Psychiatry Research 241 (2016) 47–54

Contents lists available at ScienceDirect

Psychiatry Research

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

Exercise improves physical and psychological quality of life in people with depression: A meta-analysis including the evaluation of control group response

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ARTICLE INFO

Article history:
Received 1 December 2015
Received in revised form
29 February 2016
Accepted 17 April 2016
Available online 26 April 2016

Keywords:
Depression
Exercise
Quality of life
Meta-analysis

ABSTRACT

Exercise has established efficacy as an antidepressant in people with depression. However, few meta-analyses have assessed the effects of exercise across different domains of Quality of Life (QoL) in people with depression. Furthermore, there has been no previous meta-analysis of control group response in relation to QoL in exercise trials for depression. Randomized Clinical Trials(RCTs) were initially identified from a Cochrane review, and those including QoL assessments were included in the analysis. Search of major electronic databases were conducted to identify RCTs that compared the exercise effects on QoL versus control condition in people with depression. A random effects meta-analysis was employed to evaluate the Standardized Mean Difference (SMD). Six RCTs were included. Exercise significantly improved physical and psychological domains and overall QoL. Effects on social relationship and environment domains were not significant. No significant control group response was found for any domain or overall QoL. Exercise can be considered as a therapeutic strategy to improve physical and psychological domains and overall QoL of people with depression, with no effect evident across the social and environmental domains. The lack of improvement among control groups reinforces the role of exercise as a treatment for depression with benefits to QoL.

Contents

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http://dx.doi.org/10.1016/j.psychres.2016.04.054
0165-1781/

1. Introduction

Depression is a chronic condition transcending geography, age, ethnic group and sex. In 2010, depressive disorders were the second leading cause of years lived with disabilities, in which major depressive disorder (MDD) accounted for 8.2% and dysthymia for 1.4% of the total years lived with disability in 2010 across all conditions (Ferrari et al., 2013). Depression, even in subsyndromal presentations, often has a marked impact on an individual's mental and physical health leading to considerable impairment in several domains of Quality of Life (QoL), in special at physical, psychological and social QoL (Berlim et al., 2004; Fleck et al., 2005; da Silva Lima and de Almeida Fleck, 2007). QoL is a broad and multifaceted, construct, defined as "an individual's perception of their position in life in the context of the culture and value systems in which they live, and in relation to their goals, expectations, standards and concerns" (The WHOQOL Group, 1995).

Given the association between depression and poor QoL, treatment strategies that address depression are likely to have subsequent implications for QoL (da Rocha et al., 2009). While pharmacological antidepressants are the mainstay of treatment for depression, less than 50% of patients taking antidepressants in an adequate dose experience a meaningful clinical response (Sinyor et al., 2010). Also, some patients stills refer an impairment at physical, psychological and social domains of QoL after full remission of symptoms (Angermeyer et al., 2002; Ishak et al., 2011). Therefore, additional strategies are needed to address impaired QoL in people with depression.

Previous studies have found that exercise (the structured subset of physical activity) can improve physical and psychological domains of QoL in people with severe mental illness (Rosenbaum et al., 2014). In the case of people with MDD, exercise may improve the physical and psychological domains of QoL, showing no significant effects, however, on the social relationships or environmental domains (Schuch et al., 2011b). Also, a previous meta-analysis conducted by the Cochrane collaboration (Cooney et al., 2013), investigated the effects of exercise on physical, psychological, mental, social and environmental QoL domains, yet relied only on the post-intervention outcomes, and not the mean change between the groups, suggesting that exercise improves only the physical domain, with no effect on other domains. The estimation of the effect size based on the mean change, instead the post-intervention outcome only, allow a more accurate assessment of the effect of the intervention since it accounts for any potential differences between the groups at baseline. Therefore, information on the magnitude of the effect of exercise on QoL in people with depression is missing.

Recent research (Stubbs et al., 2015) has demonstrated that control group participants in exercise RCTs experience large improvements in depressive symptoms, making it more challenging for exercise trials to demonstrate the benefits of exercise. However, it remains unclear if participants with depression in exercise RCTs experience control group improvements in QoL domains.

Given the aforementioned, the present review has the following aims: (1) to evaluate the effects of exercise on QoL in people with depression and (2) to evaluate if a control group response occurs (treatment as usual/wait-list) in relation to QoL domains.

2. Methods

This systematic review was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) statement (Moher et al., 2009) and the Meta-analysis Of Observational Studies in Epidemiology (MOOSE) guidelines (Stroup et al., 2000).

2.1. Inclusion criteria

Included in this meta-analysis were RCTs that: (1) investigated the effects of exercise (defined by Caspersen et al. (1985) as a planned, structured, repetitive and purposive physical activity, in the sense that improvement or maintenance of one or more components of physical fitness is an objective) in the active arm of the trial, on a QoL domain in adults with a primary diagnosis of major depressive disorder (MDD) according to established criteria (e.g., Diagnostic and Statistical Manual of Mental Disorders (DSM) (American Psychiatric Association, 1994, 2013) or International Classification of Diseases (ICD) (World Health Organization, 1993) or those with increased depressive symptoms determined by a validated screening measure (e.g., Hamilton Rating Scale for Depression, (HAM-D), (Hamilton, 1967), Beck Depression Inventory (BDI) (Beck et al., 1961), Geriatric Depression Scale (GDS) (Yesavage, 1988) or other) according to the author's criteria. We also included studies meeting our criteria that included some participants with other related diagnoses, such as dysthymia. This decision was based on the fact that dysthymia is categorized as a chronic and milder disorder within the depressive disorder spectrum (American Psychiatric Association, 2013). (2) Evaluated QoL using a validated instrument (e.g. WHOQOL, SF-36 or other) (Ware and Sherbourne, 1992; Group, 1998). (3) Included a non-active control group such as usual-care/usual-treatment, wait-list control conditions, placebo pills or other social activities.