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Short Communication

Perceptions of opportunities for physical activity in 28 European countries

Filippos T. Filippidis *, Anthony A. Laverty

Department of Primary Care and Public Health, School of Public Health, Imperial College London, United Kingdom

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ABSTRACT

Introduction. This study examined the relationship between perceptions of opportunities for physical activity in the local area and physical activity levels in European adults.

Methods. Data for 20,673 adults aged 18–64 were taken from the representative Eurobarometer survey (wave 80.2, 2013) of 28 European Union (EU) countries. Achieving recommended levels of physical activity and Metabolic Equivalent of Task-minutes (MET-mins) per week was constructed from self-reports of frequency and duration of walking, moderate and vigorous physical activity. Relationships between these outcomes and perceptions of opportunities for physical activity in the local area were assessed using logistic and linear regressions as appropriate; trends in these perceptions were measured between 2002 and 2013.

Results. Respondents stating that their local area offers opportunities for physical activity were more likely to meet recommended levels of physical activity (Adjusted Odds Ratio [AOR] = 1.56). Across all EU countries the percentage of people reporting that their local area offers these opportunities increased slightly between 2005 (71.4%) and 2013 (79.3%, $p < 0.001$). Reporting that the local area offers opportunities for physical activity was associated with more moderate (17 min/week) and vigorous (15 min/week) physical activity and with 23 more minutes of walking per week.

Conclusion. Perceptions of opportunities for physical activity in the local area were associated with increased levels of all types of physical activity. Despite small improvements in perceptions of opportunities in the local area over the past decade, a variety of further interventions will be required to reduce the disease burden resulting from low physical activity levels.

1. Introduction

Physical activity is one of the major determinants of population health, which has led the World Health Organization (WHO) to develop detailed guidelines and prioritise the promotion of physical activity (World Health Organization, 2010). There is a growing body of evidence that highlights the importance of structural and environmental factors, including, among others, aesthetics (Van Dyck et al., 2012), walkability (Thielman et al., 2015), access to facilities and environmental quality (Van Holle et al., 2012). Promoting increased physical activity through modifications of the urban environment has been identified as one of the supporting interventions that have been included in WHO's "Action Plan for implementation of the European Strategy for the Prevention and Control of Noncommunicable Diseases 2012 – 2016" (World Health Organization, 2012).

Recent work has highlighted that substantial numbers of the European population do not achieve recommended levels of physical activity, and that this varies widely both between and within countries (Gerovasili et al., 2015). Findings such as these describing the extent of low levels of physical activity in Europe have generated interest in potential explanations and the extent to which these patterns can be modified. Local environments have an important part to play in this, and have been a focus of research for some time (Sallis et al., 2009). Early reviews concluded that perceptions of the local environment were strongly linked to physical activity levels (Duncan et al., 2005), but more recent reviews in the European context have cast some doubt on the importance of this, both overall and for specific aspects such as access to recreational facilities (Van Holle et al., 2012). However, while there have been a number of country-specific studies, the associations between perceptions of the local environment and physical activity across the whole of the EU have not been examined to date. Additionally, the extent to which these perceptions have changed over time and hence whether this could be a potential explanation for declining levels of activity is little-investigated.

We analysed data from a 2013 Eurobarometer survey to assess the associations between perceptions of opportunities for physical activity

* Corresponding author at: Department of Primary Care and Public Health, School of Public Health, Imperial College London, St Dunstan's Road, London W6 8RP, United Kingdom.
E-mail address: f.filippidis@imperial.ac.uk (F.T. Filippidis).

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in the local area and levels of physical activity in the European Union, as well as the trends in these over the previous decade.

2. Methods

2.1. Study sample

We analysed data from the Eurobarometer survey, wave 80.2. Data from n = 27,919 respondents from 28 EU countries were collected in November–December 2013. Among them, n = 20,697 were between 18 and 64 years old; this subsample was analysed in the present study, as WHO recommendations for physical activity are different for older and younger people (World Health Organization, 2010). A multi-stage sampling design was employed to obtain a representative sample of residents aged ≥15 years in each of the 28 countries. Respondents were selected from households with probability proportional to population size and density. Interviews were conducted in people's homes and in the language of each country. Details on the methodology and questionnaire used in the survey, as well as the dataset are publicly available (European Commission, 2014), hence no ethical approval was required.

For the serial cross-sectional analyses, data from four waves of the Eurobarometer surveys were analysed. Eurobarometer surveys typically cover countries that are members of the European Union and follow the same sampling methodology, but each sample is selected independently, so participants are different in each wave. Therefore, data for 15 countries (EU15) were available in all four waves, while data for the thirteen newest members of the EU were only available in three waves (with the exception of Croatia, which was not included in the 2009 wave). The effective sample sizes were the following: wave 58.2 (2002; n = 12,961; 15 countries), wave 64.3 (2005; n = 20,939; 28 countries), wave 72.3 (2009; n = 19,803; 27 countries) and wave 80.2 (2013; n = 20,697; 28 countries).

2.2. Measures

2.2.1. Sociodemographic data

Data were collected on respondents' gender (male; female), age (18–24; 25–39; 40–54; or ≥55 years); area of residence (rural area or village; town); age at completion of full-time education (≤15; 16–19; or ≥20 years); and frequency at which respondents reported experiencing difficulty paying monthly bills, as a proxy for income ("most of the time"; "from time to time"; "almost never/never"). Member countries were grouped into four sub-regions, based on the United Nations geoscheme (United Nations Statistics Division, 2013): Southern Europe (Croatia, Greece, Italy, Malta, Portugal, Slovenia, Spain, and Republic of Cyprus), Western Europe (France, Belgium, Austria, Germany, The Netherlands, Luxembourg), Northern Europe (Denmark, Ireland, United Kingdom, Latvia, Lithuania, Estonia, Finland, Sweden), and Eastern Europe (Slovakia, Czech Republic, Hungary, Poland, Bulgaria, Romania).

2.2.2. Physical activity

Frequency and average duration of walking, moderate and vigorous physical activity were assessed using questions from the International Physical Activity Questionnaire (IPAQ), which has been validated in several European countries (Lee et al., 2011). The total time spent in each of these was calculated for each individual, by multiplying the number of days during which they engaged in each type of activity with the amount of time they usually spend when doing such activities. Individuals who reported at least 150 min of moderate physical activity – including walking – or at least 75 min of vigorous activity per week, or an equivalent combination of moderate and vigorous activity and therefore met the WHO guidelines for physical activity, were classified as doing recommended levels of physical activity. To estimate total physical activity per week Metabolic Equivalents of Task (METs) were also used and the total amount of MET-minutes (MET-mins) per week was calculated for each respondent, according to reported time spent walking and doing moderate or/and vigorous physical activity. Further details on the methodology have been described elsewhere (Gerovasili et al., 2015).

2.2.3. Opportunities for physical activity

Respondents were asked to say if they agree ("totally agree" and "tend to agree") or disagree ("totally disagree" and "tend to disagree") with the statement "The area where I live offers me many opportunities to be physically active".

2.3. Statistical analysis

Percentages with 95% Confidence Interval (95% CI) are presented. We fitted a multivariable logistic regression model to assess the association between perceptions of opportunities to be physically active in the area where the respondents live and meeting the WHO guidelines for physical activity, adjusting for age; gender; education; geographic region; area of residence; and difficulty in paying bills. A similar linear regression model, with total MET-mins per week as the dependent variable was also fitted. We also fitted linear regression models with the number of minutes per week that respondents spent walking; doing moderate; and vigorous physical activity, adjusted for the aforementioned factors. Finally, logistic regression models with a time variable, adjusting for age, gender and area of residence, were used in order to assess time trends in the proportion of adults who responded that the area where they live offers many opportunities to be physically active. Logistic regression results are presented as Adjusted Odds Ratios (AOR) with 95% CI. Data were weighted to ensure nationally representative estimates.

3. Results

The distribution of the sample aged 18–64 years in the 2013 wave are shown in Supplementary Table 1 and proportions of people meeting the WHO guidelines in Supplementary Table 2. Those who agreed that the area where they live offers many opportunities for physical activity were more likely to meet the WHO guidelines for physical activity (AOR = 1.56; 95% CI: 1.38 to 1.76) compared to those who tended to disagree or disagreed with this statement, after adjusting for gender; age; area of residence; difficulty to pay bills; region; and education. Similarly, those who agreed with the statement reported 267.1 (95% CI: 128.1 to 406.1) more MET-mins of physical activity per week, compared to those who disagreed (Table 1).

Perceptions of the local area having opportunities for physical activity were associated with 23.2 more minutes of walking per week (95% CI: 10.5 to 35.9), 17.4 more minutes of moderate activity (95% CI: 6.5 to 28.3) and 14.7 more minutes of vigorous activity (95% CI: 4.1 to 25.3) per week (data not shown).

The serial cross-sectional analyses showed that the proportion of respondents who agreed – or tended to agree – that the area where they live offers many opportunities for physical activity increased from 75.3% in 2002 to 82.8% in 2013 in the 15 older members of the EU (p for trend <0.001) and from 71.4% in 2005 to 79.0% in 2013 in the 28 EU countries (Table 2). There was a positive linear trend ($p < 0.05$) in sixteen of the countries, while ten countries showed no statistically significant trend over the time period. Greece (71.1%–62.2%) and Romania (56.9%–47.1%) were the only countries in which there was a statistically significant ($p < 0.05$) negative linear trend.

4. Discussion

Our analysis found that perceptions that the local area provides opportunities for physical activity were associated with higher levels of all types of physical activity in the EU, and that perceptions of