Available online at www.sciencedirect.com
ScienceDirect
Health Policy 84 (2007) 262–268
HEALTH policy
www.elsevier.com/locate/healthpol

Failure to validate the Health Survey for England physical activity module in a cardiac population

Alison Orrell [a,*], Patrick Doherty [b], Simon Coulton [a], Jeremy Miles [a], Emmanuel Stamatakis [c], Robert Lewin [a]

[a] *BHF Care & Education Research Group, Department of Health Sciences, University of York, York YO10 5DD, UK*
[b] *Faculty of Health and Life Sciences, York St. John University, York YO31 7EX, UK*
[c] *Department of Epidemiology and Public Health, Health & Social Surveys Research Group, University College London, London WC1E 7HB, UK*

Abstract

Objectives: The Health Survey for England physical activity module interview, although not validated, is used as a performance indicator to see if people are achieving current physical activity targets and is the primary source of information for physical activity related policy making. The aim of this study was to assess the validity of the Health Survey for England physical activity module as a measure of physical activity in older adults with coronary heart disease.
Methods: Seventy-two older adults who had experienced a cardiac event completed the Health Survey for England physical activity interview and wore an accelerometer for seven consecutive days. Physical activity classification levels were derived from accelerometry and from the Health Survey for England physical activity interview, together with the number of episodes in which participants were moderately active for 30 min or more.
Results: The Health Survey for England physical activity interview exhibited high sensitivity (1.0) and specificity (0.76) for people engaged in high levels of physical activity, moderate sensitivity (0.40) and specificity (0.56) for people engaged in medium levels of physical activity and low sensitivity (0.35) and high specificity (0.92) for people engaged in low levels of physical activity. Compared with the accelerometer, the survey misclassified 63% of participants.
Conclusions: The Health Survey for England physical activity interview misclassified true activity levels in older adults with heart disease by overestimating actual activity in the less active participants. Similar biases on self-report physical activity measures have been demonstrated in the general population, suggesting that the Health Survey for England physical activity module interview may be providing inaccurate information on national activity levels.

Keywords: Performance indicator; Physical activity; Health policy

1. Introduction

The Health Survey for England (HSE) is an annual, cross-sectional population interview-based survey which provides information on various aspects

* Corresponding author at: Department of Health Sciences, Seebohm Rowntree Building Area 2, University of York, Heslington, York YO10 5DD, UK. Tel.: +44 1904 321337; fax: +44 1904 321382.
E-mail address: ao8@york.ac.uk (A. Orrell).

0168-8510/$ – see front matter © 2007 Elsevier Ireland Ltd. All rights reserved.
doi:10.1016/j.healthpol.2007.03.004

of the nation's health and health indicators including physical activity [1]. The HSE is a major source of data for assessing the prevalence of physical activity in England as important health policy documents and strategic targets are based on estimates from recent surveys [2,3]. The questions used in the HSE physical activity module are derived from those originally used in the Allied Dunbar National Fitness Survey (1992) [4]. Surprisingly, neither survey has been validated. Amongst other information the HSE reports the percentage of the adult population achieving the current national recommendations of a minimum of 30 min of moderate intensity activity on at least 5 days per week [1]. The latest figures available reported that 37% of men and 24% of women met this criterion, but that this declined with age with 8% of men aged >75 years and 3% of women aged >75 years meeting the target activity guidelines [5].

Accurate measurement of physical activity by self-report is difficult and limited as factors such as social desirability, age, complexity of questionnaire, seasonal variation and length of period surveyed can influence responses to questions [6]. Direct measurement of physical activity by accelerometry may assist in reducing the limitations of self-report questionnaires. Free-living physical activity can be assessed on a minute-by-minute basis using accelerometry. Accelerometry provides a portable, simple, affordable (for small scale studies), objective and socially acceptable method of measuring physical activity [7].

As part of a study to validate an activity questionnaire for people with cardiac illness we administered both the Health Survey for England physical activity interview and accelerometry to participants who had a previous history of an acute cardiac event. This provided data that afforded the first evaluation of the validity of the Health Survey for England physical activity module, albeit in an older population with a chronic illness. To date, no studies have investigated the validity of the HSE for assessing physical activity levels in an elderly and chronic disease population, such as coronary heart disease (CHD). The aim of this study was to assess the agreement between physical activity classifications of 'high', 'medium', or 'low' as measured on the HSE compared with physical activity classification derived from accelerometry data in older adults with CHD.

2. Materials and methods

Three of the researchers (AO, PD, and RL) attended an evening meeting of the York Coronary Support group and gave a short presentation on the purpose of the research. A stall was set up in the hall to distribute written information and an application form for return by post. Entry criterion for the study was the participant's report of having experienced an acute cardiac event at any time in the past. The exclusion criterion was the self-report of any changes in the frequency, duration or intensity of any bodily symptom. Those who consented to take part in the study and met the inclusion criterion were visited at home by AO who confirmed that there were no new symptoms before demonstrating how to use the accelerometer. In order to estimate habitual activity participants were asked to wear the accelerometer during waking hours for seven consecutive days, except when swimming or bathing, as differences between weekday and weekend activities in adults are frequently observed [8]. Furthermore, as inter-individual differences are the largest source of variance in daily physical activity levels, as measured by accelerometry, Matthews et al. [9] suggest that at least seven continuous days of accelerometer data be collected to give 80% reliability. In addition, participants were asked not to change their routines, especially with regards to their activity levels. Seven days later AO returned, administered the HSE activity module interview and collected the accelerometer. This ensured that the 7 days the accelerometer was worn occurred during the recall period of the HSE activity module interview.

2.1. Instruments

The HSE activity module interview consisted of four main sections that ask questions about the frequency of any heavy home activities, such as household repairs and building work, walks of 30 min or more and sport and exercise activities of 15 min or more undertaken in the preceding 4 weeks. Respondents were also asked to indicate if their usual walking pace is slow, average, fairly brisk or fast and whether sport and exercises left them breathless or sweaty. For sports and exercises respondents were shown a list of 10 common sport and exercise activities, e.g. cycling and swimming, and