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Duration of daily TV/screen watching with cardiovascular, respiratory, mental and psychiatric health: Scottish Health Survey, 2012–2013

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ABSTRACT

Background: The link of duration of TV and/or screen watching and chronic health conditions by subtypes is unclear. Therefore, the relationship between TV and/or screen watching hours and cardiovascular, respiratory, mental and psychiatric health and well-being (happiness) was assessed in an independent population-based survey to identify correlations of various hours with health conditions.
Methods: Data was retrieved from the Scottish Health Survey, 2012–2013. Information on demographics, lifestyle factors, self-reported health conditions and TV and/or screen watching duration in both Scottish adults and children was collected by annual household interviews. Chi-square test and survey weighted logistic and multi-nominal modelling were performed.
Results: 5527 (57.0%) Scottish adults aged 16–99 watched TV and/or screen daily for 3 + h on average. There was a trend toward more hypertension, angina, stroke, diabetes, chronic obstructive pulmonary disease and poor self-rated health and mental health. Reporting watching TV and/or screen for 4 + h, for 5 + h and for 8 + h was associated with higher rates of heart attack, heart murmur or other heart troubles and abnormal heart rhythms, respectively. 414 (20.7%) Scottish children aged 4–12 watched TV and/or screen for 3 h or more. They tended to have poor self-rated health and life difficulties perceived as emotional and behavioural problems.
Conclusion: There were associations between various hours of TV and/or screen watching (3 + h) and poor health observed both in Scottish adults and children. Future educational and public health programmes minimising TV and/or screen watching in order to protect cardiovascular, respiratory, mental and psychiatric health might be considered.

1. Introduction

There have been numerous studies looking at the relationships of TV and/or screen watching and body weight and fitness across populations, in particular in children and adolescents. However, the link of duration of TV and/or screen watching and chronic health conditions by subtypes and/or symptoms is debated. We analysed the relationship between duration of TV and/or screen watching and cardiovascular, respiratory, mental and psychiatric health and well-being (happiness) in an independent population-based survey. It was also assumed that the population studied had constant TV and/or screen watching patterns.

2. Methods

2.1. Study sample

As described elsewhere in detail [1], the Scottish Health Survey has been a country-wide, population-based, multi-year study that started from 1995. It provides a detailed picture of the health of the Scottish population in private households and is designed to make a major contribution to the monitoring of health in Scotland. It is essential for the Scottish Government's forward planning, for identifying gaps in health services provision and for identifying which groups are at particular risk of future ill-health. The survey design including the sampling method has also been addressed [2]. In the current analysis, the most recent two study waves in 2012 and 2013 with available data on demographics, lifestyle factors, self-reported health conditions and TV and/or screen watching hours in both Scottish adults and children to ensure statistical power in the statistical modelling were included. Data was collected by household interviews.

2.2. Statistical analysis

In the first step of data analysis, associations between TV and/or screen watching hours and self-reported health conditions in Scottish adults aged 16–99 were assessed. Health conditions included hypertension, angina, heart attack, abnormal heart rhythm, heart murmur, other heart trouble, stroke, diabetes, chronic obstructive pulmonary disease (COPD), self-rated health and mental health by

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General Health Questionnaire 12-item (GHQ-12) and The Warwick-Edinburgh Mental Well-being Scale (WEMWBS). GHQ-12 is usually used to assess subject's mental health and psychological distress status [3]. The Warwick-Edinburgh Mental Well-being Scale (WEMWBS) is a scale of 14 positively worded items, with five response categories, for assessing a population's mental wellbeing [4].

In the second step of data analysis, associations between TV and/or screen watching hours and psychiatric health using Strengths and Difficulties Questionnaire (SDQ) reported by parents were examined. Such data was only collected in children aged 4–12. Specific scores of each scale indicating emotional symptoms, conduct problems, hyperactivity, peer problems and pro-social problems were summed. Cut-offs were used to classify normal, borderline or abnormal [5]. The 25 items in the Strengths and Difficulties Questionnaire comprise 5 scales of 5 items each. 'Somewhat True' is always scored as 1, but the scoring of 'Not True' and 'Certainly True' varies with the item, as shown scale by scale [5]. For each of the 5 scales the score can range from 0 to 10 if all items were completed.

Effects were estimated by using odds ratios (OR) or relative risk ratios (RRR) together with 95% confidence intervals (CI), depending on outcome variables being binary or categorical. All the statistical models were weighted for the survey design. Since the study variable of TV and/or screen watching is ordinal, being 1 to 10 h, statistical analyses were executed from 1 to 10 h in order to find out how many hours of TV and/or screen watching could increase the risk of different health conditions. The results were therefore laid out in the corresponding tables accordingly. Only statistically significant associations were shown. Statistical software STATA version 13.0 (STATA, College Station, Texas, USA) was used to perform all the statistical analyses. Since it is only a secondary data analysis by extracting data from the UK Data Archives website, no further ethics approval was required.

3. Results

3.1. TV/screen watching in Scottish adults

Of 9709 Scottish adults aged 16–99 and included in the study analysis, 5527 people (57.0%) watched TV and/or screen daily for 3 h or more on average. Reporting watching TV and/or screen for 4 h or more was associated with heart attack. In addition, reporting watching TV and/or screen for 5 h or more was also associated with heart murmur and other heart troubles not identified with specific subtypes. Moreover, reporting watching TV and/or screen for 8 h or more was associated with abnormal heart rhythm (see Table 1).

On the other hand, reporting watching TV and/or screen for 2 h or more was associated with poor self-rated health while reporting watching TV and/or screen for 3 h or more was associated with fair to poor self-rated health (data not shown). People who reported watching TV and/or screen for 3 h or more were likely to report poor GHQ-12 scores for the most of the symptoms (see Table 2). Symptoms such as loss of sleep over worry and feeing constantly under strain were noted when people watched TV and/or screen for 4 h or more and for 10 h or more, respectively.

Similar observations were obtained by using WEMWBS to measure the mental health state (see Table 3). To be specific, people who reported watching TV and/or screen for 2 h or more were likely to report not feeling optimistic about the future and not feeling useful. People who reported watching TV and/or screening for 3 h or more were likely to report no energy to spare, not feeling good about one's self, not feeling confident and not interested in new things. People who reported watching TV and/or screening for 4 h or more were likely to report not feeling relaxed, not feeling interested in other people, not dealing with problems well, not feeling close to other people, unable to make up their own mind about things and not feeling cheerful. Moreover, people who reported watching TV and/or screening for 5 h or more were likely to report not thinking clearly while people who reported watching TV and/or screening for 8 h or more were likely to report not feeling loved.

Table 1
Associations between daily TV/screen watching and adult cardiovascular diseases (n = 9709; aged 16–99).

	<3 h (n = 4166, 43.0%)	≥3 h (n = 5527, 57.0%)	OR (95% CI)*	P value
Hypertension				
No	3230 (47.1%)	3624 (52.9%)	1.00	
Yes	936 (33.0%)	1903 (67.0%)	1.27 (1.13–1.42)	<0.001
Angina				
No	4045 (44.2%)	5111 (55.8%)	1.00	
Yes	120 (22.5%)	413 (77.5%)	1.35 (1.04–1.74)	0.022
Stroke				
No	4098 (43.7%)	5280 (56.3%)	1.00	
Yes	66 (21.2%)	245 (78.8%)	1.70 (1.23–2.35)	0.001
Diabetes				
No	4006 (44.2%)	5052 (55.8%)	1.00	
Yes	160 (25.2%)	474 (74.8%)	1.47 (1.17–1.84)	0.001
COPD				
No	4053 (43.8%)	5200 (56.2%)	1.00	
Yes	113 (25.8%)	325 (74.2%)	1.40 (1.07–1.85)	0.016
	<4 h (n = 6113, 63.1%)	≥4 h (n = 3530, 36.9%)	OR (95% CI)*	P value
Heart attack				
No	5954 (64.1%)	3341 (35.9%)	1.00	
Yes	158 (40.2%)	235 (59.8%)	1.47 (1.13–1.90)	0.004
	<5 h (n = 7595, 78.4%)	≥5 h (n = 2098, 21.6%)	OR (95% CI)*	P value
Heart murmur				
No	7319 (78.8%)	1974 (21.2%)	1.00	
Yes	274 (69.7%)	119 (30.3%)	1.39 (1.08–1.79)	0.011
Other heart trouble				
No	7413 (78.7%)	2001 (21.3%)	1.00	
Yes	182 (65.2%)	97 (34.8%)	1.37 (1.00–1.88)	0.047
	<8 h (n = 9079, 93.7%)	≥8 h (n = 614, 6.3%)	OR (95% CI)*	P value
Abnormal heart rhythm				
No	8375 (94.0%)	533 (6.0%)	1.00	
Yes	699 (89.6%)	81 (10.4%)	1.34 (1.01–1.78)	0.044

* Adjusted for age, sex, body mass index, smoking status, alcohol status, indoor second-hand smoking, physical activity, high blood pressure and survey design.

3.2. TV/screen watching in Scottish children

Table 4 lists the associations between daily TV and/or screen watching hours and children psychiatric health. Of 1997 Scottish children aged 4–12 and included in the study analysis, 414 people (20.7%) watched TV and/or screen for 3 h or more. They were likely to have poor self-rated health and life difficulties including emotion and behavioural problems than others who watched for less than 3 h.

4. Discussion

4.1. Previous research

Increased TV watching may be a sign of environmental dependency and therefore leads to loss of personal autonomy such that a person's environment almost entirely controls their actions [6]. In American adolescents aged 12–15, it was observed that excessive screen-time behaviours, such as using a computer and watching TV, for more than 2 h daily were associated with elevated blood pressure, elevated serum cholesterol and being overweight or obese while TV watching for 3 h or more increased haemoglobin A1c in youth aged 10 and above [7,8]. In American black women aged 21–69, TV watching was