General Hospital Psychiatry 49 (2017) 26–31

Contents lists available at ScienceDirect

General Hospital Psychiatry

journal homepage: www.elsevier.com/locate/genhospsych

Physical activity correlates in people with anxiety: Data from 46 low- and middle-income countries

Davy Vancampfort[a,b,*,1], Brendon Stubbs[c,d,1], Ai Koyanagi[e,f]

[a] KU Leuven Department of Rehabilitation Sciences, Leuven, Belgium
[b] University Psychiatric Centre KU Leuven, Kortenberg, Belgium
[c] Physiotherapy Department, South London and Maudsley NHS Foundation Trust, Denmark Hill, London, United Kingdom
[d] Health Service and Population Research Department, Institute of Psychiatry, Psychology and Neuroscience, King's College London, De Crespigny Park, London, United Kingdom
[e] Research and Development Unit, Parc Sanitari Sant Joan de Déu, Universitat de Barcelona, Fundació Sant Joan de Déu, Sant Boi de Llobregat, Barcelona, Spain
[f] Instituto de Salud Carlos III, Centro de Investigación Biomédica en Red de Salud Mental, CIBERSAM, Madrid, Spain

ARTICLE INFO

Keywords:
Anxiety
Physical activity
Mental health

ABSTRACT

Objective: There is a lack of nationally-representative data on the correlates of physical activity (PA) among people with anxiety symptoms. Thus, we investigated PA correlates among community-dwelling adults with anxiety symptoms in 46 low- and middle-income countries (LMICs) using predominantly nationally-representative data.

Method: Cross-sectional data from the World Health Survey were analysed. PA was assessed by the International Physical Activity Questionnaire (IPAQ) and participants were dichotomised into those that do (≥ 150 min moderate-vigorous PA) and do not (< 150 min) meet recommended PA weekly targets. Multivariable logistic regression was used to assess the correlates.

Results: The analysis included 24,850 people with anxiety symptoms (43.3 ± 16.6 years; 39.7% males). The prevalence of low PA was 33.1% (95%CI = 31.6%–34.6%). Older age [e.g., OR = 4.57 for age ≥ 65 vs. 18–24 years], not married/cohabiting (vs. married/cohabiting OR = 1.36), being in the richest quintile (vs. poorest OR = 1.41), unemployed (vs. employed OR = 2.18), inadequate vegetable consumption (vs. adequate OR = 1.66), and poor sleep/energy, worse cognition, pain/discomfort and mobility difficulties were all significant correlates of low PA.

Conclusions: PA is associated with a range of factors among people with anxiety symptoms. Future interventions might target the identified correlates in order to facilitate people with anxiety to be more physically active.

1. Introduction

There is an abundance of evidence that complying with the international recommendation of 150 min of moderate to vigorous physical activity per week has important physical and mental health benefits [1–5]. Understanding factors associated with the compliance of these physical activity recommendations is an important focus for public health [6]. A study involving 38 countries worldwide and including almost 185,000 individuals showed that people with anxiety are less likely than those without anxiety to meet physical activity guidelines [7]. Moreover, sedentary behaviour is associated with an increased risk of developing anxiety [8], and less sports participation is associated with greater symptom severity and increased odds of developing an anxiety disorder 2 years later [9]. Physical activity can also improve symptoms for those with anxiety. Specifically a recent meta-analysis demonstrated that exercise, a structured form of physical activity, significantly reduces anxiety symptoms in people with anxiety disorder (standard mean difference = −0.55; 95% CI -0.13 to −0.97 adjusted for publication bias), which is in the medium effect size range [10].

Given these important health benefits of physical activity, there is a need for research to investigate what factors influence physical activity participation in people with symptoms of anxiety or anxiety disorders. In contrast with studies in people with schizophrenia [11], bipolar disorder [12], depression [13], alcohol use disorders [14], and dementia [15], there are much less data on correlates of physical activity participation in people with anxiety. A recent review of physical activity correlates involving 1368 people with post-traumatic stress

* Corresponding author at: Tervuursevest 101, 3001 Leuven, Belgium.
E-mail address: davy.vancampfort@kuleuven.be (D. Vancampfort).
[1] Joint first authors.

http://dx.doi.org/10.1016/j.genhosppsych.2017.04.007
Received 6 February 2017; Received in revised form 19 April 2017; Accepted 21 April 2017

disorder [16] showed that the only correlate consistently associated with lower physical activity participation was the presence of hyperarousal. Next to this, a study in 102 Brazilian outpatients with a lifetime diagnosis of panic disorder demonstrated that somatic symptoms of anxiety were the only important predictors of low level of physical activity (odds ratio [OR] 2.81; 95% CI 1.00–7.90; $p = 0.050$) in a multivariate model [17]. Exploring physical activity correlates in people with symptoms of anxiety in low- and middle-income countries (LMICs) is important given the suboptimal treatment of anxiety [18], differences in knowledge regarding the benefits of physical activity [19], and different environmental factors [20] in LMICs. The lack of studies from LMICs also highlights the gap between where most correlation, research is done and where the largest public health impacts of physical inactivity are located [21]. Information on physical activity correlates for people with anxiety, and in particular in LMICs, could guide the design and delivery of targeted interventions in these countries. Thus, given the aforementioned gaps within the literature, we aimed to assess physical activity correlates among community-dwelling adults with symptoms of anxiety in 46 LMICs.

2. Methods

2.1. Settings and protocol

The World Health Survey (WHS) (2002–2004) is a cross-sectional study executed in 70 countries worldwide. Single-stage random sampling and stratified multi-stage random cluster sampling were conducted in 10 and 60 countries respectively. All individuals aged ≥ 18 years with a valid home address were eligible to participate. The use of Kish tables ensured that each member of the household had equal probability of being selected. The data were collected in all countries using the same set of questionnaires although some countries used a shorter version. The individual response rate ranged from 63% (Israel) to 99% (Philippines) [22]. Ethical approval was obtained from ethical boards at each study centre. Sampling weights were generated to adjust for non-response and the population distribution reported by the United Nations Statistical Division. All participants provided informed consent.

2.2. Anxiety

The question 'Overall in the past 30 days, how much of a problem did you have with worry or anxiety' was used to assess anxiety. This question had the following answer options: 'none', 'mild', 'moderate', 'severe', and 'extreme'. In accordance with previous WHS publications, those who answered 'severe' and 'extreme' were considered to have anxiety [23–25].

2.3. Physical activity

Items from the International Physical Activity Questionnaire [26] were used to categorize physical activity. Specifically, participants were asked how many days over the past week on average they engaged in moderate physical activity and in vigorous physical activity. Secondly, participants were asked for how many minutes on average, they engage in physical activity at a moderate and vigorous level. The total amount of moderate to vigorous physical activity over the last week was calculated and those scoring ≥ 150 min were classified as meeting the recommended guidelines (coded 0), and those scoring < 150 min (low physical activity) were classified as not meeting the recommended guidelines (coded 1).

2.4. Sociodemographic variables

These included information on gender, age (18–24, 25–34, 35–44, 45–54, 55–64, ≥ 65 years), marital status [Married/cohabiting or other (never married/separated/divorced/widowed)], highest education attained (at least secondary completed or not), wealth quintiles, employment status (unemployed or not), and setting (rural or urban). Principal component analysis based on 15–20 assets was performed to establish country-wise wealth quintiles. Employment status was assessed with the question 'What is your current job?'. Those who answered 'not working for pay' were considered to be unemployed.

2.5. Health behaviours

2.5.1. Smoking

Current smoking was assessed with the question 'Do you currently smoke any tobacco products such as cigarettes, cigars, or pipes?' The answer options to this question were 'daily', 'yes, but not daily', or 'no, not at all'. Current smokers were defined as those who answered 'daily' or 'yes, but not daily'.

2.5.2. Diet

Two separate questions for fruits and vegetables were used to assess the amount of servings the participant eats on a typical day. The answer to these questions were dichotomized as < 5 or ≥ 5 servings/day following WHO/FAO recommendations [27].

2.5.3. Alcohol consumption

The question 'Have you ever consumed a drink that contains alcohol (such as beer, wine, etc)?' with 'yes' and 'no' answer options was used to identify lifetime abstainers. Those who replied 'yes' were,then prompted to the next question on the amount of standard drinks of any alcoholic beverage the respondent had on each day of the past 7 days. The number of days in the past week in which 4 (female) or 5 (male) drinks were consumed was calculated [28], and a total of 1–2 and ≥ 3 days in the past 7 days were considered infrequent and frequent heavy drinking respectively. All other individuals, with the exception of lifetime abstainers, were considered to be non-heavy drinkers.

2.5.4. Mental health variables

Depression was based on the DSM-IV algorithm and used information on duration and persistence of depressive symptoms in the past 12 months [29,30]. Details for the variables on sleep/energy and cognition are provided below (section on health status).

2.5.5. Physical health variables

Having extreme difficulty in seeing and recognizing a person that the participant knows across the road (i.e., from a distance about 20 m) [31] was used as the definition of visual impairment. A previous study showed that this condition likely corresponds to World Health Organization definitions of visual impairment [31]. The presence of hearing problems was based on interviewer's observation of this condition at the conclusion of the survey. Arthritis, asthma, and diabetes were based on self-reported lifetime diagnosis. For angina, in addition to a self-reported diagnosis, a symptom-based diagnosis based on the Rose questionnaire was also used [32]. Details on the variables on pain/discomfort and mobility difficulty are provided in the section below (health status).

2.5.6. Health status variables

Eight questions pertaining to four domains (i.e., sleep/energy, cognition, pain/discomfort, mobility) were used to assess health status. These domains are comparable to those often used in health-related quality of life outcome measures such as the Short Form-12 (SF-12) [33], the Health Utilities Index Mark-3 (HUI) [34], and the EUROQOL-5D [35]. Each domain consists of two questions on past-30 day health status. The actual questions can be found in eTable 1 (Appendix). The answer option for each question was based on a five-point scale ranging from 'none' to 'extreme/cannot do'. For each separate domain, we used