



Habitual physical activity levels predict treatment outcomes in depressed adults: A prospective cohort study



Mats Hallgren^{a,*}, Olivia Aya Nakitanda^a, Örjan Ekblom^d, Matthew P. Herring^{b,c}, Neville Owen^e, David Dunstan^{f,g}, Björg Helgadóttir^a, Yvonne Forsell^a

^a Division of Epidemiology and Public Health Intervention Research (EPHIR), Department of Public Health Sciences, Karolinska Institutet, Solna 171 77, Sweden

^b Department of Physical Education and Sport Sciences, University of Limerick, Ireland

^c Health Research Institute (HRI), University of Limerick, Ireland

^d The Swedish School of Sport and Health Sciences, Box 5626, Stockholm 114 86, Sweden

^e Behavioural Epidemiology Laboratory, Baker IDI Heart and Diabetes Institute, Melbourne, Australia

^f Physical Activity Laboratory, Baker IDI Heart and Diabetes Institute, Melbourne, Australia

^g Mary MacKillop Institute for Health Research, Australian Catholic University, Melbourne, Australia

ARTICLE INFO

Article history:

Received 17 December 2015

Received in revised form 18 March 2016

Accepted 26 March 2016

Available online xxxx

Keywords:

Physical activity

Exercise

Depression

Treatment

Response

ABSTRACT

Objective. Exercise is an efficacious stand-alone therapy for mild-to-moderate depression, but little is known about the influence of physical activity levels on responses to depression treatment. This study aimed to prospectively assess the association between self-reported habitual physical activity levels and depression severity following a 12-week intervention.

Method. 629 adults (75% women; aged 18–71 years) with mild-to-moderate depression were recruited from primary care centres across Sweden and treated for 12 weeks. The interventions included internet-based cognitive behavioural therapy (ICBT) and ‘usual care’ (CBT or supportive counselling). One third of all participants were taking anti-depressant medication. The primary outcome was the change in depression severity assessed using the Montgomery–Åsberg Depression Rating Scale (MADRS). Habitual physical activity levels were self-rated and based on the estimated frequency, duration and intensity of total physical activity, including planned exercise, ‘during a typical week’. Prospective associations were explored using linear regression models (percentage change) with 95% confidence intervals (CI’s).

Results. Following adjustment for relevant covariates, high levels of habitual physical activity were associated with larger relative reductions in depression severity compared to low physical activity ($\beta = -9.19$, 95% CI = $-18.46, -0.09$, $p = 0.052$) and moderate physical activity ($\beta = -10.81$, 95% CI = $-21.09, -0.53$, $p < 0.05$), respectively.

Conclusion. Adults who routinely engage in high levels of physical activity respond more favourably to CBT-focused depression treatments than adults who engage in low-to-moderate levels of activity. The optimal level of physical activity associated with reductions in depression severity corresponds to consensus recommendations for maximizing general health. One limitation is the use of self-reported physical activity data.

© 2016 Elsevier Inc. All rights reserved.

1. Introduction

Depression is a debilitating illness that tends to be recurrent. Evidence-based treatment continues to grow, but successful treatment and maintenance of treatment response remains limited (Forsell, 2006). Thus, there is a continued need for research into behavioural and biological factors that predict successful treatment response in order to facilitate the development of efficacious treatment strategies.

To date, the effects of physical activity on depression have largely been explored using intervention studies, where changes in depression

severity have been assessed before and after a prescribed exercise intervention (Dunn et al., 2005). Three Cochrane reviews have each concluded that exercise is moderately more effective than a control intervention for reducing symptoms of depression (standardized mean difference from 35 trials = -0.62) (Cooney et al., 2013; Mead et al., 2008; Rimer et al., 2012). Exercise, however, is only one subtype of physical activity, involving planned, repetitive movement, purposefully engaged in to improve fitness and/or health (Caspersen et al., 1985). Physical activity has a broader definition, and includes all forms of daily movement that result in energy expenditure above resting levels (Caspersen et al., 1985). Importantly, these non-exercise activities contribute a much larger proportion to overall energy expenditure than planned exercise does on a daily basis (Levine, 2015). Indeed, the need to promote both

* Corresponding author.

E-mail address: Mats.hallgren@ki.se (M. Hallgren).

exercise and physical activity in this population is high due to the heightened physical comorbidities associated with the disorder, including metabolic syndrome (Vancampfort et al., 2015a) and diabetes (Vancampfort et al., 2015b), which ultimately increase the risk of premature mortality (Walker et al., 2015).

Previous longitudinal research has examined associations between physical activity and depression primarily in non-clinical samples (Roshanaei-Moghaddam et al., 2009; Teychenne et al., 2008; Gudmundsson et al., 2015; Lindwall et al., 2013). Indeed, a systematic review of 30 prospective studies by Mammen and Faulkner (2013) reported that baseline physical activity was negatively associated with the risk of subsequent depression in 25 out of 30 non-clinical studies (Mammen and Faulkner, 2013). The authors also concluded that any level of physical activity might be protective, with even light activities (e.g. walking) associated with improvement. This review provides useful information about the relationship between physical activity and the onset of depressive illness in otherwise healthy individuals. However, an equally important question – one that has not yet been addressed – is whether different levels of habitual physical activity influence the response to depression treatment.

We examined longitudinal relationships of self-reported habitual physical activity levels with depression severity in adults following a 12-week intervention involving either internet-based cognitive behavioural therapy (ICBT), or 'usual care' administered by a physician (CBT with a psychologist, or supportive counselling). We also investigated the influence of meeting consensus physical activity recommendations for general health; and, possible gender-related effects.

2. Method

2.1. Study design

Data originate from the 'Regassa' study, a randomized controlled trial (RCT) conducted in primary care centres across Sweden to assess the long-term effectiveness of three 12-week interventions for mild-to-moderate depression in adults: exercise, internet-based cognitive behavioural therapy (ICBT) and treatment as usual. The RCT methodology and interim findings were published previously (Hallgren et al., 2015). The present study includes data from the ICBT and usual care participants only and uses a prospective design with two assessment points: baseline and 3-month follow-up (post-treatment). The ethical review board at the Karolinska Institutet approved the study (Dnr 2010/1779-31/4). All patients provided written informed consent prior to participation. The trial protocol is registered with German Clinical Trial Register (DRKS study ID: DRKS00008745).

2.2. Patient recruitment

Patients were recruited via primary health care facilities located in six county councils in Sweden (Stockholm, Skåne, Västra Götaland, Kronoberg, Blekinge and Västmanland). The selection of regions was deliberate and helped ensure that the sample included participants from different locations varying in population size and composition. Together, these counties represent 60% of the Swedish population. Patients aged ≥ 18 years who scored >9 on the Patient Health Questionnaire (PHQ-9) were invited to participate in the trial. Recruitment began in February 2011 and the last participants finished the 12-week treatment in March 2013. Exclusion criteria were: a severe somatic illness, a primary alcohol or drug use disorder or a psychiatric diagnosis that required specialist treatment (e.g. psychosis). Potentially eligible patients were referred by their primary health care provider. Upon referral, trained research assistants obtained written informed consent, formally assessed trial eligibility by conducting a standardized diagnostic interview (described below), and administered outcome questionnaires. This assessment constituted the baseline evaluation. The randomization and blinding procedure is described elsewhere (Hallgren et al., 2015).

2.3. Follow-up assessment

All patients were contacted by a research assistant at post-treatment to attend a follow-up interview at their local health care clinic. During the interviews, participants completed the Montgomery-Åsberg Depression Rating Scale (MADRS-clinician rated) and repeated the baseline questionnaires (described below). Those who did not return a completed follow-up questionnaire were contacted on at least two separate occasions with a reminder. 'Hard to reach' participants were contacted by phone after work hours and on weekends where necessary.

3. Measures

3.1. Screening

The Patient Health Questionnaire (PHQ-9) assessed the presence of depression during the past two weeks (Kroenke et al., 2001). The Mini International Neuropsychiatric Interview (MINI) (Sheehan et al., 1998) assessed psychiatric disorders based on the DSM-IV.

3.2. Primary outcome—depression severity

Depression severity was assessed using the Montgomery-Åsberg Depression Rating Scale (MADRS, clinician rated) (Montgomery and Åsberg, 1979). Ten symptoms are rated: apparent sadness, reported sadness, inner tension, reduced sleep, reduced appetite, concentration difficulties, lassitude, inability to feel, pessimistic and suicidal thoughts. Total scores range between 0 and 60. Snaith et al. (1986) propose a severity categorisation based on the following ranges: 35–60 = severe, 20–34 = moderate, 7–19 = mild, and 0–6 = remission.

3.3. Exposure variable—self-reported habitual physical activity

We adopted a questionnaire and score conversion method to assess habitual physical activity previously used in a nationwide lifestyle study in Sweden (Ekblom-Bak et al., 2011). The questionnaire was developed by the Swedish School of Sport and Health Science (GIH: Gymnastik och Idrottshögskolan). At baseline, participants were asked to estimate their total frequency and duration of physical activity on a 'typical week' across three categories: 'low' intensity (slow walking or equivalent); 'moderate' intensity (brisk walking or equivalent), and 'high' intensity (any movement that induces sweating and breathlessness), for both summer and winter. Five frequency–duration response options were coded for the first two intensity levels: never, once per week (≥ 20 min), a few times per week (≥ 1 h), every day (≥ 2 h), and every day (≥ 4 h). The high intensity category included six frequency–duration options: never, once per week (≥ 20 min), twice per week (1–2 h), a few times per week (3–4 h), a few times per week (5–10 h), and every day (10 h or more). To quantify the estimated level of physical activity (that is, the combined frequency, duration and intensity), each response alternative was converted to a total physical activity score using the following point conversion; for low activity (0, 0.66, 2, 4, and 8 points); moderate activity (0, 2, 6, 12, and 24 points); and high activity (0, 4, 16, 40, 60, and 120 points). The final physical activity score was then obtained by summing the activity scores for each frequency–duration–intensity, averaged for summer and winter. Total scores range from 0 (no activity) to 152 (the highest activity level possible). A score of ≥ 21 is equivalent to the minimum physical activity level recommended for general health by the American College of Sports Medicine (ACSM) and the World Health Organization (Haskell et al., 2007; WHO, 2010). Participants who scored <21 were considered to be 'physically inactive'. Scores ≥ 42 are equivalent to the activity level recommended by the ACSM and WHO to achieve additional health benefits in adults (WHO, 2010), and were categorized as 'highly active'. Score ranges for inactivity, moderate activity and high physical activity were 0–20, 21–41, and

Download English Version:

<https://daneshyari.com/en/article/6046264>

Download Persian Version:

<https://daneshyari.com/article/6046264>

[Daneshyari.com](https://daneshyari.com)