# Health Awareness in the Field of Physical Activity in Slovakia

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Original Article

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## Abstract:

**Objectives:** The aim of this study was to provide up-to-date information on the prevalence of insufficient physical activity in Slovaks according to gender and age in 2019.
**Design**: Pilot study
**Participants:** A cross-sectional survey conducted in 2019 (men n = 1,298; women n = 1,316) monitored 2,614 participants in the age category 15 - 64 years from all over Slovakia.
**Methods:** We statistically analyzed the questionnaire survey on Health Awareness in Slovakia using the Chi-square test and Fisher's test, in which the level of significance was determined p-value ≤ 0.05.

**Results:** Young men preferred active sports compared to young women who preferred to spend time on social networks. Older men preferred light physical activity compared to older women, who preferred reading books and magazines.
**Conclusion:** With increasing age, the performance of physical activity in Slovaks decreased.

## Introduction

Factors that negatively affect one´s vitality are a lack of physical activity and a high level of sedentary behavior during the day (Damen *et al*., 2020). Physical inactivity is defined as an activity that does not consume sufficient muscle energy (González - Fuentes – Márquez, 2017). Physical inactivity is one of the main risk factors for non-communicable diseases, ranking 14th in the world and 11th in high-income countries (Leskinen *et al*., 2020). A sedentary lifestyle is defined by activities that are performed while sitting or lying down, with energy expenditure equal to or less than 1.5 metabolic equivalents (MET) (Bakker *et al*., 2020). These activities include the use of electronic devices, reading, writing, drawing, painting, doing homework, sitting at school, on the bus, car, or train (Silva *et al*., 2020). Sedentary behavior is currently considered a public health problem with high care costs associated

**Table 1** Differences in types of physical activity according to gender and age categories (ÚVZ SR 2019)

| Type of physical activity | Age category | Men | Women | p-value |
|---|---|---|---|---|
| Active sport | 15-18 years | 38% | 26% | 0,044 |
| | 19-25 years | 27% | 27% | |
| | 26-40 years | 20% | 28% | |
| | 41-64 years | 15% | 19% | |
| Recreational physical activity (cycling, dancing) | 15-18 years | 38% | 39% | 0,048 |
| | 19-25 years | 21% | 27% | |
| | 26-40 years | 15% | 6% | |
| | 41-64 years | 26% | 28% | |
| Easy physical activity (walking) | 15-18 years | 30% | 27% | 0,068 |
| | 19-25 years | 21% | 24% | |
| | 26-40 years | 31% | 27% | |
| | 41-64 years | 18% | 22% | |
| No interest in physical activity | 15-18 years | 41% | 36% | 0,054 |
| | 19-25 years | 27% | 29% | |
| | 26-40 years | 28% | 24% | |
| | 41-64 years | 5% | 11% | |

with technological progress and industrialization (Cuesta-Vargas *et al*., 2020).

## Methodology

A cross-sectional survey conducted in 2019 (men n = 1,298; women n = 1,316) monitored 2,614 participants from all over Slovakia. The questionnaire was compiled by the Public Health Authority of the Slovak Republic (ÚVZ SR) focusing on the health awareness of Slovak citizens aged 15 to 64 years. Employees from 36 regional public health offices disseminated the questionnaire in printed form in May and June. The questions focused on basic social and demographic data with regards to the type and frequency of physical activity.

The R-project (version 3.2.2.) was used in the statistical analysis in the form of Chi-square test (frequency> 5) or Fisher's exact test (frequency <5), which were used to determine differences between social, demographic data and frequency of types of physical activity, with p-value ≤ 0.05 chosen as the level of significance.

## Results

We confirmed statistically significant differences in the type of physical activity. Specifically, we found that boys aged 15 to 18 years (38%) preferred active sports compared to girls in the same age category (26%) (p = 0.044). Men in the age category from 26 to 40 years (15%) preferred recreational physical activity compared to women in the same age category (6%) (p = 0.048) (Table 1).

**Table 2** Differences in daily duration of physical activity according to gender and age categories (ÚVZ SR, 2019)

| Daily duration of physical activity | Age category | Men | Women | p-value |
|---|---|---|---|---|
| More than 3.5 hours | 15-18 years | 31% | 34% | 0,058 |
| | 19-25 years | 27% | 32% | |
| | 26-40 years | 30% | 28% | |
| | 41-64 years | 12% | 6% | |
| Approximately 3.5 hours | 15-18 years | 35% | 24% | 0,039 |
| | 19-25 years | 24% | 35% | |
| | 26-40 years | 29% | 19% | |
| | 41-64 years | 12% | 22% | |
| Less than 3.5 hours | 15-18 years | 31% | 21% | 0,028 |
| | 19-25 years | 27% | 37% | |
| | 26-40 years | 25% | 29% | |
| | 41-64 years | 17% | 13% | |
| Never | 15-18 years | 40% | 38% | 0,064 |
| | 19-25 years | 27% | 29% | |
| | 26-40 years | 28% | 27% | |
| | 41-64 years | 5% | 6% | |

**Table 3** Differences in the frequency of performance of individual types of physical activity according to gender and age categories (ÚVZ SR 2019)

| Frequency of physical activity performance | Age category | Men | Women | p-value |
|---|---|---|---|---|
| **Gardening 1/ 2/ 3/ 4** | 15-18 years | 87%/ 6%/ 3%/ 4% | 81%/ 10%/ 5%/ 4% | 0,061 |
| | 19-25 years | 2%/ 16%/ 50%/ 32% | 3%/ 16%/ 57%/ 24% | 0,051 |
| | 26-40 years | 13%/ 30%/ 24%/ 33% | 14%/ 30%/ 20%/ 36% | 0,068 |
| | 41-64 years | 56%/ 22%/ 10%/ 12% | 55%/ 23%/ 11%/ 11% | 0,213 |
| **Watching TV, listening to radio 1/ 2/ 3/ 4** | 15-18 years | 27%/ 28%/ 24%/ 21% | 37%/ 32%/ 18%/ 13% | **0,036** |
| | 19-25 years | 28%/ 20%/ 16%/ 38% | 13%/ 15%/ 16%/ 56% | **0,047** |
| | 26-40 years | 57%/ 13%/ 7%/ 23% | 63%/ 12%/ 7%/ 18% | 0,054 |
| | 41-64 years | 2%/ 12%/ 52%/ 34% | 1%/ 13%/ 55%/ 31% | 0,065 |
| **Reading newspapers, magazines, books 1/ 2/ 3/ 4** | 15-18 years | 5%/ 24%/ 26%/ 45% | 6%/ 23%/ 27%/ 44% | 0,081 |
| | 19-25 years | 44%/ 25%/ 14%/ 18% | 45%/ 27%/ 15%/ 13% | 0,342 |
| | 26-40 years | 16%/ 23%/ 28%/ 33% | 31%/ 29%/ 23%/ 17% | **0,045** |
| | 41-64 years | 35%/ 22%/ 16%/ 27% | 27%/ 20%/ 18%/ 35% | **0,047** |
| **Playing Games on PC, tablets 1/ 2/ 3/ 4** | 15-18 years | 13%/ 30%/ 24%/ 33% | 14%/ 30%/ 20%/ 36% | 0,055 |
| | 19-25 years | 55%/ 22%/ 11%/ 12% | 55%/ 23%/ 11%/ 11% | 0,061 |
| | 26-40 years | 27%/ 28%/ 24%/ 21% | 36%/ 33%/ 18%/ 13% | 0,052 |
| | 41-64 years | 27%/ 19%/ 16%/ 38% | 13%/ 15%/ 16%/ 56% | 0,063 |
| **Social networks (Facebook, Twitter,...) 1/ 2/ 3/ 4** | 15-18 years | 27%/ 28%/ 24%/ 21% | 36%/ 33%/ 18%/ 13% | **0,044** |
| | 19-25 years | 57%/ 14%/ 7%/ 22% | 63%/ 12%/ 7%/ 18% | 0,071 |
| | 26-40 years | 2%/ 12%/ 52%/ 34% | 1%/ 13%/ 55%/ 31% | 0,135 |
| | 41-64 years | 5%/ 24%/ 26%/ 45% | 6%/ 23%/ 27%/ 44% | 0,068 |
| **Visiting Cultural events 1/ 2/ 3/ 4** | 15-18 years | 11%/ 30%/ 23%/ 36% | 26%/ 38%/ 15%/ 21% | **0,043** |
| | 19-25 years | 59%/ 25%/ 7%/ 9% | 26%/ 38%/ 14%/ 22% | **0,012** |
| | 26-40 years | 35%/ 38%/ 19%/ 9% | 44%/ 33%/ 15%/ 8% | 0,051 |
| | 41-64 years | 13%/ 16%/ 19%/ 52% | 9%/ 12%/ 12%/ 67% | 0,056 |

**1/ 2/ 3/ 4 = every or every other day/ 1-2-times per week/ 1-2 times per month/ rarely or never*

We found statistically significant differences in daily duration of physical activity. More men in the age group 26-40 years (29%) performed physical activity daily for approximately 3.5 hours/day compared to women in the same age group (19%). In contrast, more women in the age group of 41 to 64 years (22%) preferred to perform physical activity daily for approximately 3.5 hours/day compared to men in the same age category (12%) ($p = 0.039$). More boys in the 15-18 age group (31%) performed less than 3.5 hours/day of physical activity compared to girls in the same age group (21%) ($p = 0.028$) (Table 2).

We confirmed the differences between the sexes in the frequency of performing individual types of physical activity. Specifically, watching television and listening to radio, where this activity was performed daily by more girls in the 15-18 age group (37%) compared to boys in the same age group (27%) ($p = 0.036$). On the contrary, more men in the age category 19 to 25 years (28%) daily watched TV and listened to radio compared to women in the same age category (13%) ($p = 0.047$). More women in the 26-40 age group (31%) preferred reading books and magazines 1-2 times a week compared to men in the same age group (16%) ($p = 0.045$). In contrast, more men in the 41-64 age group (35%) preferred reading books and magazines 1-2 times a week compared to women in the same age group (27%) ($p = 0.047$). More girls in the 15-18 age group preferred spending time on social networks (36%) compared to boys in the same age group (27%) ($p = 0.044$). More girls in the 15-18 age group (26%) visited cultural events every day compared to boys in the same age group (11%) ($p = 0.043$). In contrast, more men aged 19 to 25 years (59%) visited cultural events compared to women in the same age category (26%) ($p = 0.012$). We did not find statistically significant differences in other types of physical activity (Table 3).

## Discussion

In this study, we confirmed an increasing trend in physical activity with men being more active. The Baltimore Longitudinal Study also found a declining trend in both men and women who spend their time in sedentary behavior; where men also preferred more active sports (Talbot *et al.,* 2003). In a Polish study, they found that approximately 35% of Polish adults are not physically active in their free time (Drygas *et al.,* 2009). However, the prevalence of a sedentary lifestyle (defined on the basis of low energy expenditure) is high in Europe in adults aged 25-64 years; it ranges from 59% to 64% of this age group (Varo *et al.,* 2003). A long-term study in Amsterdam found differences in physical activity between men and women due to different amounts of time spent on mild and intense activities (Karaca e*t al*., 2009).

With a decrease in sedentary behavior, there has been a steady increase in overall physical activity (Sigmund *et al*., 2009). This increase in intense physical activity has been found in the US population in men only (Talbot *et al*., 2003). In a Finnish study they also found that physical activity tended to increase with age (Borodulin *et al.,* 2007). Due to biological mechanisms a decrease in physical activity is expected with age (Sallis, 2000). This has also been confirmed by adults in the United Kingdom (Miles, 2007). Considering the intensity of the performed physical activity in this study, men are more physically active than women. Similar results were found in the Czech Republic (Suchomel *et al*., 2008) or in Poland (Drygas *et al*., 2009).

According to the World Health Organization, physical activity in adults aged 18-64 years includes physical activity in leisure time (walking, dancing, gardening, hiking, swimming), transport (cycling), occupation, housework, games, sports or planned exercise in the context of daily, family and community activities. Physical activity increases muscle fitness, bone health and reduces the risk of non-communicable diseases. Adults aged 18-64 years should perform at least 150 minutes of moderate-intensity aerobic physical activity throughout the week or at least 75 minutes of high-intensity aerobic physical activity throughout the week, or an equivalent combination of medium and high intensity. *Aerobic activity* should be performed in sessions of at least *10 minutes'* duration. For additional health benefits, adults should increase their moderate-intensity aerobic physical activity to 300 minutes per week or engage in 150-minute of high-intensity aerobic physical activity per week, or an equivalent combination of medium- and high-intensity aerobic activity. Muscle strengthening activities should be performed with the participation of large mus-

cle groups two or more days a week (WHO, 2011).

These recommendations are relevant for all healthy adults aged 18-64 years, unless specific medical conditions indicate otherwise. They apply to all adults, regardless of gender, race, ethnicity or income level. They also apply to individuals with chronic non-infectious conditions, such as hypertension or diabetes and for adults with disabilities. However, certain adjustments may need to be made for each individual based on their physical capacity and specific health risks or limitations (WHO, 2011).

The limitations of the study may be the dishonesty of the participants in the questionnaire survey, for whom it is not possible to prove causal associations between the monitored variables. The positives represent an even distribution of the file according to gender and the undemanding data collection.

Differences in physical activity were demonstrated in the participants, which confirmed the improving movement habits. This study confirmed the strengthening of health awareness in the field of movement habits, but there is still a need to spread information that supports awareness of the benefits of physical activity providing prevention against non-communicable diseases and increasing the overall quality of life.

## Conclusion

With increasing age, the performance of physical activity in Slovaks decreased. Women preferred undemanding physical activity, while men preferred more demanding physical activity. The benefits of physical activity need to be emphasized in national programs to prevent the burden of non-communicable diseases.

## Declaration

The questionnaire in the submitted work was anonymous. At the beginning of the questionnaire respondents received information about the purpose of the questionnaire and its evaluation. The authors have no conflict of interest.

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