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Original Research

Location and deprivation are important influencers of physical activity in primary care populations

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ABSTRACT

Objectives: To investigate the physical activity of adults attending primary care services in the Republic of Ireland and to determine whether the location (urban/rural) and deprivation of the primary care centre influenced physical activity.

Study design: Cross sectional study.

Methods: Stratified random sampling based on urban/rural location and deprivation was used to identify three primary care centres from a list of established primary care teams in the Leinster region. The International Physical Activity Questionnaire (IPAQ) was used to collate data on physical activity category (low/moderate/high), total weekly activity (MET-minutes/week) and weekly walking (MET-minutes/week) of participants.

Results: Data from 885 participants with a median age of 39 years (IQR 31–53) were analysed. There were significant differences in physical activity between the primary care areas ($P < 0.001$). Rural mixed deprivation participants were the least active with almost 60% of this group (59.4%, $n = 177$) classified as inactive (535 median MET-minutes/week, IQR 132–1197). Urban deprived participants were the most active (low active 37.6%, $n = 111$, 975 median MET-minutes/week, IQR 445–1933). Upon adjustment for multiple factors, rural participants (OR = 2.81, 95% CI 1.97–4.01), urban non-deprived participants (OR = 1.61, 95% CI 1.08–2.39), females (OR = 1.66, 95% CI 1.23–2.23) and older adults (OR = 1.01, 95% CI 1.00–1.02) were more likely to be categorised as low active. Overall 47.2% ($n = 418$) of all participants were classified within the low physical activity category.

Conclusions: Significant disparities exist in the physical activity levels of primary care populations. This has important implications for the funding and planning of physical activity interventions.

Introduction

In many countries worldwide, health services are undergoing structural reform with increased emphasis on the delivery of primary health care. In Ireland, one of the key pillars of this reform is the focus on maintaining health and well-being, through preventative approaches to reduce the onset of chronic disease.[1]

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The move of services to primary care offers a unique opportunity to develop physical activity (PA) programmes that align with governmental policy and are integrated into health reform. In order to develop effective primary care led PA interventions, the prevalence of insufficient PA amongst primary care patients needs to be determined. PA is influenced by a complex range of individual, social and environmental factors,[2] and knowledge and understanding of these factors, specifically in a primary care context may help direct funding and target intervention appropriately.

Ireland has recently published summary findings from its national health survey which included details on the PA levels of the population.[3] National level data will, by its nature be representative of the whole population and will therefore include the fit and healthy, as well as those involved with sport and exercise at all levels of participation. People attending primary care present with a diverse and wide ranging set of risk factors and medical conditions and therefore may demonstrate very different patterns and trends in PA when compared to the fit and healthy. Reliance solely on general population data has the potential to mask or overestimate the PA levels of people who may have less favourable health profiles or who are considered more at risk than the general population.

Aim

The aim of this study was to investigate the PA of patients attending primary care services and to determine whether the location (urban/rural) and deprivation of the primary care centre influenced physical activity.

Methods

Sampling and pilot study

This study took place in the Health Service Executive (HSE) region of Dublin Mid Leinster in the Republic of Ireland. Computer generated, stratified random sampling was used to identify three primary care centres, from which the sample was drawn. The primary care centres were identified from a listing of all established primary care teams in the region and their place of work. Stratification was based on the urban/rural location of the primary care centre and the SAHRU National Deprivation Index.[4] The latter is a score given to each of the electoral districts in Ireland, calculated through four census based indicators widely thought to represent material disadvantage.[4] The census based indicators are unemployment, social class, type of housing tenure and car ownership. Each electoral district is allocated a score between one and ten, where one represents the least deprived and ten, the most deprived. Using this index it was possible to group the primary care centres according to urban/rural location and deprivation.

A pilot study was initially conducted in one of the three centres to calculate sample size and to test the feasibility of the study tool and data collection process. Using a physical inactivity prevalence rate of 35% ($n = 159$) obtained from the pilot, a sample size of 750 was calculated, based on 95% confidence intervals and a 3% margin of error. This sample size also adhered to the recommended criteria of 20 cases per variable when calculating sample size for regression analysis.[5] The sample was drawn equally from the three primary care centres; one an urban deprived location, the second an urban non-deprived location and the third, a rural primary care location with mixed deprivation scores.

Study tool

The short version of the self-administered International Physical Activity Questionnaire (IPAQ) was used to collect data on the activity levels of participants over the previous seven days.[6] This questionnaire was used to collate information on vigorous and moderate intensity exercise, as well as walking, across the four domains of leisure, work, transport and domestic/gardening related PA. Using a standardised scoring protocol[7] both a categorical PA score classifying populations into low, moderate and high levels of PA, as well as a continuous weekly PA score expressed in MET-minutes per week (MET; multiples of resting energy expenditure) were calculated. Sociodemographic data were collated by means of an additional short questionnaire.

Consenting adults between the ages of 18–69 years were consecutively recruited as they presented for their primary care appointment. People who were unable to complete the questionnaire in English or who were attending a structured exercise programme provided by the HSE (for example cardiac rehabilitation) were excluded. Data were collected from November 2011 to January 2012 with approximately five days spent in each of the three centres.

Statistical analysis

Data from the questionnaires were inputted to SPSS version 19.0 (SPSS, Inc., Evanston, IL) and analysed using descriptive and inferential statistics. Chi-square test for independence was used to test for significant associations between categorical variables and Yates Correction for Continuity used to correct for overestimation when using two by two tables. Non-parametric tests; the Mann Whitney U and Kruskal–Wallis examined for between group differences in continuous variables. Binary logistic regression was used to assess the odds of belonging to the low PA category. Included in the analysis were the variables; gender, age, medical card, education and primary care location. Adjusted odds ratios with 95% confidence intervals were reported for these analyses. The level of significance for all statistical tests was set at $P \leq 0.05$. Counts for missing data are provided in the tables.

Results

Participant characteristics

Overall 915 people were invited to complete the questionnaire. Fifteen (1.6%) people declined to participate and four were unable to complete the questionnaire due to language barriers. Eleven (1.2%) of the IPAQ questionnaires were incomplete, so these were removed from analysis as per scoring

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