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The prevalence of sedentary behaviours and physical activity in Hungarian youth

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Background: The study of sedentary behaviour is becoming much more visible, alongside research on physical activity. Few published studies, however, originate from Eastern or Central Europe. **Method:** Prevalence and point estimate data of key leisure time sedentary and active behaviours are reported from Hungary, a country that has been through an important political transition in the past two decades. Participants (n = 301) aged 13–18 years completed time-use diaries over 4 days for time outside of school. Sedentary and active behaviours were coded and analysed. **Results:** TV viewing reflected trends found elsewhere and was the most prevalent sedentary behaviour. Physical activity levels were low. The next most time-consuming sedentary weekday activities were homework, motorized transport, sitting and talking and playing computer/video games. Gender differences were different to some other countries, with girls reporting more computer game use and boys more sitting and talking, but these may reflect cultural and reporting differences. **Conclusion:** This study provides the first comprehensive description of sedentary behavioural prevalence in Hungarian youth.

Keywords: Hungary, physical activity, sedentary behaviour, youth.

Introduction

Sedentary behaviour is becoming an important research focus that compliments that of physical activity. To date, it has been typical to refer to sedentary behaviour as merely a lack of physical activity, or not meeting a criterion level of activity.[1] More recently, researchers have shown that sedentary behaviours, such as sitting time, may have important effects on health independent of time spent in more active behaviours. For example, Sugiyama and colleagues[2] showed in Australian adults that high levels of sedentary behaviour in the form of TV viewing were predictive of greater levels of overweight and obesity even in those meeting the national recommended level of physical activity, although this was stronger for females than males. Moreover, Pate *et al.*[3] and Hamilton *et al.*[4] make convincing cases for the study of sedentary behaviour as well as physical activity. However, evidence is less clear on the health effects of sedentary behaviour for young people.[5,6]

The political transition of Hungary in 1990 had a strong influence on the role of physical activity in people's lifestyle in that country. The centralized control prior to 1990 provided clear messages and intentions in terms of what was considered the 'correct' and 'useful' way of spending free-time according to a socialist education. The political change was associated with a creation of new social values and preferences.

Inactivity became part of this change and this may be due to the huge developments in informatics and computer technology. Physically passive, inactive and sedentary lifestyles are thought to be associated with increases in overweight and obesity seen in many countries.

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In the present study, sedentary behaviour and physical activity are analysed in the context of the lifestyle of Hungarian young people. The structure of the youngsters' spare time schedule is examined to provide guidance for future studies and policy. For example, what is the role of physical activity in young people's lives and how much of leisure time is devoted to physical activity? What time is dedicated to sedentary activities such as watching TV, watching videos, using the internet, playing computer games, listening to music, reading etc? No data exist in Hungary regarding these sedentary behaviours.[7]

The present study, therefore, sought to document detailed behavioural data for Hungarian youth in respect of individual sedentary and physically active behaviours. Using detailed time-use diaries, data can be gathered to inform current trends not only in physical activity, but also in respect of the kinds of sedentary behaviour that appear to be popular for youth in a country developing after a major political transition.

Methods

Sampling design

Data were collected using a time-use diary (see Instrument section) as a cross-cultural extension to Project STIL ('Sedentary Teenagers & Inactive Lifestyles'), first conducted in the UK within Hungary. The original English diary was translated into Hungarian by a bilingual speaker. A second bilingual speaker compared the translations with the original diary. The final versions were sent to the principal investigator to check for consistency. Sampling in Hungary took place across 12 educational institutions. Eastern Hungarian (Békéscsaba, Nyíregyháza, Berettyóújfalu), Central Hungarian (Bonyhád, Jászberény), Western Hungarian (Fonyód) settlements and Budapest's educational institutions were randomly sampled. To partially account for seasonal variation in behaviour, data were collected between November 2005 and March 2006. At each school, a study co-ordinator, usually the physical education teacher, randomly sampled one class from each of 3-year groups (13–14, 15–16 and 17–18-year olds) from each school. All students in the selected classes were invited to participate regardless of their activity level or sedentary status. No sports colleges were included in the sample. A self-reported ecological momentary assessment

(EMA) diary method was used to examine the behaviour, the location and the social context of students' regular sedentary and physically active lifestyle. Informed consent was obtained from all parents and approval was obtained from the head teachers. The University Ethics Committee in the investigators' universities approved the project.

Participants

Participants ($n = 301$) were 13–18 years of age (mean age = 15.3 years, SD = 0.9, range = 13.5–17.9 year) and comprised male ($n = 121$, 40.2%) and female ($n = 180$, 59.8%) students. Only 7.0% of students completed the diary usually within 5 min, 15.9% within 15 min, 21.3% within 30 min, 19.3% within 1 h and highest proportion, 29.9% >1 h, with 6.6% not responding to this question. Only 0.7 and 1.7% found it 'very difficult' or 'difficult' to understand the diary, while 79.7% found it 'easy' or 'very easy' to understand. The understanding of the diary correlated with ease of remembering to complete the diary ($r = 0.26$, $P < 0.01$) and the perceived accuracy of completion of the diary ($r = 0.37$, $P < 0.01$).

Four hundred diaries were administered and 338 were fully completed and returned (response rate 84.5%). After data checking and cleaning, 301 diaries were used for data analysis. Of the final sample, 95.0% were of Hungarian ethnicity, 1% German (Svabish), 1% Roma (Beash) and 0.7% Slovakian. Religious affiliation was 48.2% Roman Catholic and 19.3% Protestant.

Instrument: EMA diary

The principal data collection instrument was a 'free-time diary' that students completed outside of school hours as an assessment of their leisure time behaviour. Diary methods are useful for assessing everyday events and experiences because they can be completed in naturalistic settings and are less prone to reporting bias caused by recall error.[8] The diary used in the present study is based on principles of EMA[9,10] and has been described previously as a valid and reliable tool for assessing sedentary behaviour and physical activity in secondary school children by Gorely *et al.*[11]

The diary was divided into two parts. The first involved questions about child-level variables (9 items; 'About You'), family-level variables (11 items; 'About your Family') and environmental-level variables (15 items; 'About your Home') that have been hypothesized to correlate with sedentary behaviour and physical activity.[12] The second part of the diary was for recording the behaviours, locations and social contexts that young people engage in each day.

Participants were instructed to complete the diary for 4 days (3 weekdays and 1 weekend day). Data collection days were randomly assigned. At 15-min intervals, participants self-reported (free-response) their behaviour in response to a single item: 'What are you doing now?' Participants were instructed to wear a wristwatch during diary completion days so that the recording schedule (15- min intervals) could be followed. Pilot work found the 15-min time frame to be the most reliable. To help solicit an appropriate level of response, examples common to young people were provided (e.g. talking with friends, watching TV, walking to school, etc.). To reduce response ambiguity for children who were engaged in multiple behaviours (e.g. 'doing homework and listening to the radio') each free-response box included the stem 'The main thing I am doing now is . . .'. Participants also responded to two closed-response items for each time period concerning their location and social context. These parts of the diary are not reported in this article for sake of brevity.

For each weekday, 48 time-samples were obtained (1 every 15 min from 6:00 a.m. to 7.45 a.m. and from 2:00 p.m. to 11.45 p.m.). For the weekend day, 68 time samples were obtained (one every 15 min from 7:00 a.m. to 11.45 p.m.). Data were not collected during school hours because the focus of the study was on free-choice behaviour out of school ('leisure time') and there was potential for the diary assessment procedures to disrupt academic learning time. Respondents were asked not to make changes in their usual activities due to the completion of the diary.

At the end of each diary day, participants also responded to additional items to give feedback on the data collection instrument as well as on the punctuality of the responses (how close to each 15-min intervals they completed the diary), as reported earlier.

Diary scoring and data analysis procedures

The behavioural reports were coded into 23 mutually exclusive categories of leisure time behaviour that had been derived inductively from pilot studies of the diary, as well as in the original project's focus group research with British youth. To estimate the time spent in each behaviour category, the interval-level data were aggregated for each individual (separately by weekday and weekend day) by multiplying the daily frequency of the event by 15 (1 interval = 15 min). The weekday data were then aggregated further to produce a mean, in minutes per day, across weekdays. Since only one weekend day was reported, no further aggregation for weekend reports was necessary. The outcome variables for all analyses are minutes per day engaged in 23 categories of behaviour. The UK project's pilot data suggested that aggregating across 15-min intervals yields valid behavioural samples when compared with a diary that records behaviours in 'real time' except for behaviours of very short duration, such as tooth brushing. The percentage of behavioural reports was calculated for each behaviour at each time period. Four categories of behaviour (sleep, personal care, eating and school) are not presented here because they do not represent truly volitional leisure time activities. All statistical analyses were carried out using SPSS 15.0 software package. Descriptive data are provided to meet the purpose of the study, i.e. to describe patterns of prevalence of behaviours within the sample. Descriptive statistics [mean, 95% confidence interval (CI)] were obtained using 'explore' commands. A significant difference (non-equivalence) between two means was determined by non-overlapping 95% CIs. Results are analysed and reported separately for weekdays and weekend days for the three age groups and two genders, because previous studies have shown these variables to moderate behavioural estimates.

Results

Mean estimates of time

Table 1 shows the mean minutes spent in 13 behaviours on weekdays and weekend days (with less-prevalent behaviours not included but available on request). TV viewing occupied the most leisure time on both weekdays and weekend days. After TV viewing, the most time-consuming sedentary weekday activities were homework, motorized transport, sitting and talking and playing computer/video games. These four activities, plus TV viewing, occupied on average 283 min (4.7 hrs) per weekday. In contrast, only 36 min was occupied by active transport or sports/exercise. At weekends, the sedentary activities that occupied the most time after TV viewing were doing homework, sitting and talking, playing

Table 1 Mean (min/day) and prevalence estimates with 95% CIs for all behaviours (n = 301)[a]

	Means (min/day; 95% CI[b])		Prevalence estimates (%; 95% CI)		
Behaviour	**Weekday**	**Weekend**	**Category**	**Weekday**	**Weekend**
TV viewing					
	100.3 (92.9–107.7)	173.5 (158.9–188.0)	0	4.7 (1.3–8.1)	8.6 (3.5–13.7)
			1–29 m	10.9 (2.4–19.3)	0.5 (<0.1–1.2)
			30–59 m	12.8 (8.0–17.5)	8.5 (3.3–13.7)
			60–119 m	36.0 (28.5–43.5)	21.2 (13.6–28,8)
			120–239 m	33.2 (24.0–42.4)	37.1 (31.8–42.3)
			≥240 m	2.5 (0.3–4.8)	24.1 (16.1–32.2)
Doing homework					
	78.1 (73.1–83.2)	73.5 (63.8–83.1)	0	3.4 (0.6–6.3)	35.9 (26.4–45.1)
			1–29 m	6.4 (<0.1–13.3)	1.1 (<0.1–2.3)
			30–59 m	26.4 (18.9–33.9)	8.0 (4.9–11.1)
			60–119 m	47.0 (38.3–55.7)	25.7 (19.6–31.7)
			120–239 m	16.0 (8.3–23.7)	22.0 (16.5–27.4)
			≥240 m	0.7 (<0.1–1.7)	7.3 (<0.1–15.0)
Motorized transport					
	45.1 (40.0–53.6)	33.4 (25.8–41.0)	0	23.0 (14.3–31.6)	63.8 (53.5–74.1)
			1–29 m	22.9 (13.2–32.3)	4.5 (1.3–7.7)
			30–59 m	22.5 (15.9–29.0)	11.5 (6.5–16.5)
			60–119 m	24.5 (18.6–30.4)	9.4 (4.6–14.2)
			120–239 m	6.9 (1.1–12.7)	8.7 (4.2–13.3)
			≥240 m	0.2 (<0.1–0.8)	1.7 (0.2–3.3)
Sitting and talking					
	34.2 (30.0–38.5)	61.0 (51.6, 70.5)	0	23.6 (13.9–33.2)	40.9 (29.9–51.8)
			1–29 m	35.8 (24.7–46.8)	2.6 (0.6–4.7)
			30–59 m	19.1 (14.4–23.8)	13.4 (10.9–15.9)
			60–119 m	19.5 (13.1–25.9)	22.7 (15.4–29.9)
			120–239 m	2.0 (0.5–3.5)	17.3 (11.6–22.9)
			≥240 m		3.1 (0.2–6.0)
Active transport[c]					
	25.1 (22.8–27.5)	11.3 (9.0–13.5)	0	17.4 (7.8–26.9)	66.1 (60.2–72.0)
			1–29 m	41.9 (30.8–53.0)	13.2 (9.3–17.0)
			30–59 m	34.2 (24.2–44.2)	12.9 (8.4–17.3)
			60–119 m	6.5 (2.3–10.8)	7.9 (1.6–14.1)
			120–239 m		
			≥240 m		
Behavioural hobbies[d]					
	12.1 (9.2–15.0)	26.6 (18.9–34.3)	0	69.6 (57.6–81.5)	80.5 (76.2–84.8)
			1–29 m	12.8 (9.4–16.2)	0.3 (<0.1–0.8)
			30–59 m	7.1 (2.7–11.5)	2.1 (0.1–4.0)
			60–119 m	8.8 (1.2–16.5)	9.4 (4.4–14.5)
			120–239 m	1.7 (<0.1–4.4)	5.1 (2.2–8.0)
			≥240 m		2.6 (1.2–4.1)
Shopping/hanging out in town					
	11.3 (9.1–13.5)	29.4 (21.6–37.2)	0	49.6 (38.8–60.4)	69.1 (60.3–77.9)
			1–29 m	37.5 (29.0–46.0)	2.7 (0.4–5.3)
			30–59 m	9.8 (5.8–13.7)	10.3 (6.0–14.6)
			60–119 m	2.9 (0.2–5.6)	11.1 (5.1–17.0)
			120–239 m	0.3 (<0.1–0.8)	5.0 (1.6–8.5)
			≥240 m		1.8 (0.3–3.4)
Sports and exercise					
	11.2 (8.4–13.9)	24.9 (17.8–32.1)	0	71.6 (63.5–79.6)	75.3 (70.0–80.5)
			1–29 m	10.1 (5.2–15.0)	2.8 (<0.1–5.5)
			30–59 m	9.7 (5.3–14.1)	4.5 (1.2–7.7)
			60–119 m	8.2 (3.7–12.6)	12.4 (7.6–17.3)
			120–239 m	0.5 (<0.1–1.1)	2.8 (0.4–5.2)
			≥240 m		2.3 (0.6–3.9)
Listening to music					
	13.8 (11.6–15.9)	21.3 (16.8–25.8)	0	49.9 (40.9–59.0)	61.8 (53.5–70.2)
			1–29 m	31.0 (23.9–38.0)	6.8 (2.4–11.1)
			30–59 m	15.7 (11.5–19.8)	16.7 (11.6–21.7)
			60–119 m	3.4 (1.5–5.3)	11.3 (6.8–15.7)
			120–239 m		3.1 (1.0–5.2)
			≥240 m		0.4 (<0.1–1.3)
Using a computer[e]					
	7.6 (5.3–9.8)	11.7 (7.6–15.9)	0	74.9 (66.3–83.6)	83.9 (76.7–91.0)
			1–29 m	15.8 (9.6–22.1)	1.7 (<0.1–4.4)
			30–59 m	5.9 (2.2–9.5)	3.8 (0.4–7.2)
			60–119 m	3.4 (0.4–6.3)	8.6 (3.7–13.6)
			120–239 m	0.2 (<0.1–0.8)	1.9 (0.4, 3.4)
			≥240 m		0.2 (<0.1–0.6)

(*continued*)

Table 1 Mean (min/day) and prevalence estimates with 95% CIs for all behaviours (n = 301)[a]

	Means (min/day; 95% CI[b])		Prevalence estimates (%; 95% CI)		
Behaviour	**Weekday**	**Weekend**	**Category**	**Weekday**	**Weekend**
Reading					
	12.0 (9.5–14.5)	24.6 (17.7–31.4)	0	58.0 (48.2–67.8)	66.6 (56.8–76.3)
			1–29 m	23.3 (17.4–29.1)	2.2 (<0.1–4.8)
			30–59 m	11.9 (6.9–16.8)	14.7 (9.7–19.6)
			60–119 m	6.0 (2.4–9.6)	10.6 (5.1–16.1)
			120–239 m	0.8 (<0.1–2.7)	5.1 (2.1–8.1)
			≥240 m		0.9 (<0.1–2.3)
Playing computer/video games					
	25.6 (21.1–30.2)	55.1 (45.4–64.7)	0	46.6 (32.0–61.2)	51.5 (39.9–63.1)
			1–29 m	21.6 (15.9–27.3)	3.9 (<0.1–10.9)
			30–59 m	16.9 (12.1–21.8)	9.4 (3.3–15.6)
			60–119 m	11.2 (2.5–19.9)	18.0 (11.1–24.9)
			120–239 m	3.4 (0.3–6.5)	13.9 (4.8–23.0)
			≥240 m	0.3 (<0.1–0.9)	4.4 (1.1–7.6)

a: Results are weighted to be nationally representative and CIs are adjusted for complex survey design effects
b: 95% CI
c: For example, walking, skating or cycling to a destination
d: Behavioural hobbies include playing musical instruments, church, looking after pets etc
e: Non-homework computer and internet use. Using a computer for homework was coded as homework

computer/video games and motorized transport. Combined, these activities accounted for a mean of 397 min (6.6 hrs) of free-time per weekend day. On an average, 36 min were spent in either active transport or sports/exercise on weekend days.

In 16 of the 18 behaviours, there were significant differences between weekdays and weekend days with significantly more time being spent in the behaviour at weekends, reflecting the greater discretionary time available. Only active and motorized transport did not follow this trend. Overall, the broad CIs around the reported means of most behaviours indicated wide variability in time spent in each behaviour.

There were very few significant differences across the 3 year groups (data available upon request). Youngest students (13–14 years of age) did less sitting and talking on weekdays (28 min day^{-1}, 95% CI 21.1–33.9) than the oldest students (17–18 years of age; 43 min day^{-1}, 95% CI 34.4–51.5).

Significant differences were revealed between the two genders on two behaviours. On weekdays, male students spent more time shopping/hanging out in town (15 min day^{-1}, 95% CI 10.8–19.6) and playing computer/video games (18 min day^{-1}, 95% CI 12.6–22.6) than female students (shopping/hanging out in town: 9 min day^{-1}, 95% CI 6.6–10.8; playing computer/video games: 31 min day^{-1}, 95% CI 24.3–37.7).

Prevalence estimates

Table 1 presents the prevalence estimates and CIs for 13 behaviours. The majority of adolescent students in this sample watched <2 hrs of TV on weekdays (64%) and only a small minority (3%) watched >4 hrs. At weekends, more television was watched but 39% still viewed <2 h day^{-1}, however, 24% watched >4 hrs. Only 10% of students used a computer for >30 min day^{-1}on weekdays, but 15% on weekend days, with the majority reporting no computer use (for non-homework purposes) on either weekdays (75%) or weekend days (84%). About one-half of the students reported computer or video game use on weekdays (53%) and on weekend days (49%). Forty-five percent of students reported up to 1 h of motorized travel on weekdays, and 32% reported >1 h daily. At weekends, 20% of students reported >1 h of motorized travel each day, but 64% of students reported none. The majority (80%) of students in the sample reported doing between 30 min and 2 hrs of homework per weekday. Thirty-six percent reported doing no homework on weekend days but 29% reported doing >2 hrs.

A large majority (72%) of students reported doing no sports/exercise on weekdays, rising slightly to 75% at weekends. Only 9% reported doing sports/exercise for >1 h on weekdays but this rose to 17% at weekends. Seventy-six percent of the students did up to 1 h of active travel on weekdays and 17% reported no weekday active travel. Active travel dropped at the weekend and 66% of the participants reported no active travel and 26% reported up to 1 h.

Unsurprisingly, there are differences in the prevalence of behaviours between weekdays and weekend days. For example, a significantly greater proportion of participants reported no motorized or active travel at weekends. Also on weekends, there was a shift in both directions away from the middle ground of TV viewing with a significantly higher proportion reporting either no TV viewing (weekdays 5%, weekend days 8%) or >4 hrs of TV viewing (weekdays 3%, weekend days 24%). There were very few age differences, but some gender differences (data available on request). Notable differences include a greater proportion of older students spending more time on sitting and talking on weekdays and playing computer/video games at weekends. Also, male students spend more time on weekdays on sitting and talking as well as shopping/hanging out in town but, contrary to prior studies, less time playing computer/video games than female students.

Discussion

This study reports descriptive data on the physically active and sedentary behaviours of youth in Hungary. Using a detailed EMA, time-use methodology enabled estimates to be presented on a range of behaviours, relying less on recall than other self-report methods. This has advantages over some other studies. Moreover, much of the emphasis in the study of sedentary behaviours has been on TV viewing. We studied a much wider range of behaviours to obtain a better picture of what Hungarian youth are doing in their leisure time.

In our sample, as in other data sets from Australia,[13] USA[14] and UK[15,16] and elsewhere,[17] TV viewing was the single most popular sedentary behaviour in leisure time for Hungarian youths. Estimates from the present sample are similar to those from other studies,[17] with ~1.7 hrs of TV viewing for

a weekday, and nearly 3 hrs on a weekend day. However, such data mask large variability, hence it is important to report prevalence estimates. There is broad agreement that 4 hrs of TV viewing per day is 'excessive',[18] and that <2 h day^{-1} is recommended. Just under one-quarter of Hungarian youth exceed 4 hrs on a weekend day, and this group requires targeting for interventions. However, a large number remain 'acceptable' users, suggesting that explanations for juvenile obesity being placed firmly on TV viewing are simplistic.[5]

With the development of new technologies, it is unsurprising that sedentary behaviour researchers have focussed on 'screen time' (TV and computer use). In our study, in addition to TV viewing, Hungarian youth spent ~25 min on a weekday and just <1 h on a weekend day playing computer games. This appears to be similar to estimates from other countries when averaging across a 7-day week.[17] However, is it worth noting that time will be spent at a computer for other uses, including homework, and this trend is likely to be increasing. It is important to help young people monitor the amount of their time spent on screen behaviours as some will have excessive levels. Adult data suggest that prolonged sitting time, typical of screen use, may be associated with unfavourable metabolic profiles,[4] although data on young people are scarce.[6] Breaks in sedentary time[19] and, of course, more time in moderate or moderate-to-vigorous physical activity, are recommended. At the same time, our Hungarian data show that other, non-screen-based, sedentary behaviours are prevalent. These include motorized transport and homework. The latter suggest higher levels than in some other countries.[15] Scully and colleagues,[20] for example, highlight that Australian state education department guidelines suggest that students complete about 10 min of homework a day each school year (grade) they progress in school, to a minimum of 2h day^{-1} in Year 12. Homework, therefore, can be a significant sedentary pursuit.

Being sedentary for transport is one area where policy and promotion can be effective. There is clear competition between active and motorized modes of transport. For young people living close to their school, there is a good opportunity to take more active forms of transport and to offset the decline in walking and cycling that is seen in many countries.[21] For example, 66% of the Hungarian youth take no active forms of transport at weekends, suggesting that a great deal of their time may be spent at home. Time inside the home is predictive of more sedentary behaviour. More needs to be known if these young people are being sedentary at home or being driven in cars to active leisure pursuits.

Alongside sedentary behaviours, the method adopted in this study allowed us to estimate time in more active behaviours. Young Hungarian people in our sample appeared to have very low levels of leisure time physical activity in the form of sports/exercise, averaging only 11 min for a weekday and 25 min on a weekend day, much less than their Scottish counterparts, for example (15). This excludes time in active transport and time spent in school physical education. Indeed, prevalence estimates showed no leisure time sports or exercise for about three-quarters of the sample. In addition to targeting reductions in sedentary behaviours, our data suggest that a major effort is needed to promote leisure time physical activity in Hungarian adolescents, whether this be through sport, formal exercise or informal forms of play and physical activity.

Our data showed one anomaly when compared with other data sets. Girls played more computer games than boys, and this is in clear contrast to other data sets.[15,16,22] In the Hungarian culture, girls tend to do more 'chatting' on the computer than boys, using 'facebook'-type platforms ('IWIW'), which gives personal information about each other. Girls may have reported such behaviour as 'computer gaming' yet, it may reflect a desire for sedentary socializing where girls tend to have higher rates than boys.

This study has provided useful exploratory and descriptive data on sedentary and active behavioural patterns of leisure time use of the Hungarian young people. Such data should prove useful in gaining a more detailed understanding of sedentary and active behaviours for future interventions, including better health education and promotion, as well as the monitoring of trends. One such trend might be to compare these data with young people's involvement in more active computer games, and to see if such apparently attractive games are being taken up in Hungary and sustained over time.

Notwithstanding the utility of our data, the method adopted relies on recall to some extent, is burdensome on the participants, and may need to be used alongside more 'objective' methods of activity monitoring. Moreover, the 15-min time interval is best used for calculating estimates for certain behaviours, and less reliable for short or infrequent behaviours. The latter were largely excluded from our analyses. Despite these limitations, we have provided the first comprehensive description of sedentary behavioural prevalence of a sample of Hungarian youth for others to build on and for forthcoming European comparisons.

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Conflicts of interest: None declared.

Key points

- Sedentary behaviour is increasingly recognized as an important and ubiquitous risk to health but few data are available outside Australia, USA or UK. This article studies youth in Hungary.
- Sedentary behaviour is multifaceted with important age and gender differences
- Girls in Hungary appear to have higher computer screen time than boys, and this contradicts other studies. However, this may reflect use of the computer for social interaction.

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