667-1674).

On the other hand, interpersonal factors refer to the influence which the closest people have onto the individual (family, friends, colleagues) understood as support, indifference or rejection of the necessity of undertaking physical activity [Puciato et al. 2013: 650; Chadbury et al. 2016: 104-113]. Social factors refer to social relationships and social support acting as a facilitator or inhibitor for physical activity. Finally, the physical or built environment of the home and neighbourhood environment plays an important role in influencing health behavior [Özdemir 2013: 229]. Environmental factors can be of both physical character (climate, topography, site management, safety, urban density, access to recreational facilities and services within the place of residence) and of social character (influence of people the individual gets in touch with, excluding family and closest friends).

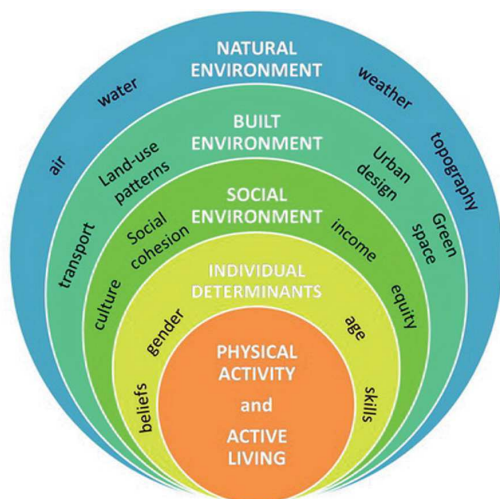


Figure 1. Factors influencing physical activity in communities

Source: adapted from Dahlgren & Whitehead 1991 [Özdemir 2013: 229].

Studies conducted by other researchers [e.g., Sallis et al. 2016: 1-10; Bourdeaudhuij et al. 2005: 886; Biernat & Tomaszewski 2011: 173-181 concerning participation in physical activity and physical recreation in urban areas indicate the existence of multi-direction interrelations between such variables as gender, age, education, professional status, income or place of residence.

For instance, the choice of a particular activity form may depend on different factors, the most important of which are: age, gender, sex, family status (e.g. being a parent of a baby), as well as place of residence and its proximity to sports and recreation facilities. Although these factors may not be relevant to certain people or groups, they impact the way of using public spaces, sports facilities [Kostrzevska 2017: 3] and the participation in motor recreation and physical activity.

### 3. Materials and methods

The spatial scope of the study comprises Poznań Metropolis understood as the city of Poznań, together with 17 municipalities of Poznań District,<sup>2</sup> and municipalities of Oborniki, Śrem, Szamotuły and Skoki, all belonging to the Association

<sup>2</sup> Poznań Districts consists of 17 municipalities surrounding the city of Poznań: Buk, Czerwonak, Dopiewo, Kleszczewo, Komorniki, Kostrzyn Wlkp., Kórnik, Luboń, Mosina, Murowana Goślina, Pobiedziska, Puszczykowo, Rokietnica, Skoki, Stęszew, Suchy Las, Swarzędz, Tarnowo Podgórne.

of Poznań Metropolis (Fig. 2). Poznań Metropolis as the area of research was selected on the basis of several factors. First of all, Poznań Metropolis is one out of seven most urbanized areas in Poland together with four agglomerations (Warsaw, Cracow, Łódź and Wrocław) and two conurbations (Upper Silesia and Tricity). Moreover, Poznań Metropolis, with its 1,023 million inhabitants is one of the major elements of the contemporary settlement system not only within Poland but also in Europe. According to the classification of European Spatial Planning Observation Network – ESPON it is one out of 76 areas of metropolitan character in Europe (Metropolitan European Growth Areas – MEGA) [Metropolia Poznań... 2011: 19].

Poznań Metropolis ranks high in terms of gross domestic product per capita, value of industrial exports, entrepreneurial innovativeness and concentration of business environment companies. Poznań is a leading center of commerce, science, education, culture and specialized social services. Numerous objects of cultural heritage can be found within the boundaries of the city of Poznań and Poznań Municipality. It is also unique in terms of the neighboring areas of Wielkopolski National Park, Zielonka Forest Landscape Park, the Warta River and numerous recreational areas. The agglomeration is also unique with regard to the individual path of bottom-up management integration and cooperation of public institutions [Metropolia Poznań... 2011: 28].

Moreover, when compared with other agglomerations such as Tricity, Warsaw or Cracow, Poznań is not a typical tourist destination. However, intensive tourist development of not only the city itself, but also adjacent areas has been observed in recent years. Additionally, according to the data provided by Poznań Tourism Barometer [PLOT 2015: 3] the structure of touristic offer of Poznań has strengthened in two dimensions – in terms of cultural tourism and in terms of creating a joint offer together with the adjacent areas, which strengthens the area's metropolitan character.

An own survey questionnaire prepared by the team of researchers was used in the process of gathering the data. The questionnaire consisted of 29 questions, most of which were of a closed type, with an extensive metrics part. They mainly concerned physical<sup>3</sup> and recreational activity of the inhabitants of Poznań Metropolis, their recreational migrations and conditioning of undertaking this type of activity. The survey was conducted between March and June 2016. The sample of 1584 individuals was interviewed by 5 trained interviewers. The survey was conducted in all 22 municipalities of Poznań Metropolis on various weekdays, at different times, in front of sports facilities and other public recreational places,

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<sup>3</sup> The short Polish version of the International Physical Activity Questionnaire (IPAQ) was used in the first part of the questionnaire. Both versions (short and long) were prepared according to the recommendations of the IPAQ Scientific Committee by Stupnicki & Biernat [2007: 47-54].





Figure 2. Poznań Metropolis – study area

Source: own work.

such as hiking trails, parks or playgrounds. Respondents were selected proportionally as the research sample corresponds with the population of Poznań Metropolis in terms of the number of inhabitants, their gender and age. 13% of the sample were people with disabilities. The number of questionnaires was established on the basis of the confidence level 95% ( $\alpha = 0.05$ ) with the maximum permissible error of 0.005. The data from Statistical Office in Poznań concerning the population of 31.12.2015 were used while determining the size and the structure of the research sample with regard to gender and age in particular municipalities [<http://poznan.stat.gov.pl>]

SPSS software was used for data analysis. For quantitative variables significance analysis of mean values was used on the basis of the Student's t-test and, for qualitative variables – difference significance for column proportions was analyzed by means of Z tests. While analyzing quantitative data in order to indicate difference significance with the division into more than two groups, analysis of variance ANOVA was used, and for multiple comparisons NIR test was applied. The obtained results are based on two-sided tests with the significance level of  $p < 0.05$ .

## 4. Study results

### 4.1. Profile of respondents

Study sample comprised 1584 inhabitants of Poznań Metropolis, most of whom (51%) were females. Social and demographic profile of respondents is displayed in Table 1. The respondents lived in 22 municipalities being the part of Poznań Metropolis and 75% of them lived in cities. Most respondents were at the age of 50-64, 27-36 or 37-49. The smallest segments of the population sample were respondents at the age of 18-26 who accounted for 12% of the study sample and those over 65 years of age (18%).

Most respondents had either secondary – 40% or higher education – 32%, and one out of five respondents had vocational or primary education (2%). Almost 65% of the examined inhabitants of Poznań agglomeration declared having at least one child and 35% were childless. Among those who declared having children 31% had 1 child and 31% – 2 or 3 children.

One out of three respondents declared average net income per family member within 2001-3001 PLN, and 31% – within 1001-2000 PLN (Table 1). The smallest segment of the examined population were those with the net income below 1000 PLN per family member (7%) and over 3000 PLN (9%). The majority of the examined inhabitants were workers of the private sector (34%), pensioners (22%) and the workers of the public sector (16%). Only one out of ten



Table 1. Social and demographic profile of respondents

Variable		<i>n</i>	%
Gender	female	817	51
	male	756	48
	no data	11	1
Age	18-26	199	12
	27-36	372	23
	37-49	343	22
	50-64	379	24
	65+	280	18
	no data	11	1
Education	primary	40	2
	lower secondary	2	0
	vocational	342	22
	secondary	631	40
	higher	513	32
	no data	56	4
Professional status	worker of a public sector	249	16
	worker of a private sector	547	34
	worker of non-governmental sector	10	1
	private entrepreneur	125	8
	farmer	38	2
	farmer	352	22
	pensioner	56	4
	unemployed	139	9
	student	40	2
	other, professionally inactive	37	2
	no data	0	0
Marital status	married	1017	64
	cohabitation	152	10
	single	401	25
	no data	14	1
Children	no children	561	35
	1 child	495	31
	2-3 children	482	31
	4 and more children	30	2
	no data	16	1
Place of residence	city	1192	75
	country	377	24
	no data	15	1
Net income per family member	below 1000 PLN	108	7
	1001-2000 PLN	488	31
	2001-3000 PLN	519	33
	over 3000 PLN	147	9
	no data	322	20

Source: own work on the basis of study results ( $N = 1584$ ).

respondents was a student, 8% were private entrepreneurs, 4% – unemployed, 2% – farmers and others professionally inactive, and 1% – workers of the non-governmental sector.

#### **4.2. Forms and frequency of recreational activities undertaken by the inhabitants of Poznań Metropolis in and away from the place of residence**

The study results indicate that 56.5% of respondents declared their participation in various forms of recreational activity. The three most commonly undertaken in the place of residence forms of recreational activities were: 1) hiking/walking, which were undertaken by 53 out of 100 respondents, 2) cycling, undertaken by 38 out of 100 respondents, and 3) swimming, preferred by 29 out of 100 respondents. Activities undertaken in the place of residence by at least 10 out of 100 respondents were: fitness (14 out of 100), running/jogging (14 out of 100), other activities (10 out of 100), and nordic walking (10 out of 100). The analysis of personal variables made it possible to conclude that gender differentiates<sup>4</sup> the two most commonly undertaken in the place of residence activities. One can also notice gender differences while taking a close look at other mentioned motor activities. Women, on average, most commonly participate in: hiking/walking, swimming, fitness classes, running, nordic walking, aerobics, roller-blading. Men, on the other hand, most commonly participate in: cycling, fishing, tennis and other activities [Basińska-Zych & Hołderna-Mielcarek: 2017: 54].

Moreover, demographic variables, such as age and the place of residence, and social and economic variables, such as education, professional status, marital status and the number of children influence the selection of particular forms of recreational activity indicated by the respondents. According to the performed analysis the respondents can be divided into two segments on the basis of their age: the younger and the older ones, both of whom are characterized by a different participation in recreational activity. Younger inhabitants of Poznań metropolis, those at the age below 35, usually get engaged in cycling, go hiking or walking, take part in fitness classes, go running or roller blading. Respondents belonging to the older group, on the other hand, mostly get engaged in hiking or walking, nordic walking or fishing.

Another important variable differentiating the participation in various forms of motor activity undertaken by the inhabitants of Poznań metropolis turned out to be the place of residence (Table 2).

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<sup>4</sup> hiking/walking ( $p < 0.002$ ), cycling ( $p < 0.007$ ).

It can be inferred on the basis of the study results that despite numerous similarities in terms of different forms of physical recreation undertaken in the urban and rural areas, there are some forms which are much more popular among the inhabitants of rural areas, the most popular of which are: fitness (18 out of 100 respondents), fishing (9 out of 100 respondents) and other activity types (14 out of 100 respondents). This differentiation was confirmed statistically. Moreover, inhabitants of urban areas prefer hiking and walking and also roller blading.

It is also the forms of recreation undertaken away from one's place of residence that were analyzed (Table 2). The obtained results indicate that the inhabitants of Poznań metropolis much more frequently undertake recreational activity in their place of residence (98 out of 100 respondents), rather than away from it (47.2 out of 100 respondents). Those who get engaged in recreation away from their place of residence usually choose: 1) hiking/walking (13.1 out of 100 respondents), cycling (11.1 out of 100 respondents) and swimming (8.4 out of 100 respondents). It also needs to be noted that swimming is most often chosen by the inhabitants of rural areas away from the place of residence (Table 2). The variables that mostly differentiate the forms of recreation of the inhabitants of Poznań metropolis away from the place of residence are: age, gender, place of residence, income, marital status and the number of children. Active forms of recreation, such as hiking/walking and cycling, undertaken away from the place of residence are more often chosen by women (17.5 out of 100 respondents; and 12.4 out of 100 respondents respectively) rather than by men (8 out of 100 respondents; and 9.6 out of 100 respondents respectively), by those at the age of 18-26 and over 37, with higher education and the income per family member below 2000 PLN. Inhabitants at the age of over 50, on the other hand, when it comes to the activities undertaken away from their place of residence, most often choose nordic walking and gymnastics. Childless, usually single people or cohabitating couples, prefer participating in motor recreation away from their place of residence when compared to married couples with children.

Also the frequency of undertaking motor recreation, including its particular forms was analyzed. The study results indicate that respondents undertake those activities a few times a month on weekdays (20.3%) or a few times a month at weekends (16%) (Chart 1). Smaller numbers declared participation in recreational activity on a daily basis (11.8%) or every weekend (8%). The frequency of one's participation in motor activity declines with age – almost 75% of inhabitants of Poznań metropolis who are over 65 do not undertake any form of recreational activity. The same is true for every second person over 50 years of age and 40.8% of people over 37. It is the youngest groups of inhabitants, that is those at the age of 18-26 and 27-36 who are the most frequent participants in physical recreation. Only 15.6% of respondents at the age of 18-26 and 27.2% of those at the age of 27-36 did not declare participating in any form of motor recreation.

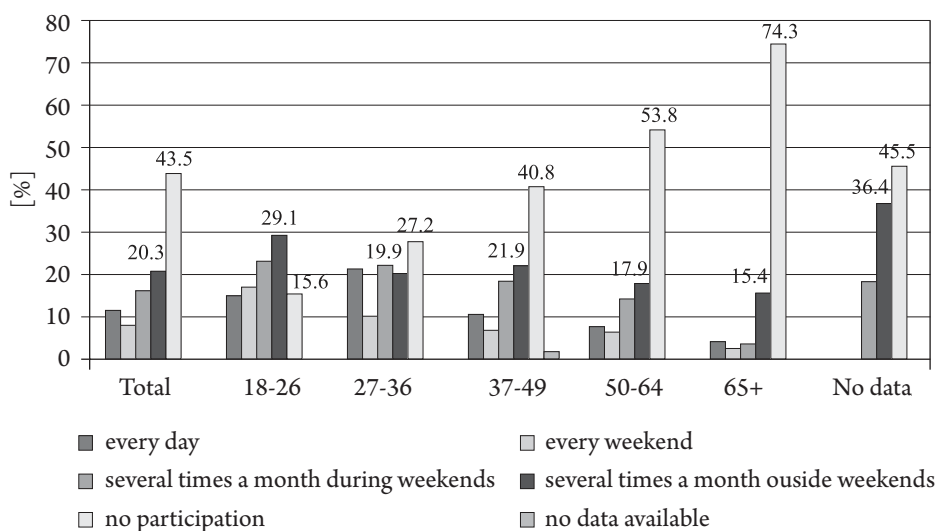
Table 2. Forms of recreational activity of inhabitants of Poznań Metropolis in and away from the place of residence

Form of recreational activity	In place of residence				Away from place of residence			
	total	city	country	no data	total	city	country	no data
	out of 100 respondents C	out of 100 respondents A	out of 100 respondents B	out of 100 respondents	out of 100 respondents D	out of 100 respondents A	out of 100 respondents B	out of 100 respondents
Hiking/walking	52.8	<b>55.4 B</b>	44.9	55.6	13.1	14.2	9.3	22.2
Cycling	37.7	38.2	35.6	44.4	11.1	11.9	8.3	11.1
Tennis	3.7	3.3	5.1	0.0	0.6	0.7	0.0	0.0
Badminton	1.6	1.0	2.8	11.1	1.1	1.3	0.5	0.0
Squash	1.3	1.5	0.5	11.1	0.3	0.3	0.5	0.0
Golf	0.2	0.3	0.0	0.0	0.1	0.1	0.0	0.0
Swimming	29.2	30.9	23.6	33.3	8.4	6.9	<b>13.4 A</b>	0.0
Horse riding	1.9	2.1	1.4	0.0	0.4	0.6	0.0	0.0
Roller-blading	4.7	<b>5.8 B</b>	0.9	11.1	1.0	1.0	0.5	11.1
Skateboarding	1.0	0.3	<b>3.2 A</b>	0.0	0.2	0.1	0.5	0.0
Roller skating	0.7	0.7	0.5	0.0	0.2	0.3	0.0	0.0
Aerobics	7.5	8.1	5.6	11.1	0.6	0.3	1.4	0.0
Fitness	14.4	13.1	18.1	22.2	1.6	1.2	2.8	0.0
Yoga	4.0	4.3	2.8	11.1	.6	.7	0.0	0.0
Gymnastics	7.0	7.3	5.1	33.3	1.2	1.2	0.9	11.1
Dance	5.8	5.8	5.1	22.2	1.9	1.9	1.4	11.1
Running/jogging	13.9	15.2	9.3	22.2	2.3	2.5	1.9	0.0
Nordic walking	10.2	11.2	6.9	11.1	2.1	2.5	.9	0.0
Fishing	7.9	7.8	8.8	0.0	2.7	2.5	3.2	0.0
Hunting	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0
Team sports	5.6	6.0	4.6	0.0	1.3	1.3	0.9	11.1
Extreme sports	0.4	0.4	0.5	0.0	0.1	0.1	0.0	0.0
Winter sports	1.1	1.0	1.4	0.0	1.3	1.6	0.5	0.0
Other activities	10.4	9.0	14.4	22.2	0.7	0.6	0.9	0.0
Do not undertake	0.6	0.1	<b>1.9 A</b>	0.0	<b>47.2 C</b>	43.3	<b>58.3 A</b>	66.7
No data	2.8	1.6	6.0	11.1	24.0	27.2	14.8	11.1

Notes: The results were based on the two-way tests with the level of significance of 0.05. Statistical significance is marked with bold font and capital letters. The tests were adjusted using the Bonferroni's adjustment for all the comparisons of the pairs within each internal sub-table.

Source: own work on the basis of survey results ( $N = 1584$ ).

Chart 1. Frequency of undertaking motor recreation



Source: own work on the basis of survey results ( $N = 1584$ ).

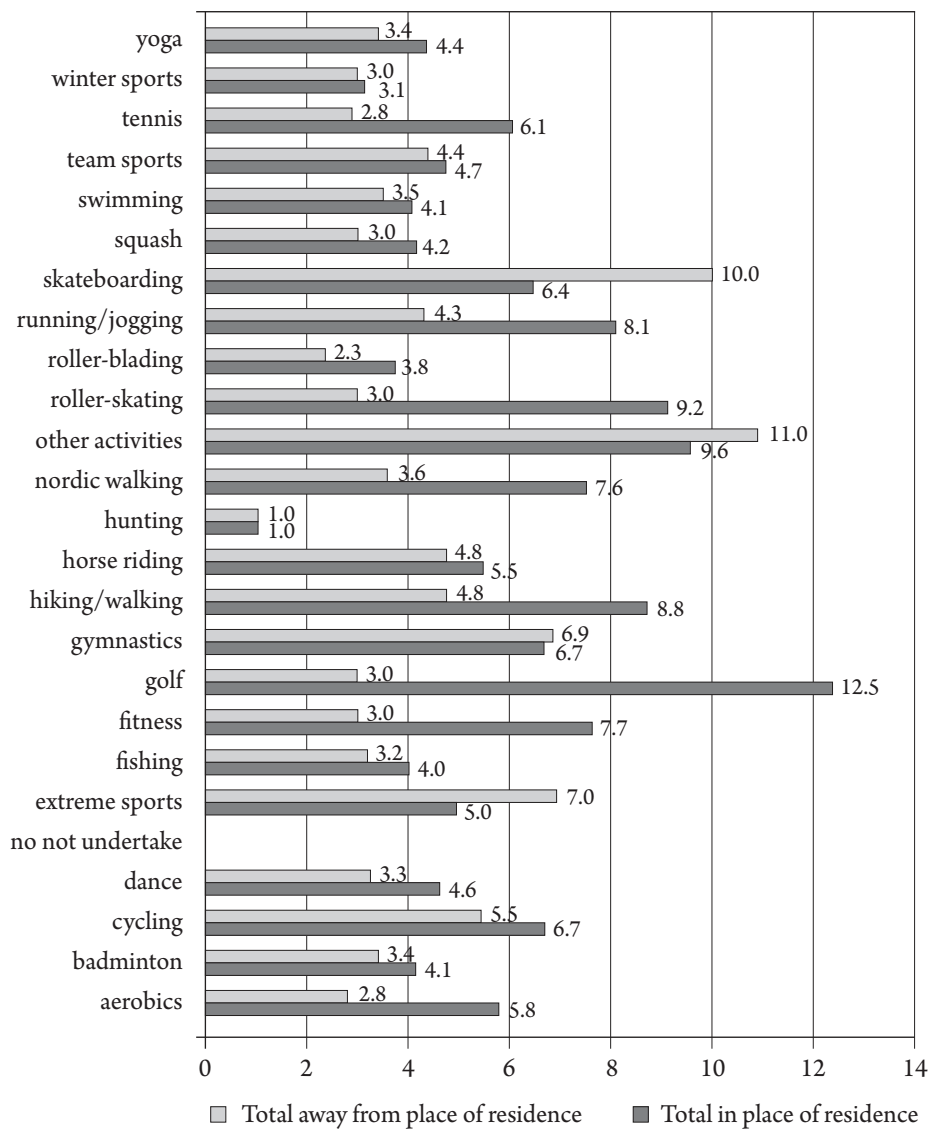
It needs to be noted that people from the age group of 27-36 tend to undertake recreational activity on the most regular basis as 21.2% out of them do that on a daily basis. Statistically significant differences confirm different frequency of engaging in motor recreation of two age segments: the younger one (aged 18-26) and those who are older (over 37).

It is also other social and economic features, such as education, place of residence, professional and marital status, the number of children and income that influence the frequency of undertaking recreational activity. The mentioned variables made it possible to form a social and economic profiles of frequent and infrequent consumers of recreational services in Poznań metropolis. People who undertake motor recreation on the most regular basis (every weekday and weekend) are: inhabitants of Poznań metropolis at the age of 18-36 with higher education, working in the private or non-governmental sectors, private entrepreneurs, students or pupils, single or cohabiting, having no children and with the net income of over 2001 PLN per a family member.

The "infrequent" consumers of recreational services, those who undertake those activities a few times a month on weekdays or at weekends are those living in rural areas of Poznań metropolis, with secondary or higher education, at the age of 18-49, working in the public, private or non-governmental sectors, private entrepreneurs, students or pupils, usually single or cohabiting, with no or up to 2-3 children with the income of over 2001 PLN per a family member.

The group of people who most rarely participate or do not participate at all in any form of physical recreation are people at the age of 37-49 and over 50, with primary, lower secondary or vocational education, living in either urban or rural

Chart 2. Frequency of participating in the preferred forms of motor recreation among the respondents (arithmetic mean of the number of undertaken activities per month)



Source: own work on the basis of survey results ( $N = 1584$ ).



areas, married, with more than 4 children, those who are farmers, unemployed or other professionally inactive with the income below 2000 PLN per a family member.

Particular, declared by the inhabitants of Poznań metropolis forms of recreational activity in and away from the place of residence were also analyzed (Chart 2).

The forms of recreational activity which were most often preferred in the place of residence were: golf (12 times a month), other activities (about 10 times a month), roller skating (about 9 times a month), hiking/walking (about 9 times a month), running/jogging (about 8 times a month), fitness (about 8 times a month) and nordic walking (about 8 times). All that means participating in the mentioned forms of activity about twice a week. Winter sports (3 times a month), roller-blading, fishing (about 4 times a month) and swimming (about 4 times a month) were the least often declared activities undertaken in the place of residence.

The most often undertaken forms of activity realized away from the place of residence are: other activities (11 times a month), skate boarding (10 times a month), extreme sports (7 times a month) and gymnastics (7 times a month). The activities in which the respondents participated the least often were hunting (once a month), roller blading, roller skating, tennis, aerobics, golf, squash – usually at about 3 times a month.

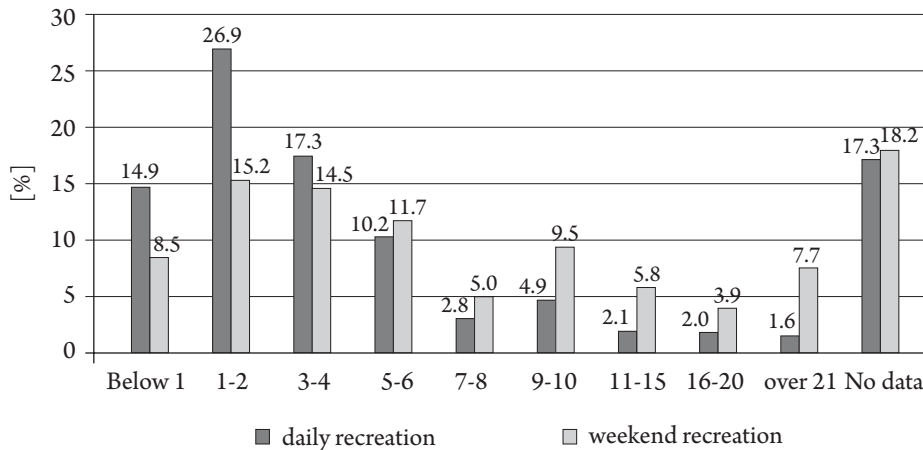
### **4.3 Distance and time related to reaching the place of a particular recreational activity**

Another area of analysis were recreational migrations of the inhabitants of Poznań metropolis. They were asked about the distance (Chart 3) and the time necessary to reach the place of undertaken physical recreation (Table 4).

The obtained results indicate that the inhabitants of Poznań metropolis undertake daily recreation close to their place of residence – within the radius of up to 3 km (59.1%). Almost 27% respondents choose the locations within the radius of up to 2 km from their place of residence. Almost 15% inhabitants prefer the recreational activity very close to their place of residence, that is, within the radius of 1 km (Chart 3).

Physical activity undertaken at weekends by about 60% respondents, on the other hand, is usually performed within the distance of 1 to 10 kilometers from the place of residence. The obtained results confirm the influence of demographic variables, such as age and the place of residence onto the distance between the place of residence and the place where the recreational activity is undertaken. The distance of recreational migrations between those undertaken daily and those

Chart 3. Distance to the place of physical recreation broken into activity types in km



Source: own work on the basis of survey results ( $N = 1584$ ).

undertaken at weekends decreases together with the increase in the age of the respondents.<sup>5</sup> Statistically significant differentiation of the influence of the place of residence onto the distance of undertaken activity was, for daily activity up to 2 km,<sup>6</sup> for recreation undertaken at weekends within the radius of 16-20 km and over 21 km from the place of residence. Moreover, the structure of weekend recreational migrations of the inhabitants of Poznań metropolis further than 21 km from the place of residence is characterized by a significantly higher percentage of the inhabitants of urban areas (7.7%) when compared to the inhabitants of rural areas (1.6%).

Social and economic variables, such as marital status, professional status, the number of children and net income per family member also differentiate the distance within which both daily and weekend recreation is undertaken. The group of inhabitants who participate in daily recreation within the radius of 2 km are married inhabitants (39.1%), pensioners (71.3%), other professionally inactive (64.7%), and workers of the public sector (54.6%). The professional group whose recreational migrations are significantly different from other groups are farmers, 40% of whom participate in daily recreational activity within the radius of 11-15 km and weekend activity within the radius of 9-10 km away from the place of residence. The distance between daily and weekend recreation decreases together with the number of children. Almost 64% of respondents with 4 children prefer

<sup>5</sup> Statistical significance between inhabitants in age 65+ and 18-26 ( $p < 0.000$ ), 27-36 ( $p < 0.001$ ), and 37-49 ( $p < 0.016$ ).

<sup>6</sup> Statistical significance between inhabitants in age 65+ and 18-26 ( $p < 0.000$ ), 27-36 ( $p < 0.001$ ), and 37-49 ( $p < 0.016$ ).

daily recreation within the radius of 2 km, similarly to 56.2% of respondents with 2-3 children and 30.5% of childless inhabitants. The distance of daily and weekend recreation decreases also together with the fall in the inhabitants' income, however, these differences are not statistically significant. The same is true for another social variable, gender.

Long-term recreation is characterized by a different structure of migration of the inhabitants of Poznań metropolis. Recreational trips taken by inhabitants of Poznań metropolis are usually to the locations further from their domicile when compared to daily and weekend recreation. Almost 40% of the respondents declared long-term recreation more than 60 km away from their domicile (Table 3). The results of the conducted analyses confirm statistical significance of the influence of such variables as age, education, place of residence, marital and professional status and net income per family member onto the differentiation in terms of the distance of long-term recreation from the place of residence. One should note that the inhabitants who declare recreational migrations further than 60km from their place of residence are people at the age of 27-36 (46%) and 56-60

Table 3. Net income per family member versus the distance of long-term recreation from the respondents' domicile

Distance in km	Total	Below 1000 PLN (A)	1001-2000 PLN (B)	2001-3000 PLN (C)	Over 3000 PLN (D)	No data
below 5	3.6	13.3	4.1	3.2	8.2	0.0
5-10	4.9	0.0	3.1	9.5	6.1	1.0
11-15	2.8	0.0	1.0	4.0	8.2	1.0
16-20	3.1	6.7	4.1	4.0	0.0	2.0
21-30	2.6	<b>20.0 BC<sup>1</sup></b>	2.1	3.2	2.0	0.0
31-40	2.6	6.7	3.1	2.4	4.1	1.0
41-50	3.4	0.0	4.1	4.0	4.1	2.0
51-60	3.4	6.7	1.0	3.2	<b>12.2 B<sup>2</sup></b>	1.0
over 60	39.8	26.7	53.6	51.6	42.9	12.0
no data	33.9	20.0	23.7	15.1	12.2	80.0

<sup>1</sup> Statistical significance between inhabitants with income 1001-2000 PLN ( $p < 0.010$ ) and with income 2001-3000 PLN ( $p < 0.027$ ).

<sup>2</sup>  $p < 0.027$ .

Notes: The results were based on the two-way tests with the level of significance of 0.05. Statistical significance is marked with bold font and capital letters. The tests were adjusted using the Bonferroni's adjustment for all the comparisons of the pairs within each internal sub-table. While analyzing recreational migrations of the inhabitants of Poznań metropolis one should take into consideration the time criterion. Daily recreation in terms of time is characterized by a different structure when compared to weekend recreation. One should note that the respondents prefer the shortest available time of reaching the place of daily recreation, which is similar as in the case of distance (Table 4).

Source: own work on the basis of survey results ( $N = 1584$ ).

(44.3%) with higher education (47%), living in cities (42,9%), more often other unemployed (70%), private entrepreneurs (54%), farmers (40%) or pensioners (32%), cohabitating (59.2%), with the net income per family member of 1001 PLN (53.6%) and 2001-3000 PLN (51,6%). Moreover, the respondents who declared the income below 1000 PLN per family member more often participated in long-term recreation which was closer to their domicile when compared to the respondents with higher income (Table 3).

Almost every second inhabitant of Poznań metropolis prefers the time of reaching the place of daily recreation of 15 minutes, while with regard to weekend recreation the same time span was declared by only every third respondent on average. The respondents are more willing to devote more time to reaching the place of recreational activity at weekends. 24.1% of respondents declared the time of about 30 minutes and 24.6% – about 45 minutes, respectively for weekend recreation (Table 4). The time of reaching the place of recreation is influenced by statistically significant variables, such as: age, marital status, number of children and the place of residence.

Table 4. Age versus time necessary to reach the place of daily and weekend recreation of respondents

Recreation	Time necessary to reach the place in minutes	Total	18-26 (A)	27-36 (B)	37-49 (C)	50-64 (D)	65+ (E)	No data
Daily recreation	below 15	48.3	46.4	44.6	46.8	48.6	<b>69.4 ABCD</b> <sup>1</sup>	50.0
	about 30	15.3	10.1	17.7	18.7	14.3	12.5	0.0
	about 45	3.6	4.2	5.2	2.5	2.3	2.8	0.0
	about 60	0.8	2.4	0.4	0.0	0.6	1.4	0.0
	over 60	0.1	0.0	0.4	0.0	0.0	0.0	0.0
	no data	32.0	36.9	31.7	32.0	34.3	13.9	50.0
Weekend recreation	below 15	36.1	33.9	30.3	36.5	42.3	<b>50.0 B</b> <sup>2</sup>	0.0
	about 30	24.8	26.8	29.5	21.7	21.1	19.4	33.3
	about 45	6.6	4.2	7.7	7.4	7.4	4.2	0.0
	about 60	3.0	3.0	4.1	1.5	4.6	0.0	0.0
	over 60	0.6	0.0	1.1	0.5	0.6	0.0	0.0
	no data	28.9	32.1	27.3	32.5	24.0	26.4	66.7

<sup>1</sup> Statistical significance between inhabitants in age 65+ and 18-26 ( $p < 0.016$ ), 27-36 ( $p < 0.003$ ), 37-49 ( $p < 0.014$ ), and 50-64 ( $p < 0.041$ ).

<sup>2</sup>  $p < 0.017$ .

Notes: The results were based on the two-way tests with the level of significance of 0.05. Statistical significance is marked with bold font and capital letters. The tests were adjusted using the Bonferroni's adjustment for all the comparisons of the pairs within each internal sub-table.

Source: own work on the basis of survey results ( $N = 1584$ ).

The time in which the respondents reach the place of daily and weekend recreation decreases together with the increase in the respondents' age (Table 4). Almost 70% of respondents at the age of over 65 declared the time of below 15 minutes. Similarly, this time was selected by 50% of senior citizens in the case of weekend recreation. Younger inhabitants of Poznań metropolis are more willing to devote more time in order to reach the place of physical recreation. Almost 19% of respondents at the age of 37-49 and approximately 18% at the age of 27-36 declared the time of about 30 minutes.

Statistically significant differences between the inhabitants of urban and rural areas with reference to the time devoted to reaching the place of weekend recreation of over 60 minutes were observed ( $p < 0.037$ ). The inhabitants of urban areas are more willing to devote more than 60 minutes for their weekend recreational migrations. Moreover, 37.5% of single respondents significantly more often migrate during daily recreation than those inhabitants of Poznań metropolis who cohabit. Almost one out of three inhabitants declaring cohabitation was willing to devote up to 30 minutes to reach the place of daily recreation, while similar time was declared by only 14.5% of single people ( $p < 0.043$ ) and 13.5% of married respondents ( $p < 0.006$ ). Inverse relationship between the time necessary to reach the daily and weekend recreation and the number of children in the family was observed. Almost 62% of inhabitants with 2-3 children devote approximately 15 minutes to migration for daily recreation, similarly as 40% of childless respondents<sup>7</sup>. Higher percentage of childless respondents declared longer time devoted to reaching the place of recreation when compared to those respondents who have children. Statistical analyses did not confirm the influence of gender, professional status and income onto the time devoted to recreational migration among the inhabitants of Poznań metropolis.

## 5. Discussion

Participation in physical recreation is conditioned by numerous interpersonal, intrapersonal and environmental factors [Biernat & Tomaszewski 2013: 173-181; Sherwood & Jeffery 2000: 21-44; Lindström et al. 2000: 200; Özdemir 2013: 229]. The results of the survey conducted in Poznań metropolis exhibit differentiated impact of demographic, social and economic factors onto recreational activity, in particular the specific forms of motor recreation undertaken in and away from the place of residence together with the frequency of recreational activity.

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<sup>7</sup> Daily recreation ( $p < 0.000$ ), weekend recreation ( $p < 0.001$ ); difference between inhabitants with 2-3 children and with 1 child ( $p < 0.0034$ ).

The obtained results indicate that 56.5% of the inhabitants of Poznań metropolis declared participation in recreational activity. While contrasting the obtained results with the nationwide survey conducted by the Polish Central Statistical Office [GUS 2016: 48] it needs to be stressed that the results are quite similar as, on average, 53% of inhabitants of cities with the population of over 500 thousand inhabitants in Poland declared participation in sports or recreational activities in 2016. 46% of Poles, on average, declare recreational activity<sup>8</sup>. The obtained results are lower when compared to the results obtained from the inhabitants of Warsaw, 84% of whom declared undertaking such activity in their free time, although only 43% of them participated in recreational activity on a regular basis [Biernat 2011: 133, 231].

The first of examined demographic variables, that is gender, differentiates only the participation in motor activity, two most often undertaken by the inhabitants of Poznań metropolis motor activities in the place of residence (hiking/walking and cycling) and forms of recreation undertaken away from the place of residence. The examined males (59.1%) participated in recreational activity more often than the examined females (54.5%). It is also the results obtained by the Polish Central Statistical Office [GUS 2017: 48] and GFK Polonia [2015a: 4-12] that confirm this tendency on the national scale – there is a difference between the sports and recreational activity participation between males (48%) and females (45%).

Poles most often undertake the following activities: 1) hiking/walking, 2) cycling, 3) swimming [GUS 2013, 2017]. With respect to the mentioned above activities the examined population of Poznań metropolis does not differ significantly both with reference to the activities undertaken in and away from the place of residence. Female inhabitants of Poznań metropolis prefer the following forms of motor activity: hiking/walking, swimming, fitness, running, nordic walking, aerobics and roller blading. The male inhabitants, on the other hand, prefer cycling, fishing, tennis or other activities.

Furthermore, it is also the place of residence of the inhabitants of Poznań metropolis that differentiates the activities undertaken in and away from one's domicile. Those who live in the rural areas of Poznań metropolis prefer fitness, fishing and other activities. On the other hand, those who live in the urban areas significantly more often engage themselves in hiking/walking and roller blading. The inhabitants of Poznań metropolis more often participate in recreational activity in their place of residence than away from it. The most popular forms of recreational activity undertaken away from one's domicile are: 1) hiking/walking (13.1 out of 100 respondents), cycling (11.1 out of 100 respondents) and swimming (8.4 out of 100 respondents). It also needs to be noted that swim-

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<sup>8</sup> Participation referred to the period from 1.10.2015 to 30.09.2016. See: GUS 2017.



ming is more often undertaken by the inhabitants of rural areas away from the place of residence. The features which significantly differentiate the forms of participation in recreation of the inhabitants of Poznań metropolis away from their place of residence are: gender, age, income, marital status and the number of children.

The analysis of the frequency of participation in motor recreation indicates that the inhabitants of Poznań metropolis most often engage themselves in recreation a few times a month on weekdays (20.3%) and a few times a month at weekends (16%). One out of ten respondents declared daily participation in physical activity. The frequency of the participation in motor recreation diminishes with the increase in age, number of children and with the fall in income or level of education. These interdependencies are confirmed by other studies [Biernat 2011: Puciato et al. 2013: 654-655; GUS 2017: 48-55] It is also the nationwide surveys conducted by the Polish Central Statistical Office that prove the relationship between the regularity/frequency of participation in motor recreation and the professional life cycle (the fall in the percentage of those exercising on a daily basis at the age of 20-49, and then, its increase [GUS 2017: 65]. In the case of the inhabitants of Poznań metropolis, the most active “regular consumers of recreational services” are people at the age of 18-36, while the most passive respondents (or those who very rarely participate in recreational activity) are the inhabitants at the age of 37-49 and over 50. The nationwide surveys conducted among senior citizens confirm the lower participation of people over 50 in recreational activity [GFK Polonia 2015b: 25-26].

It is also the marital status and the number of children in the family that have impact on the forms of recreational activity and the frequency of participation. The most active respondents are those who are single (approximately 73%), or those cohabiting (67.8%), while every second married inhabitant of Poznań metropolis does not participate in motor recreation. The number of children in the family and connected with that the lack of time results in the lower participation of this group in motor recreation.

Recreational activity of the inhabitants of Poznań metropolis is also dependable upon the net income per family member. Almost 66% of the respondents with the income below 1000 PLN per a family member did not participate in recreational activity. Moreover, people with higher income – over 2001 PLN per family member, were more regular consumers of motor recreation when compared to those with lower income. Such tendencies are also indicated by other authors [Biernat, Tomaszewski 2011: 173-181; the Polish Central Statistical Office 2017: 59] Similarly to the results obtained by the Polish Central Statistical Office in the nationwide survey the level of income does not significantly influence the forms of undertaken motor recreation.

The results of the study indicate also the influence of participant demographic, social and economic variables onto recreational migrations of the inhabitants of the metropolis measured by means of the distance from and the time necessary to reach the place of recreation. The obtained results prove that daily recreation is undertaken by the inhabitants of Poznań metropolis in or very close to the place of residence – within the radius of 3 km (59.1%). On the other hand, 60% of the respondents undertake weekend recreation within the radius of 1-10 km from their domicile. The study results confirm the influence of both demographic variables, namely age and the place of the residence, and the influence of social and economic variables, such as income and professional status onto the distance of recreational activity from one's domicile. Younger, wealthier inhabitants of Poznań metropolis are more willing to travel longer distances in comparison to older and less well-to-do respondents.

Similar interdependencies were observed with respect to the time which the inhabitants of Poznań metropolis had to spend while reaching the place of recreation. Almost every second inhabitant of Poznań metropolis prefers the time of 15 minutes in order to get to the place of daily recreation, while as far weekend recreation is concerned, the same time span was declared by every third respondent on average.

Long-term recreation of inhabitants of Poznań metropolis is of a different structure. Recreational trips are undertaken to more distant places (further away from the place of residence) when compared to daily and weekend recreation. Almost 40% of the examined inhabitants migrate for the purposes of long-term recreation over distances longer than 60 km. The results of the conducted analyses confirm statistical significance of the influence of such variables as age, education, place of residence, marital and professional status and net income per family member onto the differentiation with respect to the long-term distance of recreation. The increase in the level of income per family member results in the increase in the long-term migration distance.

## 6. Conclusion

The significance of demographic, social and economic features for undertaking recreational activity has been discussed by numerous authors. The conducted studies proved high diversification of recreational activity of the inhabitants of the Poznań Metropolis and substantiated the directional hypotheses. The obtained results made it possible to identify the groups of inhabitants who participate in recreational activity regularly, seasonally and occasionally. Moreover, the demo-

graphic, social and economic variables made it possible to identify a group of inhabitants who are extremely passive or participate in motor recreation very rarely.

The group of people who are threatened with exclusion from physical activity or who do not undertake it at all, are the inhabitants of Poznań metropolis at the age of 37-49 and over 50, with primary, lower secondary or vocational education living in both urban and rural areas, married with more than 4 children, farmers, pensioners, unemployed or other professionally inactive with the net income below 2000 PLN per family member. These people prefer daily and weekend recreation very close to their place of residence and are willing to devote only up to 15 minutes to reaching the place of recreation. Therefore, it may be concluded that there should be a wider access to public places of recreation and sports and recreational facilities in the very vicinity of their domicile. The shorter the time in which one can reach the place of recreation the greater the motivation to undertake such an activity. Those inhabitants who are threatened with exclusion from physical activity should be targeted with numerous preventive actions which could take various forms: educational activities, recreational classes or events or even complex metropolitan programs promoting active rest in one's spare time and healthy lifestyle. Furthermore, the obtained results could be used in planning and preparing metropolitan recreation and touristic offer based on physical activity.

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## Spółeczno-ekonomiczne uwarunkowania aktywności i migracji rekreacyjnych mieszkańców metropolii Poznań

**Streszczenie.** W globalnej gospodarce opartej na wiedzy o potencjale rozwojowym regionu decydują metropolie. Są to obszary o dużej gęstości zaludnienia oraz zróżnicowanej jakości życia. Poza czynnikami intrapersonalnymi i interpersonalnymi na uczestnictwo w rekreacji ruchowej wpływają czynniki środowiskowe. Istotnym elementem planowania i organizacji systemu rekreacyjnego w miastach i metropoliach jest rozpoznanie uwarunkowań charakteryzujących formy aktywności ruchowej, ich częstotliwość, a także strukturę migracji rekreacyjnych. W związku z tym celem badań jest określenie poziomu uczestnictwa w aktywności rekreacyjnej mieszkańców metropolii Poznań oraz analiza wybranych czynników demograficznych i społeczno-ekonomicznych różnicujących tę aktywność. Badania ankietowe przeprowadzono wśród 1584 mieszkańców metropolii Poznań w okresie od marca do czerwca 2016 r. na podstawie standaryzowanego kwestionariusza ankietowego, przy wsparciu pięciu przeszkolonych ankietatorów. Przeprowadzone badania dowodzą dużego zróżnicowania rekreacyjnej aktywności mieszkańców metropolii Poznań i potwierdzają słuszność sformułowanych hipotez kierunkowych. Wyniki badań pozwoliły na wyłonienie grup mieszkańców metropolii Poznań: regularnie, sezonowo i sporadycznie podejmujących aktywność rekreacyjną. Dodatkowo na podstawie zmiennych demograficznych i społeczno-ekonomicznych wyszczególniono grupę mieszkańców pasywnych lub bardzo rzadko uczestniczących w rekreacji ruchowej.

**Słowa kluczowe:** rekreacja fizyczna, migracje rekreacyjne, metropolia, czynniki społeczno-ekonomiczne, czynniki demograficzne, mieszkańcy, formy rekreacji, miejsce zamieszkania