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Leisure time analysis and comparison of secondary school male students in terms of selected regions of Slovakia: a cross-sectional study

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Abstract

Introduction. Accumulating evidence indicates that leisure time lowers stress and depression and improves your quality of life, thus being something worth making time for. However, most secondary school students do not make effective use of their leisure time. Aim of Study. Our study was aimed at analysing and comparing leisure time of secondary school male students in terms of selected regions of Slovakia. Material and Methods. A non-standardized survey of leisure time was carried out through an intentional sampling with the survey group size of 1830 secondary school male students (aged 17.35 ± 0.82 years) who attended the final year (4th) of grammar and vocational secondary schools. Basic descriptive statistics and the chi-square test (χ^2) were used to analyse and compare the data. Data on leisure time was collected from January to June, 2021. Results. After analysing the survey answers, on average 43.98% (n = 805) of the survey group declared 1 to 3 hours/day of leisure time during the working week vs 5 hours/day of leisure time during the weekend ($p < 0.01$). In terms of spending their leisure time being active was declared by 58.94% (n = 1078) of the survey group ($p < 0.01$). Conclusions. Leisure time of the survey group differs significantly in terms of hours/day, way of spending and interest area ($p < 0.01$; 0.05). An example is average leisure time of the survey group during the working week and weekend, because in terms of selected regions of Slovakia the results revealed statistical differences ($p < 0.01$; 0.05); in particular between the selected regions of western (Bratislava Region), eastern (Košice Region, Prešov Region) and northern (Žilina Region) Slovakia.

KEYWORDS: leisure time, secondary schools, adolescent boys, selected regions of Slovakia.

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Introduction

Each generation of adolescent boys is shaped by social, political and economic events of the day. Today's adolescent boys are no exception compared to previous generations of adolescent boys [25]. In today's hectic world with a constant increase in the standard of living, the space for utilization of leisure time expands, in which regular physical activity should be adequately represented. Regular physical activity should be part of the way of life of the current generation of adolescent boys; however, its representation in their regimen is absent or insufficient to meet the requirements of today's world. As a consequence a majority of the current generation of adolescent boys is not meeting the physical activity and sedentary guidelines. In 2012, only 2% of adolescent boys aged 13-17 met both the physical activity and sedentary screen-based behavioural guidelines. In 2018, ±20% of adolescent boys were overweight and obese. A global population-based measurement study of obesity in the age group of 5-19 years increased from 0.9% in 1975 to 7.8% in 2016. Within the last 40 years, in the

group of adolescent boys a 12-fold increase of obesity was recorded from 6 million in 1975 to 74 million in 2016 [16].

Adolescence represents a crucial period of development because of hormonal changes and obviously other interests arise in the form of restricted regular physical activity and decline of physical fitness [22]. Adolescence represents an important stage in a life for improving attitudes towards physical activity habits. Parents and peers are considered to play an important role in influencing adolescent boys' physical activity, since they are the ones who have to lead them to spend their leisure time meaningfully. A positive correlation was observed between the physical activity of adolescent boys and their parents; in other words, an active parent was significantly associated with adolescent boys' physical activity and/or sports participation [13].

Adolescent health is a strong predictor of adult health. Adolescent boys with a lower leisure-time physical activity are reported to have mental health problems and increased substance use [26]. Structured leisure-time physical activity contributes to adequate levels of intrinsic motivation and positive development in adolescent boys [14]. Leisure-time physical activity has a positive effect on psychosocial and musculoskeletal health and reduces the impact of other risk factors, in particular overweight and obesity, high blood pressure and elevated blood cholesterol level. The frequency of spontaneous physical activity decreases, that is why taking part in structured leisure-time physical activity is associated with increasing physical activity levels and improving attitudes towards physical activity in adolescent boys [5]. Many adolescent boys do not participate in sports (organized) and physical education on a regular basis. When adolescent boys are asked to give reasons for not participating in sports and physical education, a lack of time is mentioned almost routinely [2]. Physical activity represents another important leisure activity of adolescent boys, which in contrast to media use remained almost unchanged during the last decade. The growing use of electronic media has raised concerns as leading to an increased prevalence of sedentary lifestyle, resulting in decreased physical activity levels of adolescent boys. Adolescent boys spent on average 6.1 hours/day of watching television and using a mobile phone/computer [1]. About 24% of Slovak adolescent boys reported watching television for 2 hours/day in their leisure time during the working week [11]. Existing evidence shows that American adolescent boys spend an extreme average of 9 hours/day using digital technology (e.g. playing console games and listening to music) [23].

Aim of Study

Our study attempts to bridge the survey gap with data concerning the analysis and comparison of leisure time in adolescent boys and for that reason the present study was aimed at analysing and comparing leisure time of secondary school male students in terms of selected regions of Slovakia.

Material and Methods

Participants

In accordance with the survey aim, the target population consisted of adolescent boy attending the final year (4^{th}) of grammar and vocational secondary schools in selected regions of Slovakia. Adolescent boys consisted of the convenience sample, which was recruited through various available sources; in particular social media (e.g. Facebook), or assistance of their school director/ physical education teachers. The recruitment process was adjusted regularly (every 2 weeks) to ensure intentional sampling regarding age, gender and year of study. A total of 1,855 filled-in debriefing forms were included in the cross-sectional study data interpretation process; however, 1.34% (n = 25) did not meet the inclusion criteria: 1) not having health problems (e.g. being ill for a long time and medically exempt from physical education), 2) pre-selected gender (male), 3) pre-selected year of study (4^{th}). After meeting the inclusion criteria, the survey group consisted of 1830 (100%) grammar and vocational secondary school students (adolescent boys) aged 17.35 ± 0.82 years. The distribution of the survey group was as follows: 1) the Banská Bystrica Region (30.25%, n = 554), 2) the Bratislava Region (14.35%, n = 263), 3) the Košice Region (9.82%, n = 180), 4) the Prešov Region (27.46%, n = 501), and 5) the Žilina Region (18.12%, n = 332).

Procedures

A single-measure descriptive cross-sectional study was carried out. The research instrument of the non--standardised survey was specially developed and consisted of 2 sections: 1) basic demographic information (e.g. age, gender, year of study and selected region), 2) survey questions, which consisted of 3 closed questions, concerned with: (a) average leisure time during the working week (Monday–Friday, 4 closed answers: <1 hour, 1-3 hours, 3-5 hours, >5 hours); (b) average leisure time during the weekend (Saturday–Sunday, 4 closed answers: <1 hour, 1-3 hours, 3-5 hours, >5 hours); (c) interest area related to spending leisure time – 6 closed answers: (i) cultural leisure activity –

receptive cultural "passive" leisure activity – consumption of culture/attending cultural events in the role of audience/spectator (outside home) and creative cultural "active" leisure activity – art making and creative expression; (ii) leisure sport activity – freedom, voluntary and non-competitive activity, aimed at regulating the mental state and well-being, not as a specific sport project, but a kind of social existence form of sport; (iii) media leisure activity – internet-based applications, aimed at building an ethical and technological foundation and promoting physical activity (e.g. Facebook, Instagram and YouTube); (iv) technical leisure time – using a smart device (e.g. a watch/a smartphone), aimed at promoting physical activity and rhythmic game series (e.g. YouTube, Just Dance); (v) nature-based leisure time activities – spending time outdoors, amidst nature and with the focus on engaging in physical activity (e.g. brisk walking up a hill and mountain biking and skiing); (vi) social leisure time – a concept, aimed at involving leisurely activity in a social setting (e.g. extracurricular activity with a peer/a partner and one's family).

During an unlimited time session the survey group (n = = 1830) answered the non-standardised survey questions, which were available online at all times and reviewed the survey data, in order to clarity the non-standardised survey (allowed only to adolescent boys being of age). An online feedback during the unlimited time session did not indicate any issues with the cross-sectional design (technical) and non-standardised survey (grammar/vocabulary). In the case of not being an adolescent boy of legal age (i.e. being a minor), the debriefing survey forms of the non-standardised survey were distributed (face-to-face) by the authors (meeting the parental consent requirements) in their native language and did not involve any information concerning the respondents' identity. Incentives were not given for voluntary participation; however, the survey group received the report with their personal results afterwards. An online version of the non-standardised survey was selected due to its cost effectiveness, time saving, easy accessibility and the rapidly changing epidemic situation in the Covid-19 pandemic. The online non-standardised survey was created and distributed using an online survey portal – Microsoft Forms, Office 365 (Microsoft Corp., Redmond, WA, USA). Survey data was collected through the survey distributed from January to June, 2021. After the permission (a school director's and parental consent) to carry out the cross-sectional study, the survey group consisted of adolescent boys attending the final year (4^{th}) of grammar and vocational secondary schools in selected regions of Slovakia. The Covid-19 pandemic has caused huge costs in terms of human lives lost and the burden on the health care system. As a consequence, various restrictions (lockdowns) imposed to limit the spread of the virus have slowed down the entire sectors of activity and led to an economic recession. Already before the epidemic outbreak the regional gap in the gross domestic product per capita increased over the last 16 years in Slovakia. The faster growth of the gross domestic product in the country's richest region – Bratislava has widened the regional gap in relation to the poorest regions (the Košice Region and the Prešov Region) of eastern Slovakia. In terms of the gross domestic product per capita, the figure for the country's richest region is now almost 3.5 times higher than that of the poorest regions of Slovakia. In 2016, Slovakia had the 2^{nd} highest regional disparities among the 33 OECD member countries. The Bratislava Region, the country's richest region, experienced the uppermost productivity of growth in 2000-2016 at 3.7%/year. Regional gaps and disparities (2^{nd}) were the reasons of choosing the selected regions of Slovakia.

Statistical analysis

All survey data was tabulated (figured) in a database designed precisely for the cross-sectional study. Taking into account the incidence of responses, each survey answer of the survey group (n = 1830) and the selected regions of Slovakia were analysed, compared and evaluated using the programme of Tap3 – Gamo (Banská Bystrica, Slovakia). All survey data of the survey group was polled after cleaning and analysed using the basic descriptive statistics, in particular the percentage frequency analysis (%), arithmetic mean ($\bar{x}$) and multiplicity (n). The percentage value (%) was applied in the survey questions with the single choice answer, while the differences in thepercentage values (%) were applied in the survey questions with the single choice answer, differences between each region were evaluated by the method of inductive statistics – chi-square test (χ^2), of which the significance level (α) was 0.01 and 0.05.

Results

In accordance with the survey aim, Figure 1 illustrates the average leisure time of the survey group (n = 1830) during the working week and confirms that the survey answer of 1-3 hours predominated at 52.44% (n = 960), with the incidence of responses ranging from 34.73% (n = 174, Prešov Region) to 52.44% (n = 290, Banská Bystrica Region). The survey answer of 3-5 hours was declared by 28.32% (n = 518) of the survey group, with

the incidence of responses ranging from 22.78% (n = = 41, Košice Region) to 32.53% (n = 162, Prešov Region). Another survey answer of >5 hours was selected by 19.14% (n = 350) of the survey group, which showed a lower incidence of responses (28.32% vs 19.14%) than the previous survey answer (Figure 1). The percentage value of 8.56% (n = 156) was recorded for the survey answer of <1 hour, which was the lowest incidence of responses within the average leisure time in the survey group during the working week.

Taking into account the incidence of average leisure time in the survey group (n = 1830) during the working week, the intergroup difference of the survey group and each region revealed the statistical significance ($p < 0.01$; $p < 0.05$) within the majority of selected regions of Slovakia, with the exception of the mutual statistical comparison between the Banská Bystrica Region vs the Bratislava Region and the Žilina Region vs the Prešov Region ($p > 0.05$) (Table 1).

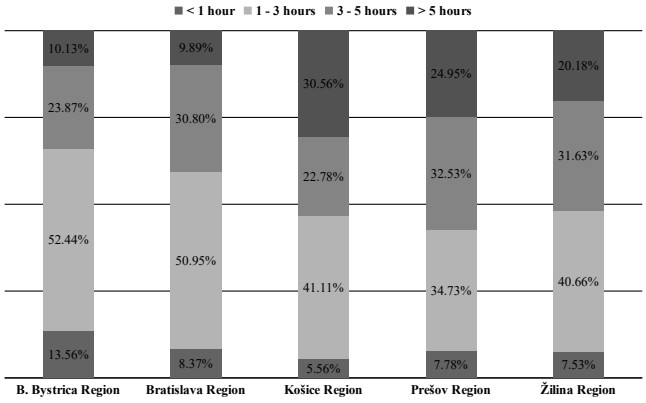

Figure 1. Average leisure time of the survey group (n = 1830) during the working week

After evaluating the previous survey question, Figure 2 illustrates the average leisure time of the survey group (n = 1830) during the weekend and confirms the greater variety of responses than the previous survey answers. For instance, the survey answer of >5 hours reached the highest incidence of responses (63.11%, n = 640) within the survey group from the northern (Žilina Region: 61.75%, n = 205) and eastern (Košice Region: 63.33%, n = 114 and Prešov Region: 64.27%, n = 322) Slovakia. The incidence of responses from the other regions of Slovakia decreased by 36.49% (n = 422). The survey answer of 3-5 hours was given by 25.05% (n = 458) of the survey group, with the incidence of responses ranging from 12.78% (n = 23, Košice Region) to 36.50% (n = 96, Bratislava Region). The incidence of the following responses was not much different, because on average 22.34% (n = 408) of the survey group declared 1-3 hours, which ranged from 10.98% (n = 55, Prešov Region) to 37.64% (n = 98, Bratislava Region). In turn, 4.08% (n = 75) of the survey group gave the survey answer of <1 hour.

Taking into account the incidence of average leisure time in the survey group (n = 1830) during the weekend, the intergroup difference of the survey group and each region revealed the statistical significance ($p < 0.01$; $p < 0.05$) within the majority of selected regions of

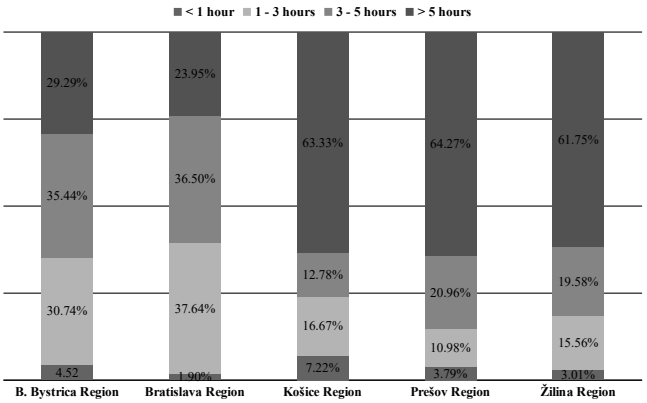

Figure 2. Average leisure time of the survey group (n = 1830) during the weekend

Table 1. Statistical interpretation of average leisure time of the survey group (n = 1830) during the working week

	Survey group				
Region	Banská Bystrica	Bratislava	Košice	Žilina	Prešov
Banská Bystrica	–	0.059793	1.66E-10**	4.26E-07**	1.44E-14**
Bratislava	0.059793	–	9.2E-07**	0.00359**	7.38E-07**
Košice	1.66E-10**	9.2E-07**	–	0.027376*	0.042485*
Žilina	4.26E-07**	0.00359**	0.027376*	–	0.268805
Prešov	1.44E-14**	7.38E-07**	0.042485*	0.268805	–

* significance level of 0.05; ** significance level of 0.01

Table 2. Statistical interpretation of average leisure time of the survey group (n = 1830) during the weekend

	Survey group				
Region	Banská Bystrica	Bratislava	Košice	Žilina	Prešov
Banská Bystrica	–	0.050302	1.41E-16**	1.81E-19**	1.14E-29**
Bratislava	0.050302	–	7.7E-19**	1.53E-19**	6.51E-29**
Košice	1.41E-16**	7.7E-19**	–	0.048847*	0.009389**
Žilina	1.81E-19**	1.53E-19**	0.048847*	–	0.245906
Prešov	1.14E-29**	6.51E-29**	0.009389**	0.245906	–

* significance level of 0.05; ** significance level of 0.01

Slovakia, with the exception of a mutual statistical comparison between the Banská Bystrica Region vs the Bratislava Region and the Žilina Region vs the Prešov Region ($p > 0.05$) (Table 2).

When evaluating the last survey question, Figure 3 illustrates the interest area of spending the leisure time of the survey group (n = 1830) and confirms that the survey answer of leisure sport activity predominated (45.64%, n = 835) with the incidence of responses ranging from 31.56% (n = 83, Bratislava Region) to 54.69% (n = 274, Prešov Region). The survey answer of media leisure activity was declared by 20.01% (n = 402) of the survey group, with the incidence of responses ranging from 8.37% (n = 22, Bratislava Region) to 36.45% (n = 121, Žilina Region). The survey answer indicating cultural leisure activity was given by 12.97% (n = 238) of the survey group. A lower percentage value of 5.79% (n = 106) was found for the survey answer of technical leisure activity, which represented the lowest incidence of responses within the interest area of spending the leisure time in the survey group. The difference of 0.24% (n = 4) represented the proportion between the survey answer of technical and nature-based leisure activity (5.79%, n = 106 vs 6.03%, n = 110). Not so different was the incidence of the following responses, because 7.53% (n = 138) of the survey group selected the survey answer of social leisure activity, ranging from 4.19% (n = 22, Prešov Region) to 15.59% (n = 42, Bratislava Region).

Taking into account the incidence of interest area of spending the leisure time, the intergroup difference of the survey group and each region revealed the statistical significance ($p < 0.01$; $p < 0.05$) within the majority of selected regions of Slovakia, with the exception of the mutual statistical comparison between the Banská

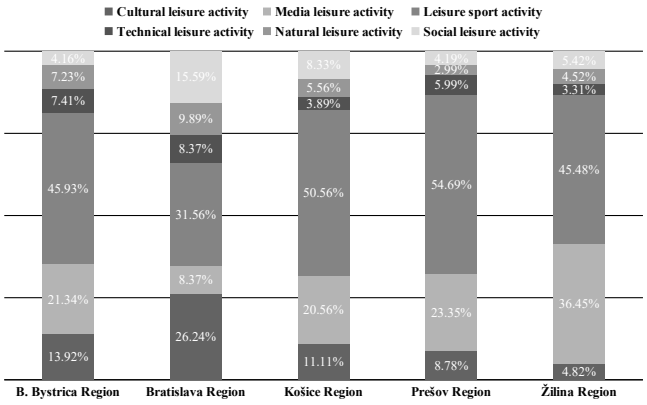

Figure 3. Interest area of spending leisure time of the survey group (n = 1830)

Table 3. Statistical interpretation of interest area of spending leisure activity in the survey group (n = 1830)

	Survey group				
Region	Banská Bystrica	Bratislava	Košice	Žilina	Prešov
Banská Bystrica	–	2.49E-14**	0.102477	3.66E-08**	0.001049**
Bratislava	2.49E-14**	–	2.21E-08**	1.7E-26**	2.05E-24**
Košice	0.102477	2.21E-08**	–	0.002224**	0.094737
Žilina	3.66E-08**	1.7E-26**	0.002224**	–	0.000175**
Prešov	0.001049**	2.05E-24**	0.094737	0.000175**	–

Note. * – Significance level of 0.05, ** – Significance level of 0.01

Bystrica Region vs the Košice Region and the Košice Region vs the Prešov Region ($p > 0.05$) (Table 3).

Discussion

Adolescent boys are spending their leisure time in a different way than they did a decade ago; devoting more leisure time to sleep and screen-based activity and less of that time to the process of socialising; however, there is no consistent evidence that leisure-time physical activity in adolescent boys has changed throughout the years [29]. Additionally, there is an upward trend in Finnish and Norwegian adolescents' leisure-time physical activity, in particular an increase of that activity among adolescent girls [14]. Existing evidence shows that among 405 adolescent boys (aged 17 ± 1.2 years), 67% of them participated in some form of leisure-time physical activity for more than 10 minutes/day and for 52% it was 49 minutes/day. An average for leisure-time physical activity was different in adolescent boys (55 minutes/day) compared to adolescent girl (38 minutes/day) [19]. Another existing evidence of Brazilian data shows that the prevalence of leisure-time physical inactivity was different (54.3%) in adolescent boys (38%) compared to adolescent girls (70.7%). In turn, evidence from a Polish project (2003-2005) revealed that nearly 35% of Polish adolescent boys and girls are not active during their leisure time, only 17% of them are occasionally engaged in any exercise and over 50% of them do not participate in any kind of recreational leisure time activity [8]. Almost 25% of European adolescent boys and girls do not engage in leisure-time physical activity and this ratio increases with age [27]. German adolescent boys and girls show that a majority of them participated in leisure-time physical activity; 66.6% of them more than 2 hours/week [12]. Compared to 2000, adolescent boys and girls in 2015 spent less of their leisure time on physical activity, sports and cultural pursuits [4].

Adolescent boys now spend more than 5 hours of leisure time/day (5 hours and 44 minutes). During the working week and weekend adolescent boys and girls performed physical activity more than 3 hours/day, while with an increasing age their physical activity decreased and at the age of 15 it was only 49 minutes/day of the working week. During the weekend it was only 35 minutes/day [15]. In a study carried out in eastern Slovakia adolescent boys spent their leisure time more actively during the working week compared to adolescent girls. In terms of its duration, adolescent boys spent 41.5 minutes/day at leisure-time physical activity and adolescent girls only 11 minutes/day. During the weekend adolescent boys were again more physically active than adolescent girls (71.7 minutes/day vs 11.7 minutes/day of leisure-time physical activity) [29].

Existing evidence provided by television news (ABC News, CBS News, CNN News) shows that adolescent boys spend an average of 7 hours and 22 minutes of leisure time/day, of which they spend massive amounts of screen time as a form of leisure activity. Given evidence does not correlate with our results, because the survey answer of 1-3 hours dominated (52.44%, n = 960), with the incidence of responses ranging from 34.73% (n = 174, Prešov Region) to 52.44% (n = 290, Banská Bystrica Region) (Figure 1). Existing evidence shows that almost every adolescent boy and girl (in Slovakia) watches television every day (98.5%), while 64% of them every day play computer games. Slovak adolescent girls watch television on average 2.31 hours/day, while Slovak adolescent boys watch television for 2.21 hours/day; however, they spend more time playing computer games (1.13 hours/day) than Slovak adolescent girls (0.72 hours/day; $p < 0.001$) [28]. A study carried out in Poland included information concerning the negative amount of passive leisure time among the schoolchildren who spent on average 2.5 hours/day watching television and 1.6 hours/day playing computer games. According to that study, these types of sedentary activities increased on weekends [21]. Another Polish study revealed that over 42% of adolescent boys and girls spent more than 3 hours/day in front of the television and a computer monitor [8]. Watching television and playing computer games are the most common ways of spending leisure time among Hungarian adolescents. As shown by a Hungarian study, a majority of adolescent boys and girls (residents of Debrecen, Hungary) play (engage in) sports on a regular basis, while they spend on average 3 hours/working day of leisure time and 6.5 hours/weekend at leisure time activities. Only 22.7% of adolescent girls play computer games, which is 85.5% in the case of adolescent boys. Their percentage engaged in daily out-of-school leisure time activity is 22.9%; however, 89.5% of them do out-of-school leisure time activity 2-3 times/week [27]. Slovak adolescent boys and girls make adverse choices concerning their leisure time, as they take over and similarly follow the preferences of their foreign peers to spend leisure time mainly in a sedentary activity [28]. The survey answer of 3-5 hours was selected by 28.32% (n = 518) of the survey group (n = 1830) (leisure time/working week). When comparing Czech adolescent boys they spent 2.8 hours/working day doing schoolwork during the spring lockdown 2020, when they devoted 5 hours/

working day to leisure time activity they enjoyed [24]. In 2003-2005 adolescent boys and girls averaged more than 5 hours/day in leisure time; 66.6% of them spent their leisure time passively [7]. In terms of leisure time/weekend, given evidence correlates with our results, because the survey answer of <5 hours reached the highest incidence of responses (63.11%, n = 640) within the survey group from the northern (Žilina Region: 61.75%, n = 205) and eastern (Košice Region: 63.33%, n = 114; Prešov Region: 64.27%, n = 322) Slovakia (Figure 2).

When adolescent boys use screen-based media more frequently, they are less active in leisure time [1]. Moreover, about 98% of adolescent boys used screen-based media. Screen time was 3.8 hours/day and 68% of adolescent boys reported its duration to be longer than recommended (>2 hours/day) [9]. The use of interactive media has increased in recent years [1, 3]. Existing evidence correlates with our results, because the survey answer of media leisure time was given by 20.01% (n = 402) of the survey group (n = 1830). The incidence of responses ranged from 8.37% (n = 22, Bratislava Region) to 36.45% (n = 121, Žilina Region). The survey answer of leisure sport activity dominated (45.64%, n = 835), with the incidence of responses ranging from 31.56% (n = 83, Bratislava Region) to 54.69% (n = 274, Prešov Region) (Figure 3). Engaging in most of the specific types of leisure time activity shows a serious decline from age 15 to 23 [10]. Peers and parents play an important role in influencing adolescent boys' leisure-time physical activity and in general, the life of an individual [20]. According to the common presumption, adolescent boys spend most of their leisure time in company of their peers who represent their alternative family [17]. On average, 7.53% (n = 138) of the survey group (n = 1830) selected the survey answer of social leisure time. Active participation in leisure time activities is associated with various aspects of successful aging, including psychosocial health and well-being. An exercise frequency of ≤3 times/week is a powerful predictor of adolescent health literacy and health-promoting lifestyle profile [6, 18].

Conclusions

The present study was aimed at analysing and comparing leisure time of secondary school male students in terms of selected regions of Slovakia, which differ not only by geographical location (landform – flat, Bratislava Region and hilly, Banská Bystrica Region), but mainly the economic character. An average leisure time of secondary school male students (adolescent boys) during the working week revealed significant differences ($p < 0.01$), in particular for the Košice Region (eastern Slovakia) compared to the other selected regions of Slovakia. When evaluating the average leisure time during the working week and weekend, a very similar finding ($p < 0.01$) was revealed. We consider it important that in terms of selected regions of northern (Žilina Region) and eastern (Košice Region and Prešov Region) Slovakia during the weekend more than 60% of secondary school male students spent >5 hours/day of leisure time, which is almost ½ more compared to the other selected regions of Slovakia (the Bratislava Region and the Banská Bystrica Region). The main interest area of spending leisure time for the survey group (n = 1830) is leisure sport activity (45.64%, n = = 835), which is popular in eastern Slovakia (more than 50% of the Košice Region and the Prešov Region). In contrast, the lowest incidence of such responses was recorded for Bratislava, the "country's richest region" (in terms of gross domestic product), where leisure sport activity dominated only in 31.56% (n = 83) of the survey group. For this reason we consider one of the "causes" to be associated with a relatively higher opportunity of cultural and social leisure activities (>26%), which exceed the activity 2- or even 6-fold in terms of the selected regions of Slovakia, while the content of their leisure time activity differed significantly ($p < 0.01$). In view of the above we see an important role of physical education teachers through their high-quality and well-managed pedagogical process to positively guide and motivate secondary school male students to actively participate in their own development (especially physically, mentally and socially). This needs to include an effective and meaningful use of leisure time with emphasis on the Bratislava Region, which in terms of its economic status reports the best results and creates prerequisites allowing secondary school male students to realize a wider spectrum of leisure time activities, even those more demanding (financially) when compared to the other selected regions of Slovakia. Leisure time used in this way will certainly bring various benefits, not only to secondary school male students (adolescent boys), but also to their primary social groups (friends/family), because adolescents who do not have meaningfully filled leisure time have a greater tendency to engage in risky behaviour.

Conclusions of any cross-sectional study require additional formulation in the light of existing methodological limitations, and therefore, we consider the carrying limit (number) of surveyed secondary school male students and their equal proportionality within the selected regions of Slovakia. Another limiting element

was the use of a non-standardised survey, in which we did not manage to acquire feedback from the secondary school male students. Another limitation was certainly the lack of motivation and complete credibility of filling in the non-standardised survey by secondary school male students, since participation in the cross-sectional survey was voluntary and without any incentives. When being available online at all times (non-standardised survey), it certainly reduced the motivation of secondary school male students to participate in the cross-sectional study. An additional limitation of this cross-sectional study was the sample inhomogeneity related with the category of secondary schools (grammar and vocational schools) those students attended (full-time study) and which revealed significantly different requirements of theoretical and practical preparation of secondary school male students and was closely related with the amount of their leisure time. An additional limitation was connected with the evaluation of non-standardised survey results in terms of adolescent boys (secondary school male students) and without looking for intersex differences depending on selected regions of Slovakia, or such differences taking into account the category of secondary schools attended (grammar and vocational secondary schools). In terms of entire regions of Slovakia the complexity of this cross-sectional study was another limiting element, due to inability to acquire an adequate sample of secondary school male students from the Trnava Region, the Trenčín Region and the Nitra Region and with the regard to the global outbreak of the Covid-19 pandemic.

Conflict of Interest

The authors report no conflict of interest.

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