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The relationship between the quality of the city's recreational offering and the physical activity of its inhabitants – results of a pilot survey in Bielsko-Biała

Abstract. The aim of the article is to outline the theoretical framework for studying the relationship between the quality of the city's recreational offering and the physical activity of its inhabitants. The study was based on a review of the literature and was supplemented with data from a pilot questionnaire survey. The pilot survey was conducted in 2016 and involved 180 inhabitants of Bielsko-Biała. Responses were collected during direct interviews based on the survey questionnaire consisting of two parts: International Physical Activity Questionnaire (short version) and recreational offering assessment questionnaire proposed by authors. The literature review revealed gaps in research and publications addressing the relationship between the quality of the city's recreational product and the level of physical activity of its inhabitants, and results of previous studies vary depending on their location (which was also confirmed by the pilot survey). According to the authors' pilot survey, the respondents preferred outdoor forms of physical activity (Nordic walking and fast walks). The majority of respondents can be classified as sufficiently active. No statistically significant findings were found between respondents' assessment of the service staff or the recreational infrastructure and the level of physical activity reported by inhabitants of Bielsko-Biała who participated in the survey. The innovative character of the work consists in developing and testing during the pilot survey a new theoretical framework for researching relationships between the quality of the city's recreational offering and the level of physical activity of its inhabitants. The authors propose extending the existing approaches involving mainly the assessment of recreational assets by including marketing, staff-related and organizational aspects. This calls for interdisciplinary research.

Keywords: physical activity, recreational offering, city, influencing factors

JEL Codes: I 12, I 18

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1. Introduction

Systematic physical exercise of appropriate intensity has a positive effect on the person's development and their physical, mental and social health [Bauman et al. 2009] and reduces morbidity and mortality levels [Centers for Disease Control and Prevention 1996]. Insufficient physical activity is the fourth major factor that leads to death.

„Physical inactivity is the fourth leading cause of death worldwide” [Kohl et al. 2012: 294]. The extent to which the need for physical activity is satisfied depends on many factors, including biological ones (age, sex, body type and others) [Ramires et al. 2017], psychological (a person's attitude towards physical activity and its perceived benefits) [Solomon et al. 2013; Canuto et al. 2013; Bauman et al. 2009], environmental (family, peers, school, etc.) [Nieboer, Cramm 2019]. Studies show that the physical activity of city dwellers is also affected by a combination of psycho-social factors and urban environmental factors, especially the quality of public space [Beenackers et al. 2014; Brownson et al. 2001]. There is a growing interest in developing integrated models for managing the quality of recreational products in urban areas [Maciąg, Kantyka, Praweńska-Skrzypek (eds.) 2018: 7; Thomas, Hodge, Smith 2009; Basińska-Zych, Bosiacki 2011: 355; Goins et al. 2013]. One can observe the growing awareness on the part of local authorities of their role in creating legislation and environment that fosters physical activity, while the task of satisfying emerging market expectations in this area is the task of private entities [Clark et al. 2010; Maciąg, Kantyka, Praweńska-Skrzypek (eds.) 2018: 7]. However, relatively little is known about the relationship between physical activity and factors that influence it, especially those relating to the urban environment and public space in which people live.

In view of these considerations, the authors formulated the research problem, the main objective of the study and the research questions that were used in the pilot survey conducted in the city of Bielsko-Biała. The purpose of this article is to present the existing research and the theoretical framework for the study of relationships between the recreational offering created by the city's authorities and the physical activity of its inhabitants. The research problem was formulated in the form of the following question: Does the way in which inhabitants perceive the quality of the city's recreational offering determine the level of their physical activity? To answer this general question, three specific research questions were put forward:

1. What aspects of the city's recreational offering are measured by other researchers in relation to the physical activity of inhabitants?
2. What methods and tools are used by other researchers to monitor the quality of the city's recreational offering and the physical activity of its inhabitants?

3. What are the relationships between the quality of the city's recreational offering or its elements and the recreational physical activity of its inhabitants?

The article consists of three parts. The first one, based on a review of the literature, presents the theoretical framework underlying the study; the second summarises the study results and last one contains a discussion, followed by conclusions and recommendations for further research and ideas for implementation.

2. The relationship between the quality of the city's recreational offering and the physical activity of its inhabitants – state of research

The following review of the literature provides the theoretical basis for research considerations addressed in this articles. The review focuses on the state of research on the relationship between the quality of the city's recreational offering and the recreational physical activity of its inhabitants. The following bibliographical databases were analysed: EBSCO, Scopus and the Web of Science. The review also supported by the Google Scholar search engine.

The databases were searched for the following key words: *physical activity, influencing factors, city or urban*. The search results, limited to articles in English published in peer-reviewed journals, are presented in Table 1.

In addition, the authors used Google Scholar to search for publications mentioned in the footnotes and references provided in the selected articles, which enabled them to find five more articles.

Table 1. Search results of the literature review (as at 30 September 2019)

Keywords	EBSCO	Scopus	Web of Science
<i>Physical activity Factors influencing City or urban</i> in the keywords	0	5	–
<i>Physical activity Factors influencing City or urban</i> in the abstracts	91 (28 full-text articles), 1 included in the analysis	206 (57 full-text articles), 11 included in the analysis	387 (202 full-text articles), 33 included in the analysis
<i>Physical activity Factors influencing City or urban</i> in the title	4 (4 full-text articles), 4 included in the analysis	4 (4 full-text articles), 4 included in the analysis	2 (2 full-text articles), 2 included in the analysis

Source: own research.

The selected articles were analysed taking into account the main research objective and the specific aims, limiting the scope to studies of healthy adults and city dwellers. Only articles addressing the relationship between the city's recreational offering or its elements and the physical activity of its inhabitants were taken into consideration. Ultimately, 10 articles were selected for in-depth analysis, whose results are shown in Table 2.

The analysis of academic databases shows the first articles devoted to the study of the relationship between the city's recreational infrastructure and the physical activity of its inhabitants date back to the beginning of the 21st century and the interest in this topic has been growing.

The literature review has revealed that the selected studies were largely interdisciplinary, combining public aspects of public management, organization management, health sciences, medicine, public policy and spatial management and planning. Two research strands are clearly visible in the studies. Some authors investigate factors influencing the level of satisfaction and the assessment of the quality of the city's recreational offering or its elements in the context of various forms of physical activity undertaken by respondents; others focus on factors that determine the level of physical activity in different social groups of city dwellers.

The most frequent form of physical activity investigated in the studies is walking. The authors emphasise the distinction that has to be made in research between transport-related and recreational or leisure-time physical activity, which are determined by different factors. The most commonly used research tool for measuring the level of physical activity is self-assessment based on the *International Physical Activity Questionnaire*. In addition, questionnaire data are supplemented by pedometer data or self-report travel diaries. In some studies, other country-specific research tools are used, such as the National Study of Neighborhood Parks (USA), the Short Questionnaire to Assess Health Enhancing Physical Activity (Denmark).

The quality of the city's recreational offering is measured using various questionnaire-based methods based on self-assessment of inhabitants supplemented by results of objective audits or GIS data. Researchers mainly focus on investigating relationships between infrastructural resources of the city's recreational offering and features such as accessibility, proximity, safety and facilities.

Depending on the location of the studies, their authors report different statistically significant correlations. There is clear evidence supporting the existence of correlation between physical activity and the infrastructural resources of the city's recreational offering (street layout, paths, street density, city design, accessibility, proximity). The authors also highlight the impact of social factors, such as the support of friends and neighbours and the sense of safety.

Table 2. Subject, scope, research methods and tools in studies of the relationship between people's physical activity and the quality of the recreational offering

Year of publication	Subject of assessment – forms of physical activity	Methods/tools used for assessing physical activity	Methods/tools used for assessing the quality of the recreational offering	Attributes/dimensions of the quality of the recreational offering that have a statistically significant impact on physical activity
2015 [Zhang et al. 2015]	Different forms of physical activity undertaken in urban green areas	Self-assessment made by inhabitants on types of undertaken physical activity, with walking being the most popular form	Online survey questionnaire, divided into 5 sections with multiple-choice and open-ended questions. Answers on a 5-point Likert scale. The sections referred to availability, access, maintenance, and environment. No statistically significant differences were found between assessment results after accounting for age and sex of respondents	The forms of physical activity were found to be significantly determined by the location of a recreational area, the quality of vegetation, the level of maintenance.
2008 [Forsyth et al. 2008]	walking	Reports about physical activity, the long version of the International Physical Activity Questionnaire and pedometer data. No significant differences between men and women	Geographical Information System (GIS), information collected on street layout, infrastructural elements designed for pedestrians, data about specific destinations (parks, recreational areas, shops, etc.). Quality assessment criteria/dimensions: residential density, connectivity, land-use mix	The study shows a correlation between GIS data and physical data, especially with respect to street and path layout
2010 [Gómez et al. 2010]	walking	the short version of the International Physical Activity Questionnaire.	Geographical Information System (GIS). The following features were assessed: density of public parks, number of street connections, number of metro stations and city-specific factors.	The study indicates a correlation between GIS data and physical data, especially the urban infrastructure and safety
2014 [Sugiyama et al. 2014]	walking	The long version of the International Physical Activity Questionnaire.	Research tool: Neighbourhood Environment Walkability Scale [Saelens et al. 2003; Cerin et al. 2007]. Quality dimensions: residential density, land use mix, proximity to parks, street connectivity aesthetics, safety from crime. Assessment on a scale from 1 to 4.	Physical data was found to be affected by residential density, land use mix, street layout, street connectivity, aesthetics, safety from crime and proximity to parks

Table 2 – cont.

Year of publication	Subject of assessment – forms of physical activity	Methods/tools used for assessing physical activity	Methods/tools used for assessing the quality of the recreational offering	Attributes/dimensions of the quality of the recreational offering that have a statistically significant impact on physical activity
2005 [Hoehner et al. 2005]	Different forms of physical activity undertaken in cities	The long version of the International Physical Activity Questionnaire. Transport and recreation activity was measured separately, since each one is affected by different groups of factors.	The assessment involved parks, walking and bike routes, indoor recreational facilities. Telephone poll and audit (quantitative, objective study). Quality dimensions: land use, recreational facilities, transportation environment. aesthetics, social environment.	Inhabitants' physical data was found to be affected by the distance from recreational facilities and their objective attractiveness.
2014 [Beenackers et al. 2014]	Leisure-time walking	Short Questionnaire to Assess Health Enhancing Physical Activity. A validated Dutch questionnaire for measuring a number of forms of physical activity, including leisure-time walking.	The audit was based on the observation of accessibility, safety, comfort, pleasurability.	The urban environment was not found to have a direct impact on people's willingness to take walks, which is affected by psycho-social factors and their combination with urban environment factors. The urban environment was found to be relevant in the case of people with a less positive attitude to physical activity and those who experienced a positive social influence to engage in physical activity.
2016 [Cohen et al. 2016]	Different forms of physical activity undertaken in parks	National Study of Neighbourhood Parks (observation)	The assessment in parks focused on streets and sidewalks, walking loops, park size, facilities, population density.	Physical activity in parks depends on the presence of walking loops. Parks with walking loops had 80% more users and levels of moderate-to-vigorous physical activity were 90% higher.

2015 [Johnson-Lawrence et al. 2015]	Different forms of physical activity undertaken in cities	International Physical Activity Questionnaire	The study investigated the problem of environment safety: "neighbourhood physical challenges, including poor housing, sidewalk condition, vacant lots, heavy traffic, lack of safety and social challenges in the neighbourhood, including the presence of gang activity, prostitution, loitering, drug dealing, vandalism, adults fighting, along with crime such as robbery and theft"	Lower physical activity was associated with poor housing, sidewalk condition, vacant lots, heavy traffic, lack of safety.
2012 [Giehl et al. 2012]	Different forms of physical activity undertaken in cities	The long version of the International Physical Activity Questionnaire	A modified version of the Neighbourhood Environment Walkability Scale. Environment perception was assessed using 22 questions related to the individuals "perception of the physical and environmental structures located close to the respondent's home, such as the presence and quality of sidewalks; presence of green areas, parks, squares; safety in traffic and safety in the neighbourhood". Other aspects included "opportunities for the practice of physical activities, like the presence of bike lanes, trails, walking paths, sports courts, and the occurrence of sports events and guided walks in the neighbourhood, as well as the social support for the practice of physical activities and weather aspects."	The presence of sidewalks, bike lanes, walking paths and trails in the neighbourhood resulted in a higher level of physical activity on the part of elderly individuals. "Social support offered by friends and neighbours increased the prevalence of the practice of leisure-time physical activity".
2011 [Hankey, Marshall, Brauer 2011]	Walking	Self-report travel diaries, where respondents recorded the location and type of physical activity	Walkability was measured in terms of population density, intersection density, land use mix.	"Population health benefits from increased physical activity in high-walkability neighbourhoods may be offset by adverse effects of air pollution exposure".

Source: Zhang et al. 2015; Forsyth et al. 2008; Gómez et al. 2010; Sugiyama et al. 2014; Hoehner et al. 2005; Beenackers et al. 2014; Cohen et al. 2016; Johnson-Lawrence et al. 2015; Giehl et al. 2012; Hankey, Marshall, Brauer 2011.

Another common conclusion is that the findings should be used for preparing and changing public policies concerning mass sport and recreation.

The literature review also reveals the lack of a comprehensive approach to the study of correlations between the quality of the city's recreational offering and the level of physical activity of its inhabitants. Studies in this area focus on the impact of infrastructural factors on the level of physical activity of its inhabitants, while other aspects tend to be overlooked (e.g. the scope and quality of recreational services, the quality of staff, marketing efforts associated with the implementation of social policies aimed at promoting physical activity). There are some studies indicating the statistically significant impact of these factors on the assessment of the quality of services, but without reference to the level of physical activity¹. The existing research and publication gap provided the motivation for the pilot survey aimed at developing and testing the theoretical basis for the assessment of the relationship between the quality of the city's recreational infrastructure and the physical activity of its inhabitants. The authors took an integrated approach to defining the city's recreational offering, which includes the infrastructure, services, staff and marketing and various forms of physical activity.

3. Data and methods

The pilot survey was conducted in 2016 and involved 180 inhabitants of Bielsko-Biała (including 68% of women and 32% of men). Respondents were a convenience sample selected from among users of 15 recreational facilities maintained by the Centre for Sports and Recreation in Bielsko-Biała, which is a budget entity of the city council. Bielsko-Biała is a city surrounded by the Little Beskids and Silesian Beskids mountain ranges, located on the Biała river. It is also the capital of the tourism region, featuring various tourism and recreational areas, including tourist trails, bike trails, ski lifts, skating rinks, tennis courts, a toboggan run, etc.

Given the considerable variation in the age of respondents, they were divided into three age groups: below 30, 31-50, and 51 and over. The questionnaire was designed to collect information about the level of physical activity undertaken by inhabitants of Bielsko-Biała, the assessment of the recreational infrastructure, service staff, marketing efforts made by recreational institutions and the organisation of recreational events in the city.

Responses were collected during direct interviews based on the survey questionnaire consisting of two parts. The first one concerned the self-assessment of the level of physical activity and included questions from the short version of the

¹ A broad analysis of this problem can be found in Maciąg 2018.

International Physical Activity Questionnaire. Based on the frequency of physical exercise, its intensity and daily duration, an average weekly amount of physical activity was calculated for each respondent, which was then used to classify them into three categories: highly active, sufficiently active and insufficiently active [Bauman et al. 2009]. Respondents were also asked to provide information about their height and weight, which was used to calculate the body mass index (BMI: weight [kg]/height [m]²).

The second part of the questionnaire was designed to assess Bielsko-Biała's recreational offering. Given the results of the literature review, the authors prepared their own set of questions, which referred to selected elements of the city's recreational offering, i.e.:

a) recreational infrastructure – technical condition of buildings/facilities and sports equipment, cleanliness and hygiene, safety, the centre's location, accessibility for disabled persons,

b) service staff – competences and qualifications, quality and reliability of information and advice given to customers, kindness and understanding of customer needs, appearance, a sense of duty and diligence,

c) marketing aspects – the offering of recreational services, the offering of additional services, quality-price ratio, discounts, opening hours, the centre's response to needs articulated by customers and the use of promotion techniques to inform customers about available recreational centres and their offerings,

d) organisation of recreational events.

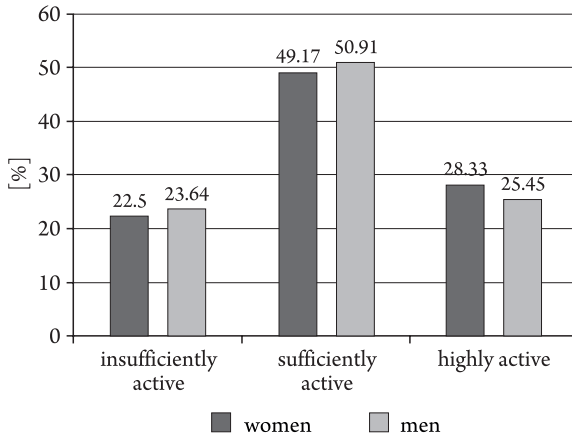
Individual elements were assessed on a scale from 1 to 5 (with one denoting a very low rating, and 5 – a very high rating). Mean values were calculated for each response variable. Since most data were ordinal, the correlation analysis was conducted using Spearman's s rank correlation coefficient. In addition, Tukey's range test was also performed in order to indicate the existence of statistically significant differences between subgroups of interactions.

4. Study results

Figure 1 shows the results concerning the level of physical activity of Bielsko-Biała inhabitants.

Based on the criteria set out in the reporting manual for the IPAQ, the majority of the respondents, regardless of sex, can be classified as sufficiently active. The most preferred forms of recreation for inhabitants of Bielsko-Biała include Nordic walking and fast walks (30%), cycling (16%), jogging (17%), fitness training (15%), swimming (11%), team sports (8%) and others.

Fig. 1. The percentage of respondents reporting different levels of physical activity (%)



Source: own research.

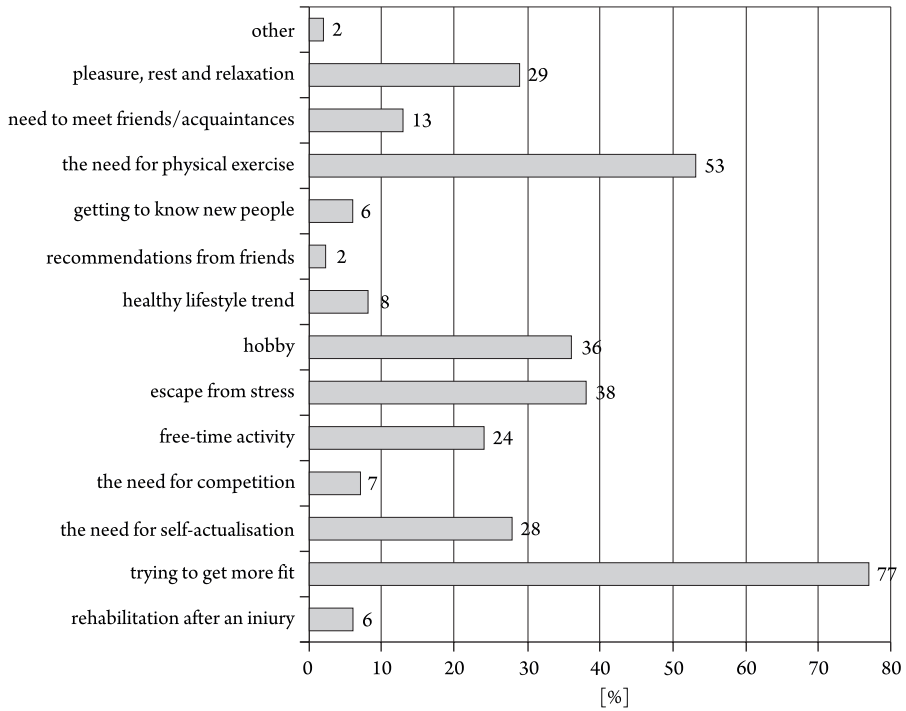
Figure 2 presents results concerning respondents' motivations for undertaking physical recreation. As can be seen, most respondents take up physical activity to improve their fitness and to get more exercise. Physical activity is also seen as a way to handle stress, as a hobby, as a source of pleasure, as a form of rest and relaxation and in order to satisfy the need for self-actualisation.

The following question concerned the assessment of selected elements of the city's recreational offering. Respondents were asked to evaluate the service staff, recreational infrastructure, recreational events and marketing efforts undertaken by different entities involved in the provision of recreational services. The results are presented in Figure 3. Among the most highly evaluated elements are the organisation of recreational events (mean rating of 4.2), the recreational infrastructure (mean rating of 4.0), service staff (mean rating of 4.0), while marketing activities concerning recreational products received the lowest rating (mean rating of 3.6).

After averaging mean assessments of the four elements of the recreational offering (i.e. service staff, recreational infrastructure, recreational events, marketing activities), the overall mean assessment was equal to 3.95. Statistically significant differences in the assessment were found after accounting for the age of respondents (Fig. 4).

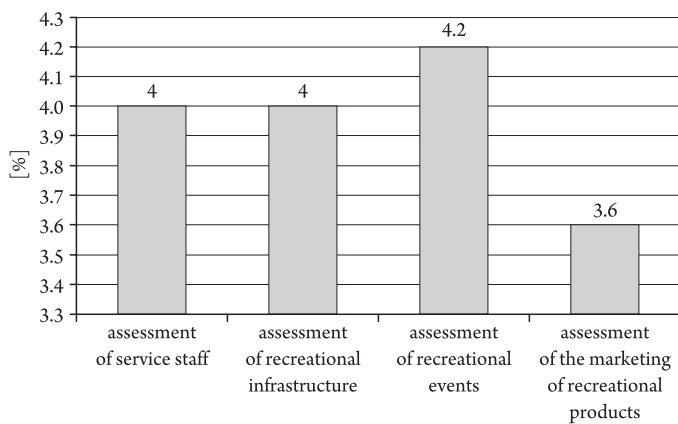
It was found that the older a person was, the more positive their assessment of the recreational offering. There are statistically significant differences between the three age groups, which is indicated by the results of Tukey's honestly significant difference test (HSD). Asked whether the authorities of Bielsko-Biała fulfilled their task of „meeting inhabitant's needs concerning recreational areas

Fig. 2. Respondents' motivations for undertaking physical recreation



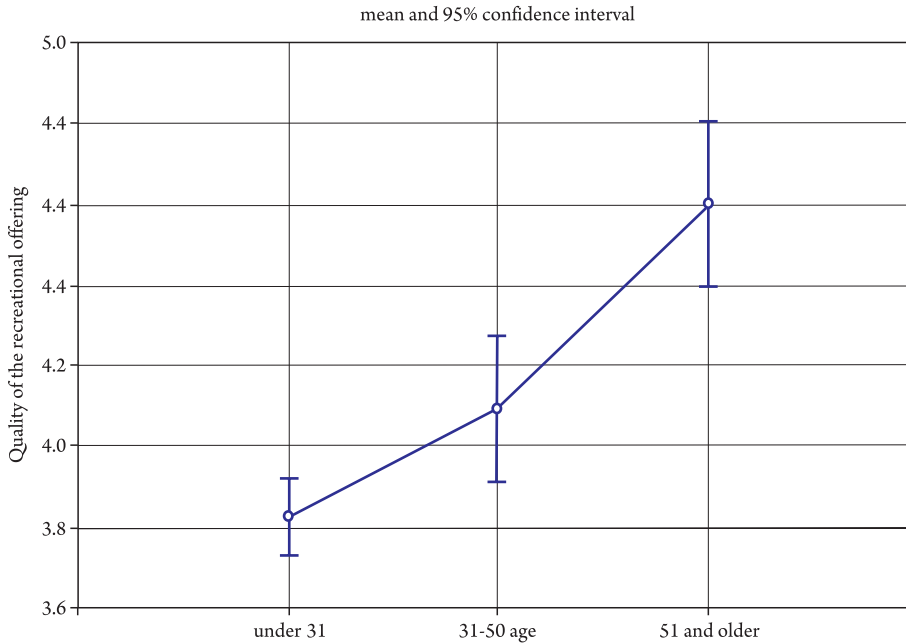
Source: own research.

Fig. 3. Mean assessment of selected elements of the city's recreational offering



Source: own research.

Fig. 4. Assessment of the quality of the recreational offering depending on the age group of respondents



Source: own research.

and sports facilities”, 9% of respondents answered that they did so “very well”, 47% answered “well”, 36% – “satisfactorily”, 6% – “poorly”, and 2% – “very poorly”. The respondents also indicated ways in which the city’s recreational offering could be improved.

Another aspect considered in the correlation analysis was the relationship between how respondents assessed various dimensions of the quality of the city’s recreational offering (service staff, infrastructure, events, marketing efforts) and the level of their physical activity (LPA). Table 3 presents the results of correlation between respondents’ assessment of staff conducting recreational activities and their sex, age, BMI and LPA.

As can be seen, the overall assessment was positive. The highest ratings were given by respondents aged 50 and older, who particularly valued the quality and reliability of information and advice given to customers (4.7), the staff’s sense of duty and diligence (4.7), competence and qualifications (4.8) and kindness and understanding of customer needs (4.8). The overall mean rating was 4.0. There are statistically significant differences in the assessment of the staff depending on the respondents’ age. Tukey’s HSD test indicates considerably differences be-

Table 3. Correlation between respondents' assessment of staff conducting recreational activities and their sex, age, BMI and LPA

Dimensions of quality	Respondents grouped by										
	Sex		Age			BMI			Level of physical activity (LPA)		
	F (women) N = 121	M (men) N = 56	< 30 N = 119	31- 50 N = 48	> 50 N = 10	underweight N = 24	normal N = 113	overweight N = 25	insufficient N = 41	sufficient N = 87	high N = 49
Competence and qualifications	4.1	3.8	3.9	4.2	4.8	3.9	4.0	4.0	3.9	4.0	4.0
Quality and reliability of information and advice given to customers	4.0	3.7	3.8	4.0	4.7	3.7	3.9	4.1	4.0	3.9	3.8
Kindness and understanding of customer needs	4.0	3.7	3.9	4.0	4.8	3.8	3.9	4.0	4.0	4.0	3.8
Appearance	4.0	3.7	3.9	4.0	4.4	3.9	3.9	3.9	4.0	3.9	3.9
A sense of duty and diligence	4.0	3.6	3.8	3.9	4.7	4.0	3.9	4.0	3.9	3.9	3.8
Overall mean rating	4.0										

Source: own research.

tween assessments made by the oldest and youngest group. Respondents aged 50 and older tend to evaluate the staff more positively than those under 30. There were also some differences in assessments depending on respondents' BMI, but they were not found to be statistically significant. Similarly, no statistically significant correlation was found between the assessment of staff and respondents' sex and LPA.

Results of correlation analysis concerning the city's recreational infrastructure are shown in Table 4. The results indicate that respondents have a positive assessment of the city's recreational infrastructure. The highest ratings were observed among respondents aged 50 and older, with each of the four components receiving nearly the same average rating (4.7 or 4.8). The lowest assessment was given by underweight respondents, who indicated the poor adjustment of the infrastructure to the needs of people with disabilities (3.2). It can be assumed that these answers were given by people afflicted by some illnesses, as evidence by their low body weight, and possibly confined to wheelchairs, as indicated by the low ratings on the question about accessibility for disabled persons. No statisti-

Table 4. Correlation respondents' assessment of the city's recreational infrastructure and their sex, age, BMI and LPA

Dimensions of quality	Respondents grouped by										
	Sex		Age			BMI			Level of physical activity (LPA)		
	F (women) N = 121	M (men) N = 56	< 30 N = 119	31-50 N = 48	> 50 N = 10	underweight N = 24	normal N = 113	overweight N = 25	insufficient N = 41	sufficient N = 87	high N = 49
Technical condition of buildings / facilities	4.1	4.0	4.0	4.1	4.6	3.9	4.1	4.2	4.1	4.0	4.1
Technical condition of sports equipment	4.9	4.0	3.9	4.1	4.5	3.8	4.1	4.0	4.0	4.0	4.0
Cleanliness and hygiene	3.9	4.0	3.8	4.1	4.7	3.6	4.0	4.1	4.0	3.9	3.9
Safety	4.2	4.2	3.9	4.3	4.7	3.8	4.1	4.1	4.0	4.1	4.0
The centre's location	4.2	4.2	4.2	4.1	4.8	4.1	4.2	4.3	4.2	4.2	4.2
Accessibility for disabled persons,	3.5	3.7	3.4	3.9	4.8	3.2	3.6	4.0	3.6	3.5	3.5
Overall mean rating	4.0										

Source: own research.

cally significant differences were found between respondents' assessments of the city's recreational infrastructure and their sex, BMI and LPA.

The results of correlation analysis between respondents' assessments of recreational events in Bielsko-Biała and their sex, age, BMI and LPA are shown in Table 5. The highest ratings were observed in the group of respondents over 50 (4.8). The mean overall rating for this component is 4.2. No statistically significant differences were found between respondents' assessments of this component and their sex, BMI and LPA.

Table 6 shows correlation results for marketing efforts undertaken by the Centre for Sports and Recreation in Bielsko-Biała. Marketing efforts received the lowest overall mean rating (3.6) of the four components of the city's recreational offering. The most positively assessed dimension of quality were opening hours (4.8), while the lowest ratings were given for discounts (regardless of the group), and for additional services among respondents under 30 and those with below-normal BMI. Underweight respondents also had a low assessment of the Centre's

Table 5. Correlation respondents' assessment of recreational events and their sex, age, BMI and LPA

Dimensions of quality	Respondents grouped by										
	Sex		Age			BMI			Level of physical activity (LPA)		
	F (women) N = 121	M (men) N = 56	< 30 N = 119	31-50 N = 48	> 50 N = 10	underweight N = 24	normal N = 113	overweight N = 25	insufficient N = 41	sufficient N = 87	high N = 49
Organisation of recreational events	4.3	4.2	4.1	4.5	4.8	3.6	4.4	4.3	4.1	4.3	4.4
Overall mean rating	4.2										

Source: own research.

Table 6. Correlation respondents' assessment of marketing efforts undertaken by the Centre for Sports and Recreation and their sex, age, BMI and LPA

Dimensions of quality	Respondents grouped by										
	Sex		Age			BMI			Level of physical activity (LPA)		
	F (women) N = 121	M (men) N = 56	< 30 N = 119	31-50 N = 48	> 50 N = 10	underweight N = 24	normal N = 113	overweight N = 25	insufficient N = 41	sufficient N = 87	high N = 49
The offering of recreational services	3.8	3.7	3.7	3.8	4.2	3.7	3.8	3.8	3.7	3.8	3.7
The offering of additional services	3.4	3.5	3.3	3.7	3.8	3.2	3.5	3.6	3.6	3.4	3.5
Quality-price ratio	3.6	3.6	3.6	3.5	4.6	3.6	3.6	3.8	3.8	3.6	3.5
Discounts	3.3	3.1	3.2	3.0	4.0	3.3	3.1	3.3	3.3	3.1	3.3
Opening hours	4.2	4.0	4.1	4.1	4.8	4.0	4.2	4.2	4.1	4.1	4.2
Centre's response to needs articulated by customers	3.5	3.6	3.4	3.8	4.0	3.3	3.5	3.7	3.7	3.4	3.6
Overall mean rating	3.6										

Source: own research.

response to needs articulated by customers. These low assessments made by respondents with below-normal BMI seem to confirm the previous interpretation that this group may include disabled persons, who notice the most weak aspects of the way recreational activities are managed in the city. No statistically signifi-

cant differences were found between respondents' assessments of marketing efforts and their sex, BMI and LPA.

As regards respondents' familiarity with the marketing offering of recreational centres in Bielsko-Biała, 52% of respondents reported they knew it, while 47% admitted they did not.

The statistical analysis presented above indicates that although there is evidence of some correlation between the quality of the city's recreational offering and respondents' level of physical activity, it is not statistically significant.

The following section is devoted to a discussion of the results and their limitations.

5. Discussion

At the beginning, the authors want to emphasize limitations of their study and possible ways of interpreting them in the light of the existing literature on the subject. The literature review carried out in the first part suggest that there are different approaches, methods and tools used for assessing quality and measuring the physical activity of urban dwellers. Consequently, results of various studies may not be comparable, and their interpretation in the context of other results may be limited. Reviewed authors also point out that the selected assessment method (self-assessment or objective assessment) may affect the results (especially when it comes to people who objectively display a low level of physical activity and live in areas with lower walkability ratings [Dewulf et al. 2012]). Another important limitation results from the fact that the study described in this article was a pilot survey based on a convenience sample, which may have affected the correlations of interest. It can also be assumed that the results of the study may have been affected by recreational patterns of the respondents, manifested in their preferred forms and places of physical activity, i.e. outdoor activities. One can argue that inhabitants of this region, featuring various tourism and recreational attractions, rely on their own ideas when it comes to choosing forms and places of physical activities, taking advantage of existing outdoor areas (parks, forests or bike trails). This is confirmed by a considerable number of questionnaires did not have answers concerning the quality of the recreational offering as a result of respondents' lack of familiarity with the recreational offering.

The majority of respondents can be classified as sufficiently active. However, it is difficult to determine the sufficient daily level of physical activity in quantitative and qualitative terms. While it is commonly accepted that systematic sports and recreational activity is essential for maintaining or improving one's health, the required level of such activity is very individual and depends on many factors,

such as age, sex, health, lifestyle etc. Given the unquestionable prophylactic effect of physical activity, according to the WHO guidelines of, the UE and its member states recommend at least 60 minutes of daily physical activity of moderate intensity for children and teenagers and at least 30 minutes of daily physical activity of moderate intensity for adults, including elderly persons [*EU Physical Activity Guidelines... 2008*].

According to the survey, the preferred forms of physical activities chosen by inhabitants of Bielsko-Biała are Nordic walking and fast walks. This is in line with other studies, which confirm that light forms of physical activity, such as walking, are the most popular ones with city dwellers [Zhang et al. 2015].

According to the survey, there were no statistically significant differences between respondents' assessment of service staff and their level of physical activity. There are other studies that do report the existence of correlation between the assessment of service staff and the assessment of the quality of services provided by sports clubs and centres. Alexandris, Zahariadis, Tsorbatzoudis and Grouios [2004] indicate that customer expectations are more focused on the relationship with instructors, their ability to implement training plans rather than on the range of the offering [Alexandris et al. 2004]. This area certainly requires further research taking into account the complexity of the city's recreational offering.

The pilot study did not reveal any statistically significant differences between respondents' assessment of the recreational infrastructure and their level of physical activity. This aspect also needs to be investigated in more depth since numerous studies indicate that such correlations tend to exist. Many authors report a positive correlation between the amount of time spent engaging in physical exercise and the location of sports facilities [Roux et al. 2007]. This finding is confirmed by studies about parks [Gómez et al. 2010; Hamilton, Crompton, More 1991] and green areas [Zhang et al. 2015]. Another factor that fosters physical activity is accessibility of the infrastructure and its design and the existence of recreational facilities [Hoehner et al. 2005; Forsyth et al. 2008; Gómez et al. 2010].

No statistically significant differences were found between assessments of the organization of recreational events and respondents' sex, BMI and LPA. The literature review indicates that this subject had not been studied previously, which implies the existence of another research gap in this area. Similarly, no statistically significant differences were observed between the assessment of marketing efforts and respondents' sex, BMI and LPA. However, many authors emphasize the importance of public service announcements as a marketing instrument used to promote knowledge about the benefits of physical activity and their impact on the level of physical activity [Gordon et al. 2006; Matsudo et al. 2002]. In the study by Hoehner C.M et al. [2005], among factors that influence the level

of physical activity the authors mention promotion, defined as the number of announcements made on TV and radio, in newspapers and on billboards [Brennan Ramirez et al. 2006]. This is, then, yet another area that needs to be explored further.

The statistical analysis revealed that the quality of the city's recreational offering does not affect the intensity of respondents' physical activity. This finding is at odds with the results obtained by some authors, but is confirmed by others. For example, the review article by Van Cauwenberg et al. mention similar results with respect to elderly persons [Van Cauwenberg et al. 2011].

6. Conclusions

The literature review presented in the first part has provided the theoretical basis for the pilot study described in the second part. However, its results cannot be easily interpreted, owing to the study's limitations.

It can be concluded that in studies of correlations between the quality of the city's recreational offering and the physical activity of its inhabitants, the recreational offering should be assessed as the comprehensive product created by the city. The quality is assessed by taking into account all elements that make up the city's recreational offering and interactions between them. Under this approach, quality dimensions of the city's recreational offering should include attributes associated with the assessment of natural assets and their accessibility (mountain and lowland trails, tourism trails for bike tours, Nordic walking, promenades, outdoor gyms, etc.), sports facilities, transport accessibility, state of the natural environment, road and technical infrastructure, as well as other aspects, such as safety of inhabitants, recreants or tourists in the city, range of available services (bike and sports equipment rentals), conditions of economic development in the area, aesthetic-emotional, social, organisational aspects, the quality of relations between entities forming the network and its leader, i.e. the local government unit (characteristics associated with mutual referrals, information, recommendations, the wide range of offered services, service packaging and the development of a common market offering). In other words, the recreational offering needs to be assessed holistically as an integrated complex of elements that encompass the entire user experience at the interface between the recreational product and organisations that provide it. Thus, the assessment model has to be adapted to the context of a given city. Given the threats posed by epidemics of diseases of civilization and obesity, research in this area is becoming increasingly relevant, especially for local public policies pursued by local governments.

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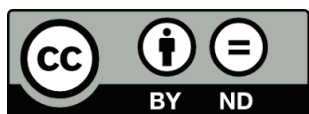
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Związek między jakością produktu rekreacyjnego miasta a aktywnością fizyczną jego mieszkańców – wyniki badań pilotażowych w Bielsku-Białej

Streszczenie. Celem artykułu jest zarysowanie ramy teoretycznej dla badania zależności między jakością produktu rekreacyjnego miasta tworzego przez lokalny samorząd a aktywnością fizyczną jego mieszkańców. W badaniach wykorzystano metodę systematycznej analizy literatury przedmiotu uzupełnioną danymi z pilotażowego badania ankietowego. Badanie pilotażowe zostało przeprowadzone w 2016 r. i objęło 180 mieszkańców Bielska-Białej. Odpowiedzi zebrano podczas bezpośrednich wywiadów na podstawie kwestionariusza ankiety składającego się z dwóch części: Międzynarodowego Kwestionariusza Aktywności Fizycznej (wersja skrócona) oraz kwestionariusza oceny ofert rekreacyjnych zaproponowanego przez autorów. Przeprowadzona analiza literatury pozwoliła na wskazanie luki badawczej i publikacyjnej – brakuje kompleksowego podejścia do badania zależności między jakością produktu rekreacyjnego miasta a poziomem aktywności fizycznej jego mieszkańców, a wyniki dotychczasowych badań różnią się w zależności od miejsca, którego dotyczyły (co potwierdziło również badanie pilotażowe opisane w artykule).

Jak wynika z badań pilotażowych autorów, do preferowanych przez respondentów form aktywności fizycznej należały aktywności outdoorowe (Nordic Walking i szybkie spacery). Przeważającą część respondentów można uznać za wystarczająco aktywną fizycznie. Wyniki badania wskazują, że nie występują istotne statystycznie różnice pomiędzy oceną kadry, oceną infrastruktury a poziomem aktywności fizycznej badanych mieszkańców Bielska-Białej. Nowatorstwo opracowania polega na wypracowaniu i przetestowaniu w badaniach pilotażowych nowej ramy teoretycznej do badania zależności między jakością produktu rekreacyjnego miasta a aktywnością fizyczną jego mieszkańców. Autorki proponują, aby rozszerzyć dotychczasowe podejścia, skupione głównie na ocenie wymiaru materialnego, o wymiar marketingowy, kadrowy i organizacyjny. Wymaga to prowadzenia badań o charakterze interdyscyplinarnym.

Słowa kluczowe: aktywność fizyczna, produkt rekreacyjny, miasto, czynniki wpływające



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